Jan 11

10. Describe two different ways a systems analyst can gather information about the existing system. [4]

Interviews – interviews with managers normally reveal how the departments work and any current problems. Normally will say how they want the new system to work and what information they want. Operational staff can supply fine detail on how the current system works. Very time consuming as a lot of people have got to be contacted. Needs skilled interviewers to get the correct information out of people.

Observation ( inspect/ look at / shadow) – sit and watch how somebody does their job at present so that one can understand what they do, how and what information flows, the processes that are performed and any time delays, crashes or interruptions. Can be time consuming and span several weeks before you can see everything.

Inspection of records – studying the paper based information produced by the company at the moment. Allows one to see what information is currently held and the way it is communicated between different departments or customers and the company. Documents include organisational charts, manuals, reports, minutes of meetings and all documentation.

Questionnaires – ideal way to collect information as you do not have to waste time talking to people and can stick to the important points without digressing. Economical to reproduce and distribute. Problem is that people forget to fill them in and hence an incomplete picture. Response rate from posted surveys is often poor. Respondents may misunderstand some of the questions. Cost involved in hiring people to ask others to fill in questionnaires and collect results can be significant.

11. Describe the purpose of the feasibility report and what should be included in the report. [4]

A feasibility report: is the summary of an initial investigation to look at the likelihood of being able to create a new system with stated aims and objectives at reasonable cost.

The document is used by senior managers to assess whether it is worth continuing with the project.

Should include e.g.

* User requirements should be identified (aims and objectives).
* Definition of the scope of the present system (outline current system).
* Major data processing functions and processes (data flow). • Identification of problems with the current system.
* Cost benefit analysis of the new system / Consider cost implications in terms of human resources, consultancy fees, training requirements, hardware upgrading, payment to third party providers, licences and fees, etc
* Details of existing hardware and software. / Consider technical issues including: do they have equipment to implement; do they have in-house technical expertise; are there compatibility issues with existing systems
* Consider operational issues including: impact on day to day work; what training will be required; will re-structuring be necessary; other logistic and practical issues
* Potential improvements / benefits on the new system
* Conclusions /Is it worth proceeding.

June 11

A system analyst has just designed a new ICT system for an organisation.

14. Discuss two of the different changeover strategies that the organisation could use for conversion to the new system. [6] After the new system is working, it will have to be maintained.

Direct changeover – stop using the old system one day and start using the new system the next day (1). Element of risk particularly if the hardware and software are cutting edge (1). If the system fails then it can be disastrous to the business (1). Requires fewer resources (people, money, equipment) and is simple, provided nothing goes wrong (1).

Parallel changeover – Old ICT system is run alongside the new ICT system for a period of time until all the people involved with the new system are happy it is working correctly (1). Used to minimise the risk in introducing a new ICT system (1). Can compare results and be sure it is working properly (1) Disadvantages: lots of unnecessary work (as the work is being done twice) and is therefore expensive in people’s time (1). It also adds to the amount of planning needed for the implementation (1).

Phased conversion – a module at a time can be converted to the new system in phases until the whole system is transferred (1). Advantage that IT staff can deal with problems caused by a module before moving on to new modules (1). Disadvantage: is only suitable for systems consisting of separate modules (1).

Pilot conversion – this method is ideal for large organisations that have lots of locations or branches where the new system can be used by one branch and then transferred to other branches over time (1). Advantage: implementation is on a much smaller and manageable scale

15. Describe two different methods of system maintenance, illustrating each method with an appropriate distinct example. [6]

Perfective maintenance (1) – improving the performance of the software (1). Examples: Configuring the network management software to improve performance such as improving access times to data, speed at which reports are produced, etc. (1). Software may need to be modified to improve the user interface upon feedback from users who are finding it more difficult to use than it needs to be (1). Developing on-line tutorials and more help screens to help new staff learn the software (1). The software provider provides upgrades which will improve the performance of the software (1).

Corrective maintenance (1) – bugs in the software which were not discovered during testing may need correcting (1). Example: A piece of software may crash when being used with another piece of software (1). A piece of software may crash when used with a particular item of hardware (1). Software may present a security risk which needs correcting (1). Problems with reports not being printed out properly (1)

Adaptive maintenance (1) – software may need to be changed owing to the changing needs of the business or organisation (1). Example: Software may need altering so that it is more flexible in supplying the managers with information which was not envisaged at the time of development (1). Changes to values such as the percentage rate of VAT or changes to income tax rates will result in changes to the software (1). The organisation expands so the software needs to be altered so it is able to cope with an increased number of users (1). Adapting the software to work with newly developed operating systems software or new hardware (1). A new virus threat/hacker threat means that the software will need to be adapted to protect against this (1)

Jan 12

13. During the design phase of the system development life cycle many issues need to be considered. Other than design of hardware, describe in detail four features or processes which should be considered when designing a new computer system. [8]

* Creating the design specification for software
* Design of input methods. This will include the design of forms (data capture / on-screen / switchboard) used to input data
* Design of processes – queries, macros, calculations
* Design of output - reports / specialist documents such as invoices, payslips, etc.
* Design of data and file structures that will allow a useable system to be built. This will include the design of fields and table structure for a relational database.
* Design of information systems that will allow users to get relevant information out of the system, which will allow them to make appropriate decisions. (DFD’s / ERD’s)
* Design of networks and transmission issues such as topology, type of cable, protocols, etc.
* Personnel issues. Staff will need training and departments reorganising, skill level of the user
* Security processes and procedures i.e. registering with the Information Commissioner, where data is stored, access levels, design of backup procedures, etc.
* Design of House style/ethos

June 12

13. A systems analyst is called in to give advice after a new ICT system is implemented. Describe, using examples, four maintenance issues that could have arisen. [8]

Identification of errors - bugs because the system has not been fully tested

* Security issues - being targeted by viruses or hackers
* Changes in the business environment - downsizing/expansion changing role of the company
* Changes in legislation - VAT rates
* Efficiency/dissatisfaction with software - not doing what is required
* Efficiency/dissatisfaction with hardware - system processing too slowly
* Upgrading the system - new technology (hardware or software) available

Jan 13

14. When developing a new computer system, a systems analyst will have to investigate to produce the feasibility report. Describe what will be investigated in order to produce this report. [5]

* User requirements should be identified (aims and objectives).
* Definition of the scope of the present system (outline current system).
* Organisational chart o Define sources of data
* Methods of data capture
* Major data processing functions and processes (data flow). o High level (contextual view) data flow
* Identification of problems with the current system.
* Cost benefit analysis of the new system / Consider cost implications in terms of human resources, consultancy fees, training requirements, hardware upgrading, payment to third party providers, licences and fees, etc
* Details of existing hardware and software. / Consider technical issues including: do they have equipment to implement; do they have in-house technical expertise; are there compatibility issues with existing systems
* Consider operational issues including: impact on day to day work; what training will be required; will re-structuring be necessary; security; other logistic and practical issues
* Potential improvements / benefits on the new system
* Conclusions / Is it worth proceeding

15. Once a new computer system has been designed, it has to be implemented. Discuss two different changeover strategies that an organisation could use for conversion to the new system. [6]

Direct changeover – stop using the old system one day and start using the new system the next day (1). Element of risk particularly if the hardware and software are cutting edge (1). If the system fails then it can be disastrous to the business (1). Requires fewer resources (people, money, equipment) and is simple, provided nothing goes wrong (1). Need more than easiest/quickest and not just cheapest

Parallel changeover – Old ICT system is run alongside the new ICT system for a period of time until all the people involved with the new system are happy it is working correctly (1). Used to minimise the risk in introducing a new ICT system (1). Can compare results and be sure it is working properly (1) Disadvantages: lots of unnecessary work (as the work is being done twice) and is therefore expensive in people’s time (1). It also adds to the amount of planning needed for the implementation (1).

Phased conversion – a module at a time can be converted to the new system in phases until the whole system is transferred (1). Advantage that IT staff can deal with problems caused by a module before moving on to new modules (1). Disadvantage: is only suitable for systems consisting of separate modules (1).

Pilot conversion – this method is ideal for large organisations that have lots of locations or branches where the new system can be used by one branch and then transferred to other branches over time (1). Advantage: implementation is on a much smaller and manageable scale (1). Disadvantage is that is takes longer to implement the system in all the branches (1).

16. Once the new computer system is up and running, it has to be maintained. Describe two different system maintenance methods and illustrate each method with appropriate examples. [6]

Perfective maintenance (1) – improving the performance of the software (1). Examples: Configuring the network management software to improve performance such as improving access times to data, speed at which reports are produced, etc. (1). Software may need to be modified to improve the user interface upon feedback from users who are finding it more difficult to use than it needs to be (1). Developing on-line tutorials and more help screens to help new staff learn the software (1). The software provider provides upgrades which will improve the performance of the software (1).

Corrective maintenance (1) – bugs in the software which were not discovered during testing may need correcting (1). Example: A piece of software may crash when being used with another piece of software (1). A piece of software may crash when used with a particular item of hardware (1). Software may present a security risk which needs correcting (1). Problems with reports not being printed out properly (1)

Adaptive maintenance (1) – software may need to be changed owing to the changing needs of the business or organisation (1). Example: Software may need altering so that it is more flexible in supplying the managers with information which was not envisaged at the time of development (1). Changes to values such as the percentage rate of VAT or changes to income tax rates will result in changes to the software (1). The organisation expands so the software needs to be altered so it is able to cope with an increased number of users (1). Adapting the software to work with newly developed operating systems software or new hardware (1). A new virus threat/hacker threat means that the software will need to be adapted to protect against this (1)

June 13

13. A systems analyst is investigating a company with regard to creating a new ICT system. Describe three methods she would use to gather information about the existing system. [9]

Interviews with managers / users / workers / customers (not ‘people’) about the current system (1)

* Interviews with managers normally reveal how the departments works now
* Any current problems/issues.
* Normally will say how they want the new system to work and what information they want. \*
* Operational staff can supply fine detail on how the current system works.
* Very time consuming as a lot of people have got to be contacted.
* Needs skilled interviewers to get the correct information out of people.

Observation ( inspect/ look at / shadow employee/system) of how the current system operates (1)

* So that one can understand what they do,
* Detail of flow of information
* Any time delays, crashes or interruptions /problems/issues with the current system
* Can be time consuming and span several weeks before you can see everything.

Inspection of records studying the paper based information / electronic logs (produced by the company at the moment) (1)

* Allows one to see what information is currently held
* The way it is communicated between different departments or customers and the company.
* Documents include organisational charts, manuals, reports, minutes of meetings and all documentation.
* Looking for faults in procedures

Questionnaires which are given out to managers / users / workers / customers to gather information on the company (1)

* Ideal way to collect information as you do not have to waste time talking to people and can stick to the important points without digressing.
* State how they want the new system to work and what information they want.\*
* Audit of employee skills – future training needs.
* Economical to reproduce and distribute.
* Problem is that people forget to fill them in and hence an incomplete picture.
* Response rate from posted surveys is often poor.
* Respondents may misunderstand some of the questions/ not be truthful.
* Cost involved in hiring people to ask others to fill in questionnaires and collect results can be significant.
* Flexibility of when the recipient can answer the questions

January 14

4. A system analyst has a choice of direct changeover or parallel running when updating a computer system. Describe these two different potential changeover strategies and describe the advantages and disadvantages of each of the different strategies. [6]

Direct changeover – stop using the old system one day and start using the new system the next day (1). Element of risk particularly if the hardware and software are cutting edge (1). If the system fails then it can be disastrous to the business (1). Requires fewer resources (people, money, equipment) and is simple, provided nothing goes wrong (1). Need more than easiest/quickest and not just cheapest

Parallel changeover – Old ICT system is run alongside the new ICT system for a period of time until all the people involved with the new system are happy it is working correctly (1). Used to minimise the risk in introducing a new ICT system (1). Can compare results and be sure it is working properly (1) Disadvantages: lots of unnecessary work (as the work is being done twice) and is therefore expensive in people’s time/work/equipment.