INFS 328
Systems Analysis and Design

Session 4 – Systems Planning

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2017

Session Overview

Systems planning begins the process of analysing and designing an information system. In introducing a computer-based system in a big factory or restructuring a corporation, the following issues constitute the planning phase which also constitutes the topics of this sections. The Section is therefore divided into six topics.

Session Outline

The key topics to be covered in the session are as follows:

- System Request
- Feasibility Study
- Operational Feasibility and Technical Feasibility
- Schedule and Economic Feasibility
- Feasibility Report
- Preliminary Investigation

Topic One

SYSTEM REQUEST

System Request

System Request

The system request stage of the system planning phase is the beginning of the systems analysis and design process. It is a very interesting stage involving formal request to an IT department responsible for system design. This act you can conveniently call system request.

The system request describes problems or desired changes in an information system or a business process. This can come from a top management, a planning team, a department head or IT department itself.

System Request

Systems Request Form

Date:.....Department.....

Submitted by:.....Location.....

Title:.....E-mail.....

Request Form	**Urgency**
[ ] correction of system error	[ ] immediate attention required
[ ] system enhancement	[ ] handle in normal priority sequence
[ ] new system	[ ] defer until new system is required

Description of Requested Services

To be Completed by the IT Department

[ ] Approved

[ ] Modified

[ ] Rejected

Assigned to IT contact person

User

Date Action

System Request

After designing your system request form, a systems analyst or IT manager examines it to determine what IT resources (staff and time) are required. This evaluation of the systems request information involves getting priorities if there are many requests requiring services. Questions relevant for the evaluation are - Which of the projects should the company pursue? What criteria should be applied? How should priorities be determined?

To answer these questions, the systems analysts must assess the feasibility of each system request form.

Questions

Individual Assignment:

Develop a sample systems request form

Forum Question

Discuss the importance of the system request process to the development of information systems

Topic Two

FEASIBILITY STUDY

Feasibility Study

Feasibility Analysis

You might have heard about feasibility study in other courses. The principles are similar. Feasibility is a measurement of how beneficial or practical an information system will be to an organisation. This is done through feasibility analysis which is the process by which feasibility is useful throughout the life cycle. Initially, a system request must pass several tests and this is due to see whether it is worth while to proceed with the system development project or not.

Feasibility Study

Feasibility Analysis

The scope and complexity of an apparently feasible project can change after the initial problems and opportunities are fully analysed or after the system has been designed. Thus a project that is feasible at one point may become infeasible later. Feasibility analysis therefore can be due at any of the phase of the life cycle.

Feasibility Study

Feasibility Analysis

The basic question that should be answered is that do the problems (or opportunist) warrant cost of a detailed study and analysis of a current information system? Realistically, feasibility can not be accurately measured with the problems (and opportunities) and requirements are better understood. After estimating benefits of solving the problems and opportunities, analysis estimate costs of developing the expected system.

Most analysts agree that there are four categories of feasibility tests. These are technical feasibility, economic feasibility, operational and schedule feasibility. These are explained in the next sections.

Questions

Individual Assignment:

Identify the points in a system life cycle when feasibility analysis should be done

Forum Question

Discuss some benefits of carrying out a feasibility analysis

Topic Three

OPERATIONAL AND TECHNICAL FEASIBILITY

Operational and Technical Feasibility

Introduction

This section explains two of the four tests for feasibility- operational and technical feasibilities.

Operational Feasibility

Operational feasibility is a measure of how well the system solution will work in an organisation. It is also a measure of how people feel about the system project.

Operational and Technical Feasibility

Operational Feasibility

Operational feasibility criteria measure the urgency of the problem or the acceptability of a solution. How do you measure operational feasibility? There are two aspects of operational feasibility to be considered.

- Is the problem worth solving, or will the solution to the problem work?
- How do the end users and management feel about the problem (solution)?

Operational and Technical Feasibility

Operational Feasibility

PIECES is the end-user framework for identifying problems. It can be used as the basis for analysing the urgency of a problem of or the effectiveness of a solution. The following is a list of the questions that address these issues.

- **P** - performance – does the system provide adequate through put and response time?
- **I** - information – does the system provide end users and managers with timely, pertinent, accurate, and usefully formatted information?

Operational and Technical Feasibility

Operational Feasibility - PIECE

- **E** - economy – does the system offer adequate service level and capacity to reduce the costs of the business or increase the profits of the business?
- **C** - control – does the system offer adequate control to protect against fraud and embezzlement and to guarantee the accuracy and security of data and information
- **E** - efficiency – does the system make maximum use of available resources including people, time flow of forms, minimum processing delays and the like?
- **S** - services – does the system provide desirable and reliable service to those who need it? Is the system flexible and expandable?

Operational and Technical Feasibility

Operational Feasibility

Note: the term system, used throughout this discussion refers either to the existing system or a proposed system solution depending on which phase you are currently working in.

How do the end users and managers feel about the problem (solution)? It is important not only to evaluate whether a system can work but also to evaluate whether a system will work. A workable solution might fail because of end-user or management resistance

Operational and Technical Feasibility

Operational Feasibility

The following questions address this concern.

- Does management support the system?
- How do the end users feel about their role in the new system?
- What end users or managers may resist or not use the system? Can this problem be overcome? If so how?
- How will the working environment of the end users change? Can or will end users and management adapt to the change?

Essentially, these questions address the political acceptability of solving the problem or the solution. Now let me turn your attention to the other test.

Operational and Technical Feasibility

Technical Feasibility

Technical feasibility is a measure of the practicality of a specific technical solution and the availability of technical resources and expertise.

Today, very little is technically impossible. Consequently technical feasibility looks at what is practical and reasonable. Technical feasibility addresses three major issues

- Is the proposed technology or solution practical?
- Do we currently process the necessary technology?
- Do we posses the necessary technical expertise?

Operational and Technical Feasibility

Technical Feasibility

Is the proposed technology practical? You will realise that the technology for any defined solution is normally available. The question is whether that technology is mature enough to be easily applied to our problems. A mature technology has a larger costumer base for obtaining advice concerning problems and opportunities. Do we currently posses the necessary technology?

Operational and Technical Feasibility

Technical Feasibility

Assuming the solution's required technology is practical, you must ask yourself, is the technology available in our information systems steps in Ghana? Even if the technology is available, you must ask if you have the capacity. For instance, will the current printer be able to handle the new reports and forms required of a new system? If the answer to either of these questions in no, then you must ask yourself, can I get the technology? Then the alternative that requires the technology is not practical and technologically infeasible so consider another solution to the problem

Questions

Individual Assignment:

- Explain operational and technical feasibilities

- Choose any information system and identify the technology required to design such a system.

Forum Question

Discuss the benefits of Operational and Technical Feasibility.

Topic Four

SCHEDULE AND ECONOMIC FEASIBILITIES

Schedule and Economic Feasibility

Introduction

In the last section you studied technical and operational feasibilities as tests to evaluate a systems solution. In this section you will learn about two other tests; Schedule feasibility and Economic Feasibility. These will enable you to understand and be able to determine if a project is economically viable and if it can be accomplished on schedule.

Schedule and Economic Feasibility

Schedule Feasibility

Schedule feasibility is a measure of how reasonable the project time table is. Having the available technical expertise (see section 3), are the project deadlines reasonable? Some projects are initiated with specific deadlines. It is necessary to determine whether the deadlines are mandatory or desirable. For instance, a project to develop a system to meet new government reporting regulations may have a deadline that coincides with the project completion. Here the new reports must be initiated.

Schedule and Economic Feasibility

Schedule Feasibility

Penalties associated with missing such a deadline may make meeting it mandatory. If the deadlines are desirable rather than mandatory, the analyst can propose alternative schedules. It is preferable to deliver a properly functioning information system two months later than to deliver an error prone, useless information system on time. While missing deadlines can be problematic, developing inadequate systems can be disastrous. It's a choice between the lessons of two evils.

Schedule and Economic Feasibility

Economic Feasibility

Economic feasibility is a measure of the cost effectiveness of a project or solution. It deals with the costs and benefits of the information system. The bottom line in many prefects is economic feasibility. During the early phases of the project, economic feasibility analysis amounts to little more than judging whether the possible benefit of solving the problem are worth while.

Schedule and Economic Feasibility

Economic Feasibility

Costs are practically impossible to estimate at that stage because the end user's requirements and alternative technical solutions have not been identified, the analyst can weigh the costs and benefits of each alternative. This is called a cost—benefit analysis.

Let me quickly run through a single way of doing cost benefit analysis. The following are some of the costs and possible benefits as a result of implementing a new information system.

Economic Feasibility

Tangible Costs (TC)	Intangible Costs (IC)
Hardware or software	User resistance and fear
Implementation costs	Staff moral
Training	-
Maintenance and consumables	-
Tangible Benefits (TB)	**Intangible Benefits (IB)**
Increased sales	Improved decision making
Reduction in working hours	New working practices
Reduction in complaints	Better planning
Reduced maintenance	Better quality management data
Reduced stockholding	

Schedule and Economic Feasibility

Economic Feasibility

Tangible costs (TC) are added to intangible costs (IC). Total benefits are also made. If the costs outweigh the benefits that is TC+IC>TB+IB then economically it will not be worth pursuing the development at that stage. However, this decision is taken by combining the cost benefit analysis and the results of the other tests, thus, schedule, technical and operational feasibility before declaring a project feasible or infeasible.

Questions

Individual Assignment:

Choose an information system and list some of the possible benefits and costs to be incurred.

Forum Question

Discuss the benefits of undertaking schedule and economic feasibilities to the design of information systems

Topic Five

FEASIBILITY REPORT

Feasibility Report

Introduction

You have learnt about the four tests for feasibility and the results have to go into what is termed feasibility report which this section discusses. You should at the end be able to write a feasibility report and also put together details of the various feasibility tests

Feasibility Report

The Structure of a Feasibility Report

Major sections of the feasibility report is as follows:

- Executive summary: is made up of an introduction to the report, a summary of findings and recommendation made
- Description of the problem: this is a summary of the produce and functions of the existing system obtained from interviews, questionnaires and other documentation
- Solution objectives: this is statement of the objectives of a new or proposed system.

Feasibility Report

The Structure of a Feasibility Report

Major sections of the feasibility report is as follows:

- Constraint: this is a statement of restrictions on the development of the system
- Feasibility study results: this is where the results of the feasibility analysis are presented
- Development plans: this involves scope of development activities, detailed list of costs and activities, timetable of lasts and about the system development team.
- Potential solutions: description of all the possible solution the analysis has thought of at that juncture
- recommendations

Questions

Individual Assignment:

What are the sections of a feasibility report?

Forum Question

Discuss the importance of a feasibility report to systems development

Topic Six

PRELIMINARY INVESTIGATION

Preliminary Investigation

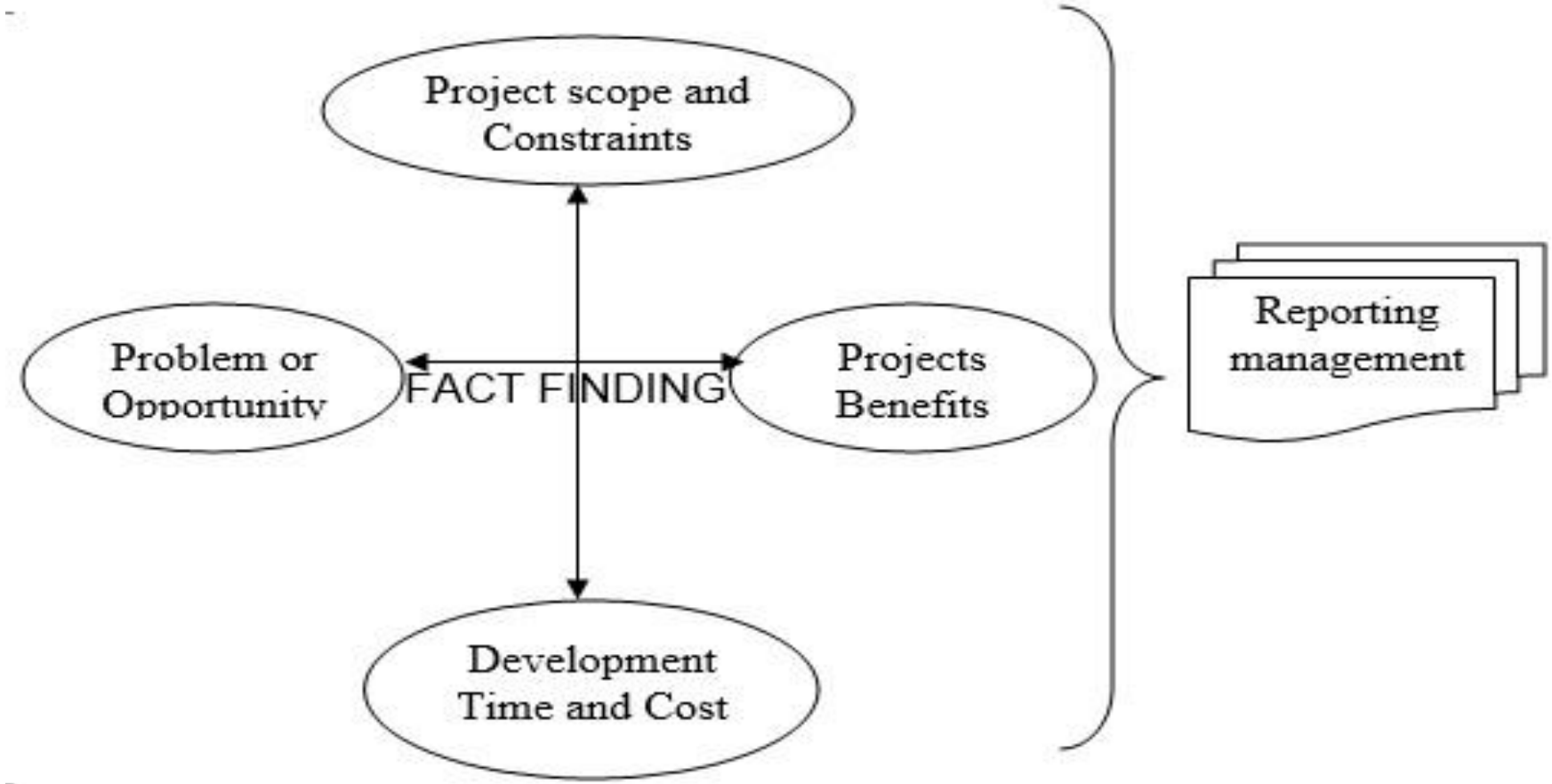
Introduction

After you have described that the proposed project meets all the required feasibilities, you proceed to do a preliminary investigation.

This involves a study of the systems request and then recommendation of the necessary action(s)

Preliminary Investigation

The following is a model of a preliminary investigation



Preliminary Investigation

Model of a Preliminary Investigation

The diagram shows that an analyst gathers facts about the problem or opportunity, project scope and constraints, project benefits and estimated development time and cost. The end product of the preliminary investigation is a report to management.

Questions

Individual Assignment:

1. Give a model of the preliminary investigation stage of the analysis phase of a systems development life cycle

2. Choose any information system and do a feasibility analysis of it.

3. Describe the sections in the planning phase of a systems development process

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