

# Information Systems Analysis & Design (M8748)

## Tutorial 1 Answer

1. What is the different between an Information System and Information Technology?

Information technology is really no more a set of tools that can be used for many purposes, while information system involves the application of information technology to some purpose, typically to achieve an objective or to solve a problem. One analogy is the difference between gardening tools (spade, lawnmower, trowel, etc.) and the activity of gardening. The tools can all be used for a variety of purposes (the spade could be used to wedge a door open). For some, the activity of gardening fulfils the objective of giving relaxation and wholesome food.

2. Identify some things that a computerized information system can do, which are difficult or impossible for a non-computerized equivalent.

Computerized information systems are generally much faster at storing and retrieving data and at performing calculations than their non-computerized equivalents. Many activities that involve the retrieval, analysis or synthesis of large quantities of data are not feasible for people to carry out manually, even though it may be technically possible for this to be done. One example is the growing use of data warehouses and data mining software by marketing companies to produce very detailed information about individual shopping preferences and habits, which can then be used to direct the marketing of products and services very precisely towards those people most likely to be interested in them. While it would always have been theoretically possible to gather and correlate this data manually for an individual customer, in practice it would take far too much effort to be worthwhile.

3. Why does it not matter whether a system is real, or exists only in someone's mind?

Even if something isn't a system (or might not be one) thinking of it as one still gives useful insights.

4. Why are boundary and environment important for understanding a system?

There are two reasons for this. Firstly, setting a boundary defines the scope of what you are trying to understand. Without a boundary, your analysis has no limits and may become unfocussed or even lose its way completely. In this respect, the environment consists of all those things that are relevant to the system — thus you may need to know about their existence and behavior — but which do not themselves require detailed analysis — so you do not need to understand their internal organization or objectives.

Secondly, identifying a boundary helps you to understand a system's interactions with its environment. This is one of the most important aspects of a system, and focuses your attention on inputs (received from the environment) and outputs (sent into the environment).

5. What is the different between Feedback and Feed-forward?

Feedback is sampling one or more outputs of a system for comparison to a control value. Feed-forward is sampling a system input, usually before it enters the system. The control value may be an output, input or an internal measure of system performance.

6. Why has a human activity system more than one purpose?

A human activity that involves more than one human can be seen from more than one perspective. This may depend on our functional relationship with the system or on our basic assumptions. In one of Peter Checkland's lectures he used the example of a prison. If we ask the purpose of a prison, the answer depends on our relationship with it. For many, a prison is for punishing bad people. For others, it is a way of rehabilitating inmates to lead them to a better life. Some prison staff may see it as primarily a system for the storage of convicts. For some unfortunates, prison is a way of getting a bed for the night in winter. For some career criminals, it is a way of keeping in touch with the latest tricks of their trade.

7. What is the purpose of a management support system?

A management support system usually provides information that helps managers to make decisions. Most use feedback or feed-forward to monitor the performance of part of the organization for which the manager is responsible.

8. What is meant by disaster between business goals, information system strategy and information technology strategy?

An information system may be subject to many sorts of disaster, including power failure, fire and earthquake. An organization that depends heavily on its information systems may be fatally damaged if it has no strategy for how it will respond if a critical system becomes unavailable. For example, an online retailer cannot survive long without its web storefront, because customers will quickly defect to other retailers and it will be very difficult to win their trust again.

9. What are the relationships between business goals, information systems strategy and information technology strategy?

Business goals and strategy are usually defined first. An Information System strategy identifies applications that can help to meet business goals, and an Information

Technology strategy identifies Information Technology needed to develop and run the applications. Each informs its predecessor about what can realistically be achieved. The process is iterative.

10. Define information. How does it differ from data?

One of the simplest definitions says that information is data with a structure and a meaning derived from the context in which it is used. For example, the numbers 8, 17 and 5 might be items of data. In themselves, they mean nothing. But a gambler could regard these three numbers as information if they happened to be the numbers of the horses that came first, second and third in a particular horse race. In this example, the structure is in fact that the sequence of numbers agrees with the sequence of horses in the race. The meaning for the gambler lies in the significance of these numbers for either winning or losing a bet. The context refers to many aspects of the activity of gambling on horse races.

11. Describe how knowledge differs from information.

For Checkland, knowledge is a complex structure of information that has meaning within a specific context. In the race betting example mentioned in the previous answer, a successful gambler's may rely on some very complex knowledge structures to determine which horse is a good bet in a given race. This might involve knowing about probability mathematics, about the form (i.e. historical performance) of the various horses, and about the interaction between a horse's form and the current conditions of the track.

12. Give an example of some knowledge that you process. What is its purpose?

This author knows how to make a mortice and tenon joint in wood, which involves the correct use of tools, an understanding of the angles involved and knowing something about the properties of different woods. This skill means that he can make some of the furniture he uses in his house. The context that makes this meaningful is that the author lives in an environment where these items are useful.