

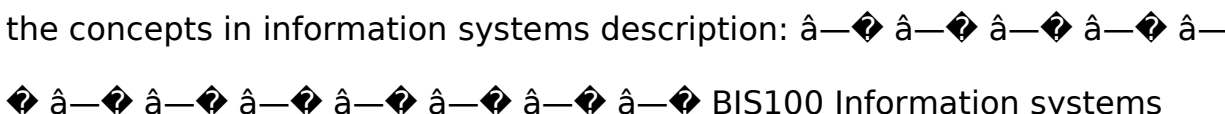
Is description framework



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IS Description Framework Information Systems Description Framework

Business Information Systems 100 A. Aitken 23/7/12 - v2. 5 Introduction This

is a simple framework for describing information systems. The goal of this framework is to provide a structure in which an information system can be described and documented from both an external viewpoint (independent of the information and communication technology used to realise it) and from an internal viewpoint (in terms of the information processors, information stores, and communication networks). This framework could be used as a tool in information system analysis or information system design by a business analyst or a systems analyst from the external viewpoint and by a systems architect from the internal viewpoint. A systems architect is responsible for bringing different technologies together to create a required information system. Please Note: This is really an information systems modelling framework but we will not get into a discussion of models and what they are in this unit. You will learn more about models and modelling if you do any " systems analysis and design" units. For this unit you will not need to know any more about modelling than it is a way of describing something. Information Systems Concepts The concepts involved with information systems are introduced in Learning Unit 2 in BIS100 (presented in Lecture 2, and discussed and practiced in Workshop 3 and Worksheet 3). Please refer to them for more details. Here is a quick introduction to some of the concepts in information systems description:  BIS100 Information systems description involves investigating an information system to find out more about it and describe and document what you have found using text and diagrams. An information system may process information and may store

and retrieve information. An information system has inputs that submit information into the information system. Inputs may come from people or from external (other) information systems. An information system has outputs that receive information from the information system. Outputs may go to people or to external (other) information systems. An information system has a boundary that defines what is inside and what is outside of the information system. Information processors are the components of an information system that do the information processing (i. e. processing of information). Information processing can be done, for example, by people, machines, and computers running software. Information stores are the components of an information system that store and retrieve information. Information storage can be done, for example, using paper, folders, filing cabinets, computer files and databases. Communication (or information) networks are components of an information system that can transfer information from one point to another. 1 IS Description Framework

Information can be transferred, for example, directly in person, by foot, by post, by computer networks, and by telephone networks. Information systems description can involve a textual description as well as a graphical representation (i. e. diagrams) of the the information system and these compliment each other. Information processors (e. g. computers running software or people) are active things in that they do something, i. e. process information, whereas information stores (e. g. databases and filing cabinets) are passive things in they they have don't do anything on their own.

Computers write to and read from databases, just as people write on and read from paper from filing cabinets. Communication (or information) networks in information systems connect information processors, which may

send information across the network to one another. Communication is between two information processors. Information processors can also read and write to information stores, and information flows across this connection but it is usually not a labelled computer network. We show connections between information processors and information stores to show which stores they interact with. Inputs flow into information systems from other information systems across networks (of many different types) and information flows out of information systems to other information systems across networks (of many different types). These are called external networks to differentiate them from the internal networks between information processors within the information system. Please Note: The use of the term information here is rather generic, sometimes it may mean data, sometimes it may mean knowledge, but mostly it will mean information. The distinction may be discussed in later units but for now do not worry about the difference and just treat all of these as information.

Information Systems Description Process To describe information systems we will follow a simple process (i. e. a sequence of steps) that will break the task down and, hopefully, make it easier for you. In short the five (5) steps are:

1. Provide a general description of the information system - what would be a good name or title for it?
2. What does it do?
3. Who (or what) uses the information system and what do they do with it?
4. Is it an information system in the real world? if so where would you find it?
5. Provide an external description of the information system - what are the inputs and outputs (from and to each user)? What specific information processing and/or what specific information storage and/or retrieval does the information system perform? what is the boundary of the

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information system? Provide an external view of the information system - a diagram representing the information described in step 2., i. e. a diagram showing the system from the outside (no internal details will be represented) and particularly focusing on the inputs and outputs of the information system (and from whom they come and to whom they go). Provide an internal description of the information system - what are the specific information processors and information stores within the information system (whether computerised or not) and any internal communication networks that connect any of them or external communication networks that are used for input or output. Provide an internal view of the information system- a diagram representing the information described in step 4., i. e. a diagram showing the information processors and information stores within the system, possibly connected by communication networks, as well as external communication networks for inputs and outputs.

2 IS Description Framework and outputs. And now for a more detailed description of the process: Step 1 - Provide a general description of the information system Provide a general description of the information system by considering and describing: What is the name or title of the information system? Describe the overall information processing and storage function of the information system at a very high level (focusing on its overall purpose or goal) Who (or what other information systems) are the users of the information system? What do these users do with the information system? Give any information about a real-world instance (i. e. example) of this information system. The general description should be independent of information and communication technologies (i. e. they should not be mentioned in this description - no mention of computers, or databases etc.) The general description should all be about information

processing and/or storage for a purpose by certain users. Step 2 - Provide an external description of the information system Give a description of the inputs, outputs and boundary of the information system by considering and describing: What inputs does each user provide to the information system (if any)? What outputs does the information system provide to the users (if any)? What specific information processing and/or information storage and retrieval does the information system do? (give specifics without discussing separate internal components) What is the boundary of the information system? The boundary of an information system is important because it defines what is inside and what is outside of an information system (i. e. what is the responsibility of the systems architect and what is not) and also the source of the inputs and the targets of the outputs of the information system (which changes the focus of the inputs and outputs themselves). The boundary may be difficult to describe. One way to do it is to describe things (not necessarily everything) that is inside the system and things (not necessarily everything) that are outside the system but connected to the system in some way. This is like describing a border between countries by describing which towns are on each side of the border (and usually only towns close to the border). This description should be independent of information and communication technologies (i. e. it should not mention of computers, people, files or databases, or communication networks etc.) Step 3 - Provide an external view of the information system Draw a diagram that summarises and represents the information system as described in Step 2. In particular: Use a circle to represent the information system and use arrows going into the system to represent the inputs and arrows coming out of the system to represent the outputs. Label the information system with its name

or title. Label the inputs with the name/role of the user (or other information system) that provides them and provide high-level names for the information the users provide. Label the outputs with the name/role of the user or (or other information system) that receives them and provide high-level names for the information the users receive. This view should be predominantly independent of information and communication technologies (i. e. such technology should not be visible in this description - no mention of computers or people, or folders or databases etc.)

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You may need to describe the technology somewhat to describe the boundary, but try to focus on how the boundary is defined by the information processing or information storage (i. e. what is done within the system compared with outside).

Step 4 - Provide an internal description of the information system

Give a description of the information processors, information stores and networks within the information system by considering and describing:

- What are the information processors inside the information system? What specific information processing does each of these information processors do? What are the information stores inside the information system? What specific information is stored inside each of these information stores? Identify any internal communication networks transferring information within the information system and external communication networks for input to and output from the information system. This description should describe the information and communication technologies (both computerised and/ or non-computerised) that can be used to implement (or realise) the information system).

Step 5 - Provide an internal view of the information system

Draw a diagram that summarises and represents the information system as described in Step 4. Draw the

information processors as cubes or rectangles and label them with descriptive names (e. g. librarian information processor or sales processor). Draw the information stores as cylinders or ellipse and label them with descriptive names (e. g. customer store or product folder). Draw the internal communication networks as lines between the information processors and/or information stores and label them with descriptive names (as needed). Draw the external communication networks as lines between the users and the information processors and label them with descriptive names. This description should display the information and communication technologies (both computerised and/ or non-computerised that can be used to implement (or realise) the information system).

Format for Information Systems Description Deliverable This describes the document (also known as a deliverable) that you would generally produce as a resulting of undertaking the information system description process. An information system description document should have (at least) a title and author and the following five (to seven) sections: 1. 2. 3. 4. 5. 6. 7. General Description External Description External View Internal Description Internal View Further Notes (Optional) References (Optional) Sections 1-5 are the predominantly important sections matching the steps in the process, with sections 6 & 7 optional for additional material and references.

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1. General Description (Textual) The general description should include:

- Name - A descriptive name of the information system. Overall
- Function - A description of the information system's overall function / purpose etc.
- Users - A list of the users of the information processing system (which could include other information processing systems)
- Uses - A list of what tasks or uses each user generally perform with the information

processing system. Instance - A reference to a real example of the real information system that is being described (if one exists or an explanation of where it could be used if it is a new information system). Please note: a user may be another information system (computerised or non-computerised).

2. External Description (Textual) The external description should include:

- Inputs - A list of the inputs provided by each user to the information system, and a short description of each of the inputs.
- Outputs - A list of the outputs from the information system to users and possibly a short description of each of the outputs.
- Boundary - A description of what is inside the information system and what is outside of the information system. Note: a user may provide inputs and receive outputs or just provide inputs or just receive outputs.

3. External View Diagram (Graphical) The external view diagram is a diagram representing a summary of the information provided in the external description. It should not include the internal view (see below). The external view diagram needs to use the correct symbols and be consistent with the textual description.

4. Internal Description (Textual) BIS100 5 IS Description Framework The internal description should include:

- Information Processors - A list and description of the various information processors within the information system, including their type (e. g. computerised or non-computerised) and what information processing they do.
- Information Stores - A list and description of the various information stores within the information system, including their type (e. g. computerised or non-computerised) and what information they store and retrieve.
- Networks - A list of any internal and external communication networks (computerised or otherwise) within the information systems.

5. Internal View Diagram (Graphical) The internal view diagram should include a diagram representing a summary of the

information provided in the internal description. It does not need to include the external view (see above). The internal view diagram needs to use the correct symbols and be consistent with the textual description. Please note: the figure below is only the beginning of a diagram to describe the internal view of an information system. You should have networks (of different kinds) connecting the information processes and also a connection between the information processors and the data stores.

6. Further Notes (Textual and Optional) Any further notes or information that may assist in the reader understanding the information system from the outside or on the inside. This section is optional.

7. References (Textual and Optional) Any relevant references. If you refer to a Web page or textbook for an information system then please give a reference for that source. This section is optional if you do not refer to other sources. However, if you copy text or diagrams from another source you need to reference them properly.

BIS100 6 IS Description Framework External Information System versus Internal ICT Infrastructure

Remember that the goal of the general description and external description and view is to describe the information system not the information and communication technology infrastructure that may be used to implement (or realise or build ...) the information system. The details of the information and communication technology infrastructure itself forms the focus of the internal description and view of the information system (i. e. what information processors and information stores may be used). This may be computerised or non-computerised ICT infrastructure. In some cases, of very complex and large information systems, we may break the information system down into smaller information systems (called subsystems). In this case we may not discuss the ICT infrastructure until we consider the internal

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view of these subsystems. Information Processing and Storage but not Information Processes The information system description required focuses on the information processing performed by the information system and the information stored (and retrieved) in the information system. It does not focus on the information system processes, that is the steps in the information processing. The information system description should not generally include a description of the fact that the system does this and then does that and then does this if that is true or otherwise something else. Whilst these processes are important they are not the focus of this assignment. We do not need a list of the steps the information system follows to process and/or store and/or retrieve information. Such a list of steps is somewhat like a software program and that is not the focus of these information systems descriptions. For those with some IT background the internal information system description here is most similar to a simplified data flow diagram (DFD), showing how information flows through an information system and where it is processed or stored. That said, the internal information system description and view diagram is not showing the sequence of steps in the information processing between the information processors and/or in the information stores. The lines representing communication networks within the information system should generally not have arrows or be numbered. Style of Information Systems Description The textual sections within an information system description are generally not written as paragraphs of text (with the exception of some high-level descriptions). Instead they are generally written as lists in point form and the points and sub-points are numbered so they can be easily referred to in other contexts. The graphical sections within an information system

description are generally constructed with a specific notation (i. e. set of symbols like cubes, cylinders, and lines) that have specific meaning. It is important to use the correct graphical notation. These have been briefly explained for the view diagrams above and samples of the symbols are given in the template(s) provided. Summary The simple information systems description framework provided here provides a simple way of describing an information system both externally with respect to its environment and context and internally with respect to its implementation or realisation with information processors, information stores, and communication networks. This is a static description of an information system in that it only describes the components of the information system and the relationships between them, it does not describe how the information system works (e. g. the information processes as mentioned earlier). BIS100 7 IS Description Framework Information system description is a key focus of the Business Information Systems major and work as an IS professional. For further information about this information systems description framework please contact the unit staff. Also see other documents for examples of using this information systems description framework. Information systems description is a simple example of modelling. End of Document BIS100 8