5/9/2016

Assignment 2

Unit 3

Simon Light

UTC Reading

Contents

[Contents 1](#_Toc450912582)

[P4 – Features and functions of information systems 3](#_Toc450912583)

[Features 3](#_Toc450912584)

[Hardware 3](#_Toc450912585)

[Data 3](#_Toc450912586)

[Software 3](#_Toc450912587)

[People 3](#_Toc450912588)

[Functions 3](#_Toc450912589)

[Input 4](#_Toc450912590)

[Storage 4](#_Toc450912591)

[Processing 4](#_Toc450912592)

[Output 4](#_Toc450912593)

[P5 – Information systems used in a specified organisation 5](#_Toc450912594)

[Financial Systems 5](#_Toc450912595)

[Financial Costs 5](#_Toc450912596)

[Investment Return 5](#_Toc450912597)

[TelX suggestion 5](#_Toc450912598)

[Marketing Systems 5](#_Toc450912599)

[Sales Performance 5](#_Toc450912600)

[Competitors 5](#_Toc450912601)

[TelX suggestion 5](#_Toc450912602)

[P6 & D2 – Data to support business decision-making and justification 6](#_Toc450912603)

[Features and Benefits 6](#_Toc450912604)

[Financial costs 6](#_Toc450912605)

[Investment return 6](#_Toc450912606)

[Sales performance 6](#_Toc450912607)

[Competitors 6](#_Toc450912608)

[Data and Validity 7](#_Toc450912609)

[Accuracy 7](#_Toc450912610)

[Sustainability 7](#_Toc450912611)

[Consistent timelines 7](#_Toc450912612)

[P7 –Use IT tools to produce management information 7](#_Toc450912613)

[Databases 7](#_Toc450912614)

[Artificial intelligence 7](#_Toc450912615)

[Internet 8](#_Toc450912616)

[M3 – Generating valid, accurate and useful information 8](#_Toc450912617)

[Define requirements 8](#_Toc450912618)

[Establishing sources 8](#_Toc450912619)

[Other factors 8](#_Toc450912620)

[Analysing Information 8](#_Toc450912621)

[Select information 8](#_Toc450912622)

# P4 – Features and functions of information systems

In this section I will be explaining the current features and functions of the company.

## Features

I will now explain the current features of the company.

I will be referring to ‘MIS’ a lot. MIS stands for management information systems. An MIS is a system that a lot of companies have in place to manage data as well as suggest trends/patterns in the data.

### Hardware

In a smaller company, the MIS would probably run on an employee’s computer. On a larger one this would probably run on a server of some kind due to the fact that the MIS would be larger and therefore more resource hungry. In the new system I would definitely suggest that it is run on a server. This is because it will need to be moved onto one in the future and so it won’t harm anything. If it is left on a computer then it will mean that the transfer to a server will be rushed and therefore may damage it. If the MIS is damaged then it may lead to the loss of data, possibly breaking data protection laws.

### Data

Data is the single input of an MIS. The way that the MIS deals with it, depends on how it is configured by the system administrators. The main way that the MIS’s deal with information is by storing them in the most logical way. Due to this, data imputed needs to be as accurate as possible (often limited by cost and time scale). Once the data is stored it needs to be summarised. This will again be set by the business needs. The way that the business summarises will probably not be very efficient or cheap but it will be very helpful to the company.

### Software

Very basic MIS’s need very basic software to run on, more advanced ones need more advanced software. This more advanced software can range from better user interface to high speed access to relational databases. The price of the software can range widely. It is common for a lower priced software will limit the performance of the MIS. The more expensive software can support much greater speeds and a much higher user limit.

### People

People are the inputter’s and out putters of the MIS. People will be needed to capture and record data that can then be imputed into the MIS. People will also need to exploit the information found by the MIS. Data capturers can and should be encouraged to find the best data by displaying outputs of the MIS. This could be implemented in TelX by creating some kind of display in a public space showing the achievements of the MIS. That way all staff can see the achievements of the research teams.

## Functions

I will now explain the current functions of the company, as well as suggesting improvements.

Here is a diagram of the MIS loop that I suggest for TelX.

### Input

Input mainly consists of two types:

The data that the company wants the MIS to process, and the way that the company wants the MIS to process it. I will now be referring to these as the data and the script respectively.

The script is they the company, TelX. There are many different possibilities for the companies to set up their script and they may have multiple for multiple data types. I suggest that TelX create one script for each different objective. They should then focus the specific scripts based upon what they want from the output. They should also create logs and records of outcomes for some kind of machine learning algorithm that will suggest outcomes and solutions in the future. This can be seen in the diagram above.

The data is the data that I described above. It is the thing that is put into the MIS for processing and storage. This should be as accurate as possible and will be collected by TelX employees. My suggestions are data can be found above.

### Storage

The data that is imputed needs to be stored in the appropriate manner. This may mean that the company needs a separate storage system that stores data with the correct security measures. The storage will contain both data that is imputed into the system as well as a database of information, the machine learnings suggestion and the actual action taken. This is so that the machine learning system can access past decision made to make a more appropriate suggestion.

### Processing

Processing is the main purpose of the MIS. It is the part that all of the set-up has been to try to benefit. The processing again can be a multiple of things. This could be from adding up a total order cost to compiling a list of the richest people based on their google searches. This type of range means that it is very difficult to suggest things without knowing the full ins and out of the system. Regardless of this fact, I would suggest that TelX start with the most minimal system possible, advancing and developing it in the future, as and when they know more extensively what they want to use it for.

### Output

The output is the expected result of the processing phase. The output from the MIS can be either graphical or textual output. Graphical output is best for seeing the big picture, and understanding the whole scenario. This is because it can be shown as graphs and charts, unlike textual data. Textual data will explain specific things in great detail. This is harder to understand and is less presentable. I suggest that TelX use a combination, graphical to decide what areas to focus on, and textual to delve deeper into these areas.

# P5 – Information systems used in a specified organisation

All companies have an MIS, some will have multiple. Below I will explain two common MIS setups for companies. I will then be suggesting an MIS system for TelX and giving reasoning for this.

## Financial Systems

### Financial Costs

A business would use a financial system to calculate expenditures, costs, gain and generally, is the company losing money. One use for the MIS in the financial system is to spot irregular costs to a company. This is similar to the style of financial monitoring that credit/debit card companies partake in. This is to stop unexpected costs going out of the company to stop fraud like operations. This can prevent gradual overspending as well as pointing out gross change.

### Investment Return

Another way a financial system could be used is for financial predictions. This is most commonly used in investment situations. This is done in way that information is fed into the MIS and the output is a fairly accurate prediction of what the stock worth of a certain company is going to look like over the next few days. This can be done more accurately over a short period of time as the information is more current and therefore more valid.

### TelX suggestion

I suggest that TelX should use the first financial system and possibly join it to the second MIS. That way they will have a full understanding of their finances as well as their competitors. That way they can properly manage stocks and may be able to make financial gains from other companies in the same sector.

## Marketing Systems

### Sales Performance

A sales performance MIS is used to spot effective sales techniques. This can be found when one area of a company proceeds to have a positive change in the number of relative sales. The sales conditions can then be applied to other, similar areas of the business to hopefully gain from the same effect. Both the monitoring of sales and the introduction of the new strategies could be done by the MIS. More advanced systems could try to merge sales techniques to create an all-round better system, however, the MIS required to run such a program will be expensive.

### Competitors

A competitors MIS setup is very similar to the sales performance setup. The one main difference is that the sales performance system monitors personal gains, whereas the competitors system will monitor both personal as well as other business’ gains. This style of MIS could then see a better overview of the current market and suggest ways that you could better yourself in said market. Better MIS systems could spot trends and put the company one step ahead of the game.

### TelX suggestion

I suggest that TelX opt for both of the above options. They should create a rather primitive sales performance system and add a review section to the output of the MIS. That way, board members of the company can both more effectively monitor the company as well as adding their business knowledge to the decision making process. I would suggest that TelX invest a lot into a larger MIS for the competitors section above. This is because it can be a reliable way to monitor where the future of the company should be heading.

# P6 & D2 – Data to support business decision-making and justification

Managements systems are used to answer frequent and repeated questions form management. The management system will be described below in the features section. The benefits from these features will be explained in the benefits section. Then I will outline data needed for this MIS and how I will make sure that it is valid in the data and validity section.

## Features and Benefits

The features of the MIS depends on what TelX decides to take forwards from the suggestions I made above. For the current situation, I will presume that TelX will use all of the suggestions I have put forwards. If any aren’t used then the following information about that system can be ignored.

The general use for an MIS is to input data, and output useful information. For all of the following MIS’s I will describe what benefits they will have to TelX. In some cases I will be giving ideas for future developments and integration with other MIS systems TelX may want to put in place. Again, if TelX decide not to take forward any of these systems then they can just ignore the following information dedicated to that system.

### Financial costs

A financial costs MIS’s job is to calculate the income and expenditures of TelX. This will have great benefit to TelX. It can advise them on whether the company is losing money, the most important factor when running a business. It can also alert them to more threatening expenditures that are uncommon of the company. These can then be chased up and can eventually prevent fraud like actions, similar to the ones that hackers cold operate. This system will both prevent the business losing money, as well as identifying security flaws of their services. I the future I would further advance this design by adding some AI to spot the sudden changes rather than an algorithm.

### Investment return

Investment return shows a company the return they have made on stock investments. I suggest that TelX create a very small investment return system to keep an eye on their own stocks. They could then see how their company looks to possible investors. I wold also consider creating the same system for their competitors. That way they ca keep an eye on the market and keep up to date with technologies. This will help TelX stay fully in the game and make sure that they are nit behind their competitors.

### Sales performance

A sales performance system is used to monitor the success of sales techniques. I would create a large sales performance system to monitor all of the sales going on. This type of system could be linked to any current system. This would create a fully rounded system that can monitor and suggest future strategies for sales. This would benefit the company as they could have the best sales strategies for each new scenario. This would increase sales and make TelX more money.

### Competitors

The competitors MIS system is used to monitor the sales techniques of a company’s competitors. This will massively help TelX as they can monitor market sharers to see what sales system they have. They could the employ an opposing or similar strategy to push them out of business. In the future a similar strategy could be done for the security information given out by the companies. This could then suggest ways in which TelX could improve their security system.

## Data and Validity

An MIS will only ever be as accurate as the data inputted to it. This means that all data needs to be verified for validity. In this process the input data can also be verified to make sure that it is in the right formats. I will now give some examples of how the data should be checked and what benefit these checks will give to the MIS process and the company as a whole.

### Accuracy

Data should be checked to make sure that it is accurate. This can be done in a multiple of ways but I would suggest that TelX cross verify the data with another source. This will make sure that the data is correct and to a sensible degree of accuracy.

### Sustainability

The data inputted needs to easily available all year round. If a stream of data stops, then the MIS may give incorrect readings or stop all together. The data should either be monitored for a while or backtracked to have a look at stability. I suggest that TelX get in contact with the data suppliers to make sure that there will be a constant stream. This will give TelX the most reliable MIS, meaning that they can rely on it a lot more for information.

### Consistent timelines

It is important that the timelines are consistent. One common example of when these timelines aren’t consistent is trading hours. If an MIS expects sales to go through from 10-4 but one day you decide to open until 5, all of the sales will not be inputted into the MIS. If an input is going to change, the MIS needs to be scheduled to change. This will ensure the best possible output of the MIS system.

# P7 –Use IT tools to produce management information

When using an MIS it is near vital that some kinds of tools are used. These tools can do a variety of different things, from holding data, to predicting the new trends in a market. I will now explain a few tools and give suggestions on how TelX could use them.

### Databases

Databases are used to store information in periodic ways. I massively suggest that TelX use a database. Data in a database often points at data in other databases. This is called a relational database. I suggest that TelX use this type of database to link directly to the database of the data supplier. This would then mean that as soon as data is changed in their table, the MIS would pick it up. This is better than waiting for a transfer of data as this is unreliable because people could forget to send the data. This would then put the MIS out of order until the data is sent across. Using databases will massively increase the efficiency as well as the security of the MIS.

### Artificial intelligence

Artificial intelligence (AI), or machine learning, is a massively advancing field. It is used in a multiple of different fields however it can be extremely useful in an MIS. The base principal of an AI is that it edits the scripting/code that its run off of as time goes by. This means that there is a constantly developing system getting more secure and more efficient. This means that it is equivalent of hiring an engineer to monitor the MIS and edit it on the fly to be more efficient, except the AI doesn’t cost as much, doesn’t need breaks, and doesn’t make mistakes. This will give TelX an infinitely secure and advanced MIS.

### Internet

The internet is a great place for both gathering and sharing data/information. If the MIS or the gathering team use the internet then it will be able to make the MIS system more accurate. This is because they can cross reference data found with thousands of other data sources to give the most accurate readings. This will then in turn make the MIS more accurate with its output. The MIS may place the information created onto a website. This could be for secure remote access (limited to only the users who need it, used for personal information), or on an open webpage (for all who wish to see). That way users all around the world can see the information. I suggest that TelX publish their non-personal information on an open page, but keep their personal information off of the internet all together. This will give the best information sharing technique, without compromising the security of the MIS.

# M3 – Generating valid, accurate and useful information

When generating valid information a lot of time needs to spent. This time should be split into the two following sections: Gathering and Analysing. This will ensure that all of the information gathered is valid and correct, as well as having enough to complete the task at hand.

### Define requirements

In this stage of the process the company needs to decide what they want for the MIS. This should be done at the same time as they decide what they want the MIS to do. This will set up the rest of the project and so a lot of time should be spent on this stage.

### Establishing sources

Now you know what data you need to find, it’s time to find it. A lot of sources need to be found to make sure that you can cross verify and keep a high amount of accuracy. It is important to get a wide range of sources to keep this accuracy. All sources need to thoroughly checked for validity as well.

### Other factors

At this time in the process the company needs to take a step back and look into the wider world. This is to make sure that there are going to be very few anomalous results. One example of when this is vital is when looking at turkey sales. A study may found that turkey sales grew in December, however this would be down to Christmas rather than any other reason.

### Analysing Information

In this part of the process the team needs to bring in everything that they have discovered and decide which data is correct, and remove any that isn’t. When doing this you need to follow the steps shown above, describing how to check for validity, accuracy, currency and relevance. Doing this will ensure that your MIS isn’t including incorrect data into its calculations. This will provide a much better output and make the MIS more reliable.

### Select information

After finding all of the sources for information, some data needs to be chosen. This can be done one of two ways, randomly or knowingly. Random information is chosen at random from sources to make up the data field. Knowingly choosing data is useful for making results turn out how you want them, however, this type of action should not be done on an MIS.