Computing Solutions CS1
Examine the nature of information and contemporary applications

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Tasks 1.1 & 1.2

Describe the information requirements for each category of staff within BIFHE. At each level make reference to time span, relevance, level of detail, degree of accuracy and security of the information.

Senior Management Team (CEO + Dept. Managers)

The CEO and department Managers of BIFHE would use strategic information in making decisions that affect the whole organisation and its future. These decisions will tend to be long term, with reference to sales and budget history and may involve large amounts of money being spent. They may include issues like investment, new markets, suppliers or products and expansion of facilities.

The senior management team of BIFHE would chiefly be concerned with sales and budget performance reports showing profitability for each department, with a view to forecasting future trends etc. In an organisation like BIFHE the information would probably need to be accurate to the nearest £1000. This information would need to be highly secure as it would be very useful for competitors, and if corrupted could cause the business to collapse. Therefore only those who need access to this information should be able to run reports on it.

Section Managers (Sales, Marketing etc)

The Section Managers of BIFHE would use tactical information to make decisions, which affect the day-to-day running as well as the short-term future of the organisation. These decisions would be based on information that comes up from the operational level of the business and external sources, such as competitor activity etc.

Section managers would be primarily concerned with their own department and how it was performing. For example, the Warehousing section manager would require information about stock levels within the warehouse. Items, which are constantly 'out of stock', could be flagged, and if it was deemed to be the suppliers fault then the manager could decide to use a different supplier. This would probably be a weekly report and should be accurate to the nearest case. The Sales section manager will require information about sales history of goods within the store. Fast and slow moving items should be flagged so that decisions can be made about possible promotions or items which need to be 'reduced to clear' with a view to de-listing them. A report like this could be produced monthly and would again need to be accurate to the nearest case. The Finance section manager will need reports on the general performance of each of the other departments i.e. how much money is the sales department making in comparison to how much money the purchasing department is spending, a profit/loss report. This would also need to be monthly and should be accurate to the nearest £100.

This information would also need to be very secure but access would most likely be granted to a wider range of employees including all management and some operational staff.

Clerical Staff

The clerical staff of BIFHE will use varying amounts of operational information to do their jobs each day. It is the data which they process each day that provides the management teams with the information they need to make decisions about the future of the organisation.

To best illustrate the different levels of information each operational employee will use I will take two examples, a checkout operator and a warehouse stock controller.

The checkout operators main concern is scanning items through the till system and ensuring the correct amount of money is taken for each transaction. The till system therefore processes all the info and the operator has little involvement.
The stock controller however will need to access information from the system about stock levels so they can reconcile their daily/weekly stock counts and process any orders for low stock items. This involves a high level of information processing.

Whichever level of information a BIFHE clerical employee needs access to it would be required daily, be relevant to their individual role, highly detailed and very accurate. This information should be secure within the organisation but available to all staff.

Security of Information

The growing use of computerised systems in business has inevitably made information held by companies much more vulnerable, as telecommunications networks can be accessed by hackers who may want to corrupt or destroy that information. This can best be overcome by the use of suitable security measures such as user access restrictions and installation of firewall software etc. However, these measures do not guarantee the security of your information. These systems can still be hacked, and there is still the more likely risks of fire, flooding, electrical problems and user errors causing hardware and software failures. The best course of action therefore is to use 'Backup'. Information should not only be backed up on site for fast recovery but should also be stored at a second or third location depending on its sensitivity.

Task 1.3

The information requirements at each of these levels can be supported by using one of the following systems:

- operational transaction processing systems
- decision support systems
- executive information systems

Describe the nature of the decisions supported by these systems and indicate how they would be used in conjunction with the human decision-maker.

Operational transaction processing systems

These types of system are primarily put to use in the day-to-day running of a business. In BIFHE these would be used by the Clerical staff such as payroll clerks, checkout operators, stock controllers and orderer's etc. The majority of their use would not actually involve decision making as much as processing daily tasks more efficiently and accurately. Consider the following examples:
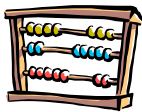
 Payroll Clerks would use a system to calculate staff pay and print out payslips instead of manually calculating pay and typing or handwriting pay cheques.

Checkout operators would use scanning systems known as EPOS to handle each customer transaction and calculate money to be paid instead of having to 'tot' up the money owed on a calculator or old style till. This also helps the warehouse staff as sales through the till will be automatically reduce system stock levels.

 Orderer's would use a system to forecast sales based on sales history, to produce more accurate and timely orders instead of having to 'wade' through masses of sales figures to manually calculate orders.

Each of the examples above shows how computerised systems can make daily jobs not only easier but also more efficient and most importantly more accurate as they massively reduce the margin for error.

Decision support systems

These systems basically do 'exactly what it says on the tin'. They do not make decisions or solve problems but provide people with useful tools for manipulating information to help them make a decision or solve a problem. They work on the assumption that TPS's like those mentioned above have already captured the relevant data.

The most likely people within BIFHE to use these types of system are the section and department managers to access and analyse the current processes with a view to constantly improving their business. Consider the following examples:

 The finance manager may want to know what effect a pay rise will have on the business financially. He should be able to do this based on data provided by the payroll system by comparing the previous years total payroll against the proposed increase. This would help him and his manager decide if a pay increase is viable at this time and what percentage it should be.

The sales manager may want to organise a promotion within the store. He will need to analyse data on sales history of the items in question, current pricing and stock availability. When this data is pulled together from the transaction processing systems he can decide wither a promotion is possible or not.

 The purchasing manager may be told that a supplier is going to increase the cost price of some of their products. He will firstly need to decide if the business can afford the price rise based on the current pricing structure of BIFHE. If not, then a decision would need to be made about raising BIFHE's sales price or sourcing the items from elsewhere.

Each of the examples above show how DSS will not solve a problem for you but should enable you to analyse the relevant data and make an informed decision.

Executive information systems

These are much less specific systems used for non-routine problem analysis and decision making. They use external data as well as drawing on internal information to help evaluate and make judgements. The data involved is often filtered or compressed to a lesser degree of accuracy and front-end displays are often highly graphical.

The CEO and senior management of BIFHE would use a system like this to aid decisions about the long-term future of the business such as weather or not they should or could expand. A large amount of external data would come into this including social, economic and environmental factors as well as competitor activity and the current financial health of the organisation.

Task 1.4

Suggest the type of software that could be used in the circumstances below and give brief details of the function and purpose of each activity.

Preparation of documents and reports

The best components of Microsoft office for dealing with document and report preparation would be Word and PowerPoint.

Microsoft Word is currently one of the most commonly used applications for creating critical documents such as reports, letters, business plans, and more for the World Wide Web and for print. The newest version of Word extends this tradition by giving users the tools they need to streamline the process of creating, sharing, reviewing, and publishing their important documents. Word version 2002 makes it easier for users to discover and use existing functionality and provides intelligent new ways for users to work with their documents. Word now also makes it easier for users to share and review documents with others without changing the way they currently work.

Word would be best put to use within BIFHE for short daily reports, detailed presentations to be submitted to managers on paper or online and tasks such as writing letters to suppliers / customers as well as producing envelopes. A lot of companies use it to produce procedural documents and process manuals.

Communicating ideas effectively is the cornerstone of being successful in today's business environment. PowerPoint has long helped users present their ideas in a clear and concise manner by giving them a set of easy-to-use tools that make their presentations look professional. PowerPoint version 2002 extends this tradition by giving users additional functionality to create professionally designed presentations while at the same time making it easier for them to discover and use the functionality that was previously in the application. New and improved tools in PowerPoint also make it easier to share and collaborate on presentations over the Web, enabling users to present to and work with others who are geographically dispersed—without anyone needing to leave his or her office.

PowerPoint would be best put to use within BIFHE for presentations to a group of people. A Section manager may want to tell his staff about a new process or system to be implemented. Rather than hand people a document telling them this, it is much better to bring them to a presentation so that feedback can be gathered directly.

Modelling numerical data

The best components of Microsoft office for modelling numerical data to determine the appropriate action to take or to compare different options would be Excel.

For many people, Microsoft Excel continues to be the technology on which they rely on a daily basis. These users rely on Excel to access, process, analyse, share, and display the information with which they run their business. At the same time, Excel use is no longer relegated just to the accounting and finance departments. Everyday users need to access, analyse, create, and navigate through important data. With this in mind, Excel version 2002 was designed be an application that makes it even easier than before to access, connect, and analyse critical business data. At the same time, it gives everyday users the tools they need to get the most out of their data.

Excel would be best put to use within BIFHE for collating, analysing and summarising large amounts of data such as sales figures, stocks, payroll information etc. It would most likely be used in conjunction with word or PowerPoint to produce professional documents and reports with the relevant information.

Maintenance and retrieval of records

The best components of Microsoft office for maintenance of customer, supplier and other records and the need to retrieve selected sub-sets would be Access.

Since its introduction in 1992, Microsoft Access has become one of the most versatile applications in the Office suite. This versatility is evidenced by the rich set of tools that even the most experienced database user can take advantage of, while offering the same level of simplicity as the other Office applications for first-time database users. Access version 2002 extends this versatility by giving developers and more experienced users new functionality, enabling them to access and analyse their important data as well as build powerful new database solutions. At the same time, Access now makes it easy for beginning users to discover and use more of the existing application.

Microsoft Access could be used as the computerised solution for BIFHE if the design of the database was carried out correctly. Entities such as Suppliers, customers and products would need to have carefully selected attributes and relationships to ensure the system would function correctly. However, access has some size limitations and I suspect that a purpose built system would be put into place and access would be used for some ad-hoc reporting with smaller databases.

Summary

In summary, it is clear to see that the strategic, tactical and operational levels of staff within BIFHE would require a finished product which included executive information systems, decision support systems and operational transaction processing systems. While an 'off the shelf' package like Microsoft Office would probably deliver a workable solution for BIFHE by combining an access database with word and excel functions, it is more likely that a system would be designed for BIFHE and they may choose to use certain parts of the office suit to compliment it. This would allow for much more possible future growth and expansion of the business.

Bibliography

Notes and diagrams adapted from the following sources:

Higher national Computing - Bruce Hellingsworth, Patrick Hall & Howard Anderson
Computing Solutions Course Schedule & Lecture Outlines
www.microsoft.com