

1.1 Explain the potential of IT to transform at least three data management and business processes

IT is transforming the way we do business and continually developing. Hardware and Software are becoming more and more sophisticated.

- Better customer service can be achieved in our organisation with the aid of Hardware and Software. I have researched Help Desk Software that could be purchased so that our customers can email us their faults, which then update the database immediately and notify a member of staff via our mobile technology. Currently we use our own help desk software which we designed on a database but we spend a lot of time developing it further and it would take a lot of work to get it to the stage this software is already at.

The screenshot shows the homepage of the LBE Help Desk Software website. The top navigation bar includes links for Home, HelpDesk, Products, HelpDesk Hosting, Pricing, Order Form, Testimonials, Downloads, Support & Help, and About LBE. The main content area features a logo for 'LBE' and the title 'Help Desk Software from LBE'. Below this is a sub-headline: 'Improve your Customer Support. Used by over 400 businesses. Money back guarantee.' Three interface options are shown: 'Windows Desktop Helpdesk', 'Web-based Helpdesk', and 'Email Interface'. A section titled 'Affordable Help desk software, developed and supported by us since 1991.' follows. A 'LBE Help Desk' link leads to a page with a bulleted list of features: 'Compatible with Windows 7, Vista, XP, 2000, 2003, ME, ME and NT', 'Easy to learn - no expensive consultant staff required', 'Simple to use - your operators will require a minimum of training', 'Accessible from anywhere - run on a Windows or a web application', 'Powerful - small businesses, schools, colleges, hospitals, major international businesses', and 'Affordable - clear pricing, no secrets'. Another bulleted list below states: 'LBE Help Desk will help you to...' with points: 'Increase customer satisfaction' and 'Reduce customer downtime'.

It would be easy for our customers to use as they are already competent in using email, it would avoid the frustration of telephoning our head office and not always getting an answer. It can email them back to tell them when someone is going to work on their problem and what the progress is. There are options to customise it further as well so we can develop it as our business progresses. For £4995 you can buy unlimited licences so we can use it with all our customers.

- Computerised purchasing is another package I am researching for our organisation. We can currently place an order from a customer's premises it is then sent to the office where our sales staff research the best product and price on the internet. If it is a product we have ordered in the past 3 months all this work has already been done so we are looking for a system to check the existing stock database and then the previous order date and then to order automatically for products ordered in the last 3 months. This will save the sales team time checking it manually and speed up the delivery time on products. There are many packages available for purchasing ours who need to be more bespoke as we do have some products that we keep in stock and reorder when they get to a certain level which is how many purchasing software packages work, but we are looking at automating the process of searches on the internet for certain products from recognised web sites so that we are sure we are getting the best price – this is new technology that is still under development there are several ways it can be automated but at the moment they all seem to be very expensive.
- Project management is software we use regularly to work with our customers, to plan our time and resources. The software is developing further with 2010 MS Project and you can share important information with customers, there is a new team planner facility and the

ability to quickly compare planned budget against actual spend. It also retains all the other useful features to help us develop plans, assign resources to tasks, track progress, manage budgets and analyse workloads. This package will help us maintain good customer relations and complete projects on time and to budget.

1.2 Explain how at least three environmental issues can affect the use of IT in business and industry

Environmental issues are hard work for businesses. It is a hot topic on the agenda and therefore legislation and guidelines are being continually developed and updated so companies have to keep up to date with the changes and be able to implement them.

- Energy conservation is very important. We monitor monthly, the consumption of electricity to determine the level of legitimate use. Any unexplained usage either on the monitoring or on the bills is investigated accordingly and any corrective action taken, as required. We have implemented some energy saving devices to help us save costs particularly as the price of electricity is continually rising. For businesses it is important to cut costs so we have policies in place to ensure lights and computers are not left on in rooms, windows are not left open in rooms that are not in use, etc. Staff have been trained to comply with these policies and can face disciplinary action if they do not as we are only a small organisation I would imagine it is much easier for staff to comply and easier to manage than in a large organisation. We work with lots of larger companies and install their IT systems for them so we are regularly asked advice and within our office we have installed software that switches the computers off at certain times so we have it set to switch all computers off at 5.30 if they have been left on this then saves electricity. There are lots of products that you can buy to help with energy conservation but as an organisation you have to decide does the cost of the product outweigh the cost of the energy!
- Waste, European Union's Waste Electrical Electronic Equipment (WEEE) Directive 2006 – The law states that you have to manage the disposal of all such equipment in an approved fashion. Store in a secure area pending disposal. Dispose via an approved system. Initially it was costly for companies to comply with this legislation as there were very few approved contractors that you could pass this waste on to. However it is now much easier as more and more companies are now collecting electrical products so it is becoming more competitively priced.
- Reduce, Reuse and Recycle are key to all areas of life today. As a small organisation we order as we need things and keep very little in stock to try to reduce what we have within the business. We reuse lots of items within the organisation particularly IT hardware as it saves us then having to dispose of it so we strip it down and identify parts we can use again. Recycling will be instigated whenever it is considered viable. We have facilities in place to recycle paper, metal, glass, batteries etc through our commercial waste collection. We also recycle our mobile phones, IT equipment and printer/toner cartridges. As a business we have to pay for waste disposal however when we recycle we can receive incentives or payments for the recycling so it is much better for our organisation and the environment.

1.3 Evaluate at least three social and collaborative technologies and explain how they are transforming business and industry

- Netmeetings can allow meetings to take place with the use of a camera and an internet connection. This can enable people to meet wherever they are in the world at the touch of a button. It saves travel time and costs. You can also have several people connected at the same time so it has the same feeling as sitting around a board table. You can also transfer files to share and collaborate with others in different location. Businesses are using this method of meeting more and more often to save travel time and costs and also it is usually more effective at keeping the meeting on the correct topic.
- Forums are sites that have been set up for people to join they usually focus on a certain topic. Those enrolled can then add a discussion topic ie Is anyone aware of a new Virus that deletes .exe files? Other people can then add replies (threads). These forums can save businesses a lot of time and effort when researching certain topics. However you also have to be careful as anyone can join a forum so you need to ensure the answer is legitimate. It can also take time finding the correct answer as sometimes discussions and threads can go off on a tangent.



- Twitter – companies can set themselves up on twitter and ask customers and potential customers to follow them and then update twitter with new products, special offers, customer satisfaction comments etc. It can be difficult getting customers to follow you on twitter and even more difficult attracting potential customers and it is also important only to put relevant information on. You can set up links to your website include photos and videos of products etc. There are lots of guidelines and advice about the best way to use Twitter that companies can look at to perfect their tweeting!

2.1 Explain how technology is transforming personal and social communication and interaction

There are social media tools that we can use in different ways:

Forums are sites that have been set up for people to join they usually focus on a certain topic. Those enrolled can then add a discussion topic and threads are added. I use these regularly on a personal basis to find out discount codes and details of pop concert ticket sales etc.

Social networks from friends reunited to facebook where people can meet up online and share information. I have a profile on each and add comments, photos etc.

Websites from information sites, shops, ebay, newspapers I use these regularly to order products, compare prices, buy and sell items.

Instant messaging using text or chat is often easier than a phone call as you stay on topic and get a speedy response.

Technology is progressing daily a large percentage of the UK is covered by broadband which means access to the internet is faster, cheaper and easier. According to www.internetworldstats.com/eu/uk.htm on 18 Apr 2011 – There were 51,442,100 Internet **users** as of June 2010, 82.5% of the population.

Many mobile devices are also now capable of internet access, allow email, mms, sms, video technology etc often as part of a contract fee. Phones are becoming like a mini computer.

People are taking advantage of technology and using it to research, for ecommerce, to communicate with others, sometimes with people they already know and often with strangers. A new language has emerged “Texttalk”.

There are some problems with the changes to how we communicate. Security is an issue, usernames and passwords should be secure, people worry about who can access their details if they shop online or complete forms. Hackers and Identity Fraud worries may prevent some people from using new technologies. Interpretation of some of the comments on facebook or the brief email or text – often harmless but interpreted in different ways by different people. The content of the internet – some people do not like being able to access all of the pages on the world wide web as anyone can put content on about any subject. Other people are not happy if others have added information about them or a photo or commented on their status etc. These are covered in more depth in the section on the next page.

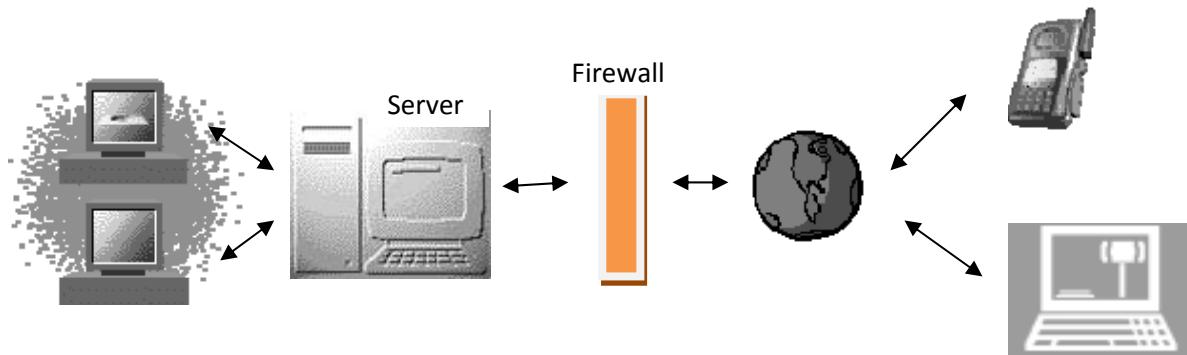
2.2 and 2.3 Describe at least three barriers to take-up or adoption of digital technologies by individuals and groups and describe at least three measures to increase accessibility to digital information

- Many mobile devices are also now capable of internet access, allow email, mms, sms, video technology etc often as part of a contract fee. Phones are becoming like a mini computer. These can be very daunting to some people who do not want to be contacted at all times or who are not aware of all the features of their phone so are scared to press a button because they are not sure what it will do. Also it can be very expensive to buy some of the phones the latest iphone can cost £500 so that may then lead to security issues. There are also so many different providers, phones and features it is very difficult to choose which is the correct one for you. I think a good way to increase accessibility is to allow people to loan a phone, like a library book initially they borrow it and can try out the features. This may encourage people to have a go at using one and for people who are new to technology an easy to follow guide on just the basics to start with as often they come with a CD which contains over 100 pages instructing you on how to use it this can be very daunting.
- Security is an issue, usernames and passwords should be secure, people worry about who can access their details if they shop online or complete forms. There are lots of ways of minimising these risks, software can be setup so that people can only enter passwords that have certain conditions and therefore are strong passwords. This will prompt people to use uppercase, lowercase, etc. It can also be setup so they must change their password regularly as well.
- Hackers and Identity Fraud worries may prevent some people from using new technologies. People need to be educated more about IT security, we see lots of posters regarding “Lock it or Lose it” about the theft of a car but how many do we see about Computer Hackers. There is a Computer Misuse Act which deals with the Misuse of Computers when people are caught. More education from banks, the government, ecommerce sites etc can help minimise the risks. Most people clean and maintain their homes and cars regularly they should also do the same with their hardware. The firewall should be installed and set up. A virus checker installed and run as well as regularly updated. Regularly check the settings and for patches to download. This has become much easier as many are setup to update automatically, but again there are a lot of different products and settings so an easy to use guide is vital.

3.1 and 3.2 Explain the main principles of interaction between key components of the IT system

- hardware
- software
- communications

and describe the movement and transfer of information in key technology-enabled business processes using appropriate IT tools to illustrate the information flow



The diagram above shows computer systems within an organisation connected to a server all information that goes in and out of the organisation goes via a firewall. This then sends information via the internet to mobile technology and other computer systems.

An example of a key business process is ecommerce.

A company accesses the internet via their server and firewall to research a product. They use a search engine and then narrow this down to a particular site once on the site they place items in their shopping account. Before purchasing they will have to register their details with a site or login if previously registered. They may be required to make a payment to process the order so Secure Sockets Layer (SSL) is a protocol standard that uses data encryption to process payments. Digital certificates are Secure Server Identification cards issued by financial institutions and they allow information to be sent through encryption. Companies should always ensure they pay through a trusted method. The order is then sent encrypted via the Internet to the supplier. The supplier may send a response via email to say they have received the order. As in the diagram above.

3.3 Review how the use of bespoke and/or specialist systems can contribute to organisational success

There are many software packages that exist and they are designed like a car for mass production. There are some specialist software packages for certain types of industry ie Engineering, Call centres and some for certain topics ie Customer Relations, Risk Assessment. Specialist software are usually more expensive than standard off the shelf software but should usually work better within your organisation. It can often save organisations time setting up systems to suit how they work.

Bespoke software is similar to specialist software but bespoke to your organisation so usually more expensive. But because you are having it designed to fit your organisation it should be a perfect system for your employees. Bespoke software does not have to be outsourced it may be that someone in your organisation can design a spreadsheet to monitor payments or set up a customer database. The key to getting bespoke software correct is systems analysis and design.

Once a system is setup within the company and the staff must have adequate training for the system to be successful.

4.1 and 4.2 Recommend at least three developments in IT tools or systems for IT users highlighting:

- **the benefits**
- **risks**
- **opportunities**
- **costs**

Evaluate the key factors influencing the successful introduction of the three new IT tools and systems you have recommended

GPS – Global Positioning Services

Used by a signal from a device connecting to satellites. It is worldwide and often used for vehicle navigation. It can also be used as a tracking device. The benefits are it works globally and has good coverage across rural areas and cities. It can also be used to find nearest services ie petrol stations, toilets etc. To plan best routes, to see sites before you arrive to ensure deliveries can be made. It is relatively inexpensive and portable. Employees would be learning to make the most of new technology.

There are risks a computer system is only as good as the information in it so information should be updated regularly – this can be done by connecting to a site to update. Many systems have the data downloaded so it is quicker to access. However some mobile phones connect via the internet to access details and this can mean if you are in an area that does not have mobile network coverage you also lose GPS. Occasionally it can take you the wrong way down a one way street. If the user keys in the wrong postcode or presses the wrong button they may end up in the wrong location.

As an organisation it means you can look up information quickly as to the best route to travel and nearest facilities. As a tracking facility you can install it in transport or equipment for security measures and to help plan resources. It is safer than looking at a map whilst driving as you can have it set up with volume on.

Costs depend on what the device will be used for – many mobile phones have the application included but there may be a connection fee. You can buy systems for transport and for tracking from £100. If used for tracking it can bring down the cost of your insurance if an item is stolen it is much easier to trace with a tracking device.

Key factors – ensuring it is used correctly and explained well to the users. The users would need training on the devices. The devices would need to be updated regularly.

Smartphone

Many mobile devices are also now capable of internet access, allow email, mms, sms, video technology etc often as part of a contract fee. Phones are becoming like a mini computer. The benefits of having a mobile phone are that you are almost always contactable, you can access your email/internet from anywhere with a reception, you can use it to play music, record video etc. It is very small and portable. You can synchronise it with other devices ie computer.

The risks of using a smartphone are that you need to ensure data is kept secure on the phone. You do not always have reception depending on the provider and the area. You often have to have a contract. People may have inappropriate content on their phone. People may not always want to be contacted.

The opportunities for an organisation are that you can contact people when you need to. Emails can be accessed and answered more readily. Information can be updated and synchronised whilst

out of the office. Many employees are keen to learn about the features of a smartphone and like the image of having a smartphone.

They can cost between £200 - £500. Users may need some training.

The key factors are users would need training on how to use them and treat them securely. They would need to be synchronised and backed up regularly.

Netmeeting

These can allow meetings to take place with the use of a camera and an internet connection. This can enable people to meet wherever they are in the world at the touch of a button.

It saves travel time and costs. You can also have several people connected at the same time so it has the same feeling as sitting around a board table. You can also transfer files to share and collaborate with others in different location. Businesses are using this method of meeting more and more often to save travel time and costs and also it is usually more effective at keeping the meeting on the correct topic.

There are risks associated with its use as with all technology it can fail, you can lose the connection or have a delay depending on the equipment and the connection. There are also risks of employee rejection or customer rejection. They may not be happy with using the technology or having a meeting whilst working from home they may like travelling to different locations for meetings. There also needs to be compatibility with systems to ensure you can transfer documents.

The opportunities are great for businesses as meetings are now shorter, more effective. There can be massive travel costs and time saving. It can also help open doors to potential customers as you can demonstrate products without appearing too forceful. It is more difficult to arrange a face to face interview than a netmeeting.

Costs – many companies already have a decent speed internet connection. There is specialist software and equipment you can buy but small businesses could just use a £40 webcam and free windows software netmeeting.

Key factors – the key factor is discussing the idea of a netmeeting with those who would be involved in the meeting, setting up the equipment in a quiet location where a meeting would not be disturbed, ensuring that training and testing took place to see how clearly people need to speak where they need to sit etc. It is also important to plan the time of the meeting correctly particularly when meeting with people in other time zones.

5.1 Evaluate at least three risks to IT security

Viruses see virus powerpoint

Cyber-bullying:

Cyber bullying can be a problem when working online, anyone can be a victim of cyber bullying,. Cyber bullying is sending messages, pictures or any form of online threat to the victim to scare, embarrass or bully in any form. There have been cases of sending an unwanted email to someone who does not want contact with the sender, or posting frightening or embarrassing items of the victim on a blog or a social site (facebook, bebo, MySpace, Twitter). Some cyber bullying can be used to stalk or harass the victim by sending vicious emails or messages, using picture messages, again posting information. It can be used to threaten the victims career, earnings and reputation and in some cases their safety. Cyber bullying is also a way to obtain information from people, such as personal information and details. Cyber bullying can be online, mobile phones with text messages and picture messages, social network site such as windows live messenger or facebook chats. People are at risk from cyberbullying within organisations from emails that can be sent criticising or instructing them. Some people do abuse technology.

Data Loss

Data can be hacked into or stolen from your organisation. Others can illegally access or transfer an individual or company's information. The data could be misused by an employee. You could accidentally delete a file you require or have a virus on your computer which deletes your information. Losing data can be devastating for an organisation as it can take years to build data. Even losing a couple of days work can cause real problems as you may have lost customer orders, customer details and may well lose the repeat business from those cutomers.

5.2 Evaluate at least three control measures that are in place to maximise personal and data protection

Viruses see virus powerpoint

Cyber-bullying:

There should be policies set by your organisation regarding monitoring of IT systems to try and prevent cyberbullying and also regarding dealing with it if it does happen. Cyberbullying by email and text is traceable so the bully can be traced and dealt with. If it does happen save all messages and pictures that are received, don't respond to it, talk to someone about it as someone should be able to stop it or help. There are also laws that exist to prevent this from happening in the USA and the UK are more aware of it now. Many sites have their own protection, social network sites now offer the option to block other users and report messages and people. Also it is important that privacy settings and passwords are implemented and amended when needed. There are also other things which can be done such as changing browser settings to block unwelcome sites and enable parental controls.

Data Protection

There are guidelines and policies set by employers regarding Health & Safety, IT security, confidentiality, etc these need to be communicated to employees so they are aware of them and implemented in the workplace. If the policies and guidelines are not being followed they should be reviewed to ensure they are relevant and up to date. There is also legislation regarding data protection. The Data Protection Act was created to protect individuals from misuse of their personal data and was developed to give protection. It also provides guidance to organisations on how personal data can be used.

As an organisation your responsibilities are to :

- Keep all records up to date and accurate
- All data should be relevant for the required purpose
- Make sure data is processed fairly
- Data should only be held for a specific purpose
- Data should not be kept for longer than necessary
- Data cannot be transferred outside the EU unless they have a similar legislation to DPA
- Measures MUST be taken against unauthorised action

Set up strong passwords on all systems and change the password regularly. Make sure employees aware of company security measures. As well as protecting this data it is important to ensure the data is appropriately backed up. If the data is backed up then you can restore data if it is lost, corrupted or stolen. Systems can be setup so there is an automated backup onto a different server in a different location to the head office or for small businesses. Things can be backed up onto storage drives or into cyberspace.

5.3 Explain at least three examples of how organisations are using innovative systems and software to help improve cyber security

Biometrics technology is becoming more and more advanced. It is a way of identifying an employee by something like a fingerprint, eye contact or voice recognition. Biometric systems mean you do not need to carry any ID with you that can be stolen or misplaced and it is very difficult to forge identification. According to experts Retinal identification is the most accurate at the moment. Organisations will be able to use for access to buildings, computer systems , instead of PINs on mobile phones etc This will greatly enhance the security of who has access to information particularly remote access.

Smartphones work on a 3g/ 4g network and Bluetooth and are used for downloading apps, storing files, storing personal contact details etc. Organisations are issuing these to employees to use so they need to have security systems in place. Mobile content is especially vulnerable to hackers and thieves. So it is important that the data is not accessible if the device is lost or stolen. Phones can have a personal identification number to lock the phone, however often these are not setup so it is important the organisation ensures this is setup before issuing them. If the phone is lost and stolen it has to be reset to be used so all data is cleaned from the phone. There are also services available that you can register with to remotely locate, access and wipe your phone. Many organisations are investing in using these services to track devices if they are lost and stolen and wipe the data before it is accessed by others. Samsungdive is the application we have been looking at using to provide this service. Employees should also sign user agreements about how they will use and store the devices.



Cloud storage allows organisations to free up their networks and office space by storing files in cyberspace. For a relatively low cost companies can subscribe to organisations such as

The screenshot shows the Livedrive website. At the top, there's a navigation bar with links for 'For Home', 'For Business', 'For Resellers', and 'About'. On the right side of the header, there's a phone icon followed by the number '+1 267 702 3992' and social media icons for Facebook, Twitter, LinkedIn, and YouTube. Below the header, there's a large banner with the text 'One Product Endless Possibilities.' and a subtext about backup, sharing, and collaboration. A 'FREE TRIAL' button is prominently displayed at the bottom left of the banner.

Livedrive which manage the security of files for you. Employees can access it from home, work or via mobile devices . It also backs up the data and synchronises with all devices. After researching about cloud storage the results show that it is more secure than traditional methods.

SpiderOak has a very good rating from KIMPL who say:

- “Security: SpiderOak uses a layered approach to encryption, using a combination of 2048 byte RSA and 256 bit AES. SpiderOak never stores or knows a user's password or the plaintext encryption keys which means not even SpiderOak employees can access the data. Also, all data transmission occurs using SSL and SpiderOak operates its own hardware and data centers without outsourcing which means they have better control over technical details.”
- “Privacy: SpiderOak implements a zero-knowledge approach to privacy. SpiderOak's encryption is comprehensive — even with physical access to the storage servers, SpiderOak staff cannot know even the names of your files and folders. On the server side, all that SpiderOak staff can see, are sequentially numbered containers of encrypted data.“

<http://www.kimpl.com/847/secure-online-cloud-storage-service/>