

## Chapter 4 Issues in information systems

### Test your knowledge

#### INFORMATION SYSTEMS IN ACTION

- 1 Data, digital systems, people and procedures
- 2 A digital system is made up of hardware, software and networks.
- 3 Issues can occur when the use of an information system causes tension between two or more stakeholders.
- 4 A stakeholder is any individual or organisation potentially affected by the use of an information system.
- 5 Any three of the following are acceptable.
  - Less expensive than buying the content legally.
  - More convenient because the individual can download from any location.
  - Downloaded files rarely contain advertisements.
  - Downloaded files are often available prior to retail release.
  - Downloaded files are often available prior to release in your region.
- 6 If the copyright owner of the file has given their consent for the file to be free to download; for example, many musicians post sample tracks of their music on websites to allow others to download the files.
- 7 Copyright states that the creator of a piece of work is the legal owner of the work and has control on how the work is used and distributed. It is possible for the creator to pass on ownership of the work to another individual or organisation. Many musical artists have sold the rights to their songs to others.
- 8 Intellectual property refers to any product being created (e.g. film, game, music, etc.) is owned by the creator of the property. Copyright states the copyright holder of a product has the right on how that product is used and distributed.
- 9 *Copyright Act 1988.*
- 10 Peer-to-peer file sharing works by users allowing other users to access the files on their devices. A person downloading a movie may be downloading pieces of the movie from hundreds of different users.
- 11 Downloading involves downloading an entire file before the file can be opened and viewed. Streaming allows the user to view the file as it is being downloaded.
- 12 Artists lose money if people illegally downloading their work, because it means they do not earn any income from the download.
- 13 To interact with their fans, promote or market goods and services, promote the team or organisation they represent, and for leisure
- 14 Professional athletes may damage their reputations if they inappropriate material; they may give away strategic information, such as team selection; and they may get into a dispute with the organisation or controlling body of the sport in which they work.
- 15 Facebook, Twitter and Instagram
- 16 A hashtag is used to index or categorise information posted on social media sites to enable users to find the topic in which they are interested more easily.
- 17 Global positioning systems are used for surveying and fencing.
- 18 Farmers may require training in the new technology. Health and safety issues have arisen due to use of new technology. Farmers are also not always equipped to maintain information systems.

- 19 Farmers plan when they will plant or harvest their crops based on future weather forecasts. When these forecasts go wrong it can lead to crops producing vastly less than anticipated.
- 20 E-commerce is popular because it is convenient to complete transactions online without using cash because it is faster and easier, especially with the growth in computer networks around the world, the increase in availability of products online and the ability to compare products across websites.
- 21 Card skimming involves copying the bank or credit card details from the card using a card reader digital system. Once the card details are stolen, they may be used to buy goods online without the victim's knowledge. Card skimming can occur anywhere that the user hands over their card – this includes bars and restaurants.
- 22 Phishing attempts to gain sensitive data and information by sending emails pretending to be from legitimate sources, such as banks. The phishing email requests the user to enter sensitive information, such as account details and passwords, or click a link, which will download spyware onto a device.
- 23 Card detail theft involves stealing (or copying) the details from a bank or credit card. Identity theft involves collecting a wide range of information about a person. Eventually, once enough data has been collected, credit cards and loans can be taken out in the victim's name, without their knowledge.
- 24 Do not let your EFTPOS card out of your sight. Be careful about what you post on social networking sites. Only purchase goods online using websites with a secure protocol (https://).
- 25 The medical history of an individual, including personal details, medical history and the results of blood tests and medications issued
- 26 Privacy – potentially, an unauthorised person could gain access to the record without the patient's consent  
User dependency – if the computer network crashed in a medical centre, the patient's medical details could become inaccessible
- 27 *Health Records Act 2001*

### EXPRESSING OPINIONS

- 28 Social media allows individuals to publish their opinions easily. With the use of features like hashtags, other interested parties can read and respond to the opinion.
- 29 A five-star rating system is a quick method to provide feedback, yet is easy for others to understand.
- 30 Written comments can be more specific and detailed than a general overall rating.
- 31 A forum allows a user to post a message, perhaps on a topic, or an opinion. Other users view the initial post and reply to it, creating a conversation or 'thread' on that topic.

### METHODS AND TECHNIQUES TO ACQUIRE DATA AND INFORMATION

- 32 Primary sources of data are methods that an individual can use to collect data directly. These include interviews, observations and surveys. Secondary sources of data are methods to gather data that have been collected and interpreted by others. Secondary sources of data include books, newspapers and online resources.
- 33 Interviews can be a time-consuming and expensive way of collecting data. The advantage of an interview over a survey is when detailed in-depth responses are required. An interview also allows the interviewer to vary the question, or hone in on a particular area if required.
- 34 The advantage of a survey over an interview is that they can be quickly developed and then can be sent to a large number of people. This allows feedback from large sample size increasing the chances of the result being free from bias.
- 35 Attempt to find the same information from two or more trusted sources.

- 36** Qualitative data is hard to measure because it is based on subjective data collection methods such as interviews, focus groups, interviews and observation. It is concerned with experiences, beliefs, feelings and opinions.

Quantitative data is measurable and specific. It verifies theory using statistics and largely numerical data. Examples of quantitative data include questionnaires and experiments.

- 37** In a wordcloud, you key blocks of text and then analyse it. The text is displayed as a cloud with words in the text that have been used more frequently appearing larger in the cloud.
- 38** Qualitative data, including opinions and ideas, can be grouped as categories. You can calculate the frequency of each category, which will allow you to convert the qualitative data to quantitative data, which is easier to process.
- 39** Any two of Harvard, APA, Chicago or IEEE

### DATA INTEGRITY

- 40** Accuracy, correctness and reasonableness

### STORING SHARED FILES

- 41** Storing and accessing data and software from a remote (non-local) location
- 42** You can access a particular file regardless of the device you are using. You can save storage space of your local devices. If you lose your devices, you can still access the data you have saved in the cloud.
- 43** You have no control over the security measures used to protect the data. You do not know for sure where your data is stored, including the country it is in, including the laws that exist to protect it. If your cloud server closes down or is offline, all your data is lost. If your internet connection goes down, you will have no access to your files.

### MOBILE DEVICES AND WEB DESIGN

- 44** The screen size of mobile devices are much smaller than laptops and desktop computers, so this must be taken into account. The input methods may also differ. For example, smartphones do not have cursors, while laptop and desktops do.
- 45** Screen size refers to the physical size of the screen, measured from the bottom corner to the opposing top corner. Screen resolution refers to the number of pixels being used on the screen: the higher the resolution, the better quality the image.
- 46** Keyboard, touchscreen, microphone
- 47** The speed of transmission refers to the speed that data can be up and downloaded. The cost of transmission can refer to the charges the phone or ISP bills users to upload and download data.

## Apply your knowledge

### ISSUES

- 1 a** Making negative public comments about others online – defamatory content
- b** There are at least two legal issues involved.

By making public comments about others, the employee may be breaching the *Charter of Human Rights and Responsibilities' Act*, which states that individuals have the right to privacy in Victoria.

The employer would need to tread carefully before sacking the employee, lest they breach an unfair dismissal law.

The employee will encounter social problems with co-workers who object to her behaviour.

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Digital system	People	Data	Processes
Home computer Social networking sites	Employee Other social network users	Negative comments	Posting comments

- d Employee, employer, supervisor, co-workers, customers
- e The employee damages her reputation by posting these comments online. All the other stakeholders lose faith and confidence in her. The employer worries that the business's reputation will suffer due to the negative impact of the comments, causing a decrease in sales. The supervisor and co-workers are upset that someone is making negative comments about them. Customers consider not using the company and taking their business elsewhere.

- 2 a Spending so much time playing computer games, to the extent that it is affecting school work and relationships with family, are symptoms of computer gaming addiction.
- b Gaming addiction can lead to antisocial behaviours, including restlessness, irritability and lack of socialising with friends in the real world. These same behaviours are also causing issues within the household with other family members.

An ethical factor is that the parents of the child need to make a tough decision whether to attempt to stop the gaming from occurring, which would upset the child, or do nothing and let the whole family suffer.

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Digital system	People	Data	Processes
Computer/laptop Controller/input device Game software	User	Game actions	Input actions through keyboard/mouse or controller

- d Individual, family members, friends and school community
- e The son himself has behavioural issues. He falls behind in classwork, potentially resulting in poor grades or other sanctions. His family is upset because of his behaviour, and are flustered about finding a solution to the problem. His friends simply miss his company but are unsure if they should intervene. The school community are concerned about his performance academically as well as his psychological and physical wellbeing.

- 3 a Whether to store data and information locally or in a remote location using cloud technology
- b There may be legal issues surrounding where the data is stored and the type of security used by the cloud provider to protect the data. The organisation may need to follow the Privacy Act and if their cloud supplier is not keeping the data secure, this could result in the organisation being prosecuted under the Act. A potential social factor is that a move to the cloud may cause some computing staff to lose their jobs. Some argue that cloud computing increases carbon omissions; this would be considered an environmental issue. Further, by using the cloud the company may not know where the data is stored. They may also not know what security measures are used to protect their data.

- c Describe the information system being used.

Digital system	People	Data	Processes
Remote server Internet connection	Company Cloud provider	Company details	Upload data Download data

- d Company, customers, staff

e The company's reputation may be damaged if data stored in the cloud is lost or stolen. Customers would be upset and angry if their details were stolen. Staff would also be concerned about their personal details or losing their jobs.

4 a Inexperienced users using technology.

b If an incorrect diagnosis results in a patient becoming hurt or injured then the hospital could face legal repercussions. Incorrect treatments or delayed treatments that cause pain and suffering are a social factor. An ethical factor relates to if the hospital is doing the right thing in putting inexperienced doctors in charge of a system in the first place.

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Digital system	People	Data	Processes
Expert system Hardware and software	Patient Doctor	Patient symptoms	Input systems Prescribe treatments

d Patients, family, doctors and hospital

e If incorrect treatments are prescribed to the patients they will cause pain and suffering. This will extend to the family members of the patients who will be upset by the suffering of their loved ones. The doctors are concerned by their inexperience using the system. They are concerned about misdiagnosis and incorrect prescriptions and treatments. The hospital worries about losing its reputation if misdiagnoses and wrong treatments occur, because these would lead to legal action – potentially both legal and civil.

5 a Purchasing goods and services online from an unknown source

b A legal issue might arise if the seller is trying to sell counterfeit or poor quality goods, or intending to not send any goods after purchase. The student would also need to have her father's permission before using the card, or she would be stealing. Is the seller acting ethically by undercutting local prices? Are these genuine goods or are they 'ripping off' buyers with terrible products? Socially, if the student purchases the goods without permission, or if they turn out to be poor quality or do not show up, it will cause tension with her father and/or potentially her friends.

c Describe the information system being used.

Digital system	People	Data	Processes
Laptop/desktop device E-commerce websites	Student Seller	Product details Quantity Credit card details	Order goods Complete payment Receive goods

d Student, father, friends and seller

e The student may be the victim of fraud, in that she either does not receive the goods or receives faulty goods. She may feel guilty if she makes the purchase and it turns out badly. The father may not be aware of the student's purchase. He may become angry, upset or disappointed if the transaction was not genuine. The seller, if misrepresenting the goods, may face criminal charges if caught and found guilty. The friends are concerned about student making smart choices.