

BTEC DIT



Component 3 Effective Digital practices

Learning Aim A2: Impact of Modern Technologies

Knowledge and Assessment Organiser



Student name:



How has the use of modern technologies impacted the way organisation perform tasks and collaborate?

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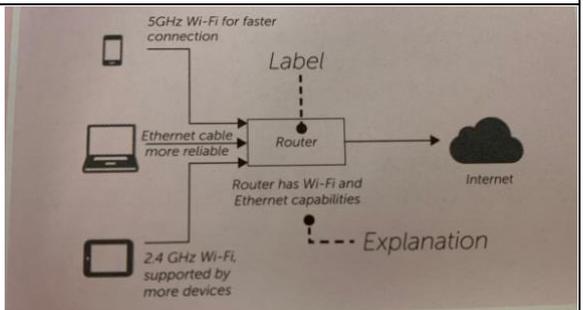
Exam question command words and examples

Give/ State/ Name		
Recall something that you know. These are short answers with 1 mark for each point	Give three types of malware (3)	Virus (1), Trojan (1), Spyware (1)

Identify		
Select some key information from something you are given	Mia uses her home computer to go on the internet. Identify one item of network equipment that Mia uses (1)	A router (1)

Explain		
An explain question needs two parts. First give an example and then give a reason why this example answers the question. Make sure to use words like 'because' or 'so in this type of question.	Cecilia is concerned about her customers' personal data being stolen from her laptop. Explain one security feature Cecilia should use to protect her data. (2)	She should encrypt the hard drive (1) so that is the computer is stolen, the thief won't be able to understand the data on it (1)

Describe		
Give an account of something. This will often be the steps in a process	Milo wishes to start his own online shop. He needs to collect personal customer data. Describe the actions he must take before collecting personal data (3)	Register with the information commissioners officer (1) Make sure his customer database is secure (1) Create a privacy policy for the website (1)

Annotate the diagram		
Label the diagram and add an explanation for each label	Janice has a laptop, tablet and smartphone. Label the diagram to show how these can all connect to the same internet connection.	

Assess		
<ol style="list-style-type: none"> 1. Write down all the factors or events that apply. 2. Identify those that are most important. 3. Assess the importance of the factors. 4. Give a conclusion. <p>You should use full paragraphs in your answers.</p> <p>A full answer will usually be around a page of text.</p>	<p>A company want staff to use their smartphones to monitor their social media.</p> <p>Assess the impact of smartphone use for monitoring social media accounts.</p> <p>You must provide a conclusion as to whether you think that providing smartphones for this use is a good idea (8)</p>	<p>Monitoring social media account on a smartphone will encourage staff to work whilst at homes as the devices will constantly be giving notifications for new posts. This is a serious problem as it will affect their work life balance.</p> <p>The company could mitigate the work life balance problem by explaining to staff when they should and shouldn't be monitoring the accounts.</p> <p>In conclusion, this is only a good idea if the company makes it clear when they should be used. Even then, they should make sure that staff agrees to the request before implement it.</p>

Discuss		
<p>Identify the problem or issue in the question.</p> <p>Explore the relevant points that relate to the problem or issue with logical thoughts or arguments.</p> <p>You should use full paragraphs in your answers.</p> <p>A full answer will usually be around a page of text.</p>	<p>Virtual PA provide laptops and headsets to all their remote workers.</p> <p>Discuss how remote workers can help protect the environment (6)</p>	<p>They could change the power settings so that the display turns to suspend mode if the computer hasn't been used for 10 minutes.</p> <p>The hard disk platter could be made to stop spinning.</p> <p>As remote workers' pay for their own electricity they would have the incentive of lower energy bills and the result would be a reduced impact on the environment.</p>

Draw		
<p>Draw a process using a data flow diagram, information flow diagram or flowchart.</p> <p>The drawing should be annotate.</p>	<p>A health app has a number of steps a user walks as an input. It then calculates the number of mile walked and outputs it.</p> <p>Draw a flowchart of this process.</p>	<pre> graph TD Start([Start]) --> Input[/INPUT steps/] Input --> Process[miles = steps / 2000] Process --> Output[/OUTPUT miles/] Output --> End([End]) </pre>

Key Vocabulary

Version Control	Records changes to documents and files over time so that all versions can be recalled if needed.
URL	Stands for Uniform Resource Locator and is the address of a page on the World Wide Web.
ALT Text	Is alternative text that describes an onscreen image for users with visual impairments?
Distributed Data	Split into lots of bits and stored in different places.
Dispersed Data	Multiple copies of the same data in different locations.
Wiki	this is a web page (or pages) that has been developed collaboratively by a group of people



What is my big question?

How has the use of modern technologies impacted the way organisation perform tasks and collaborate?



What is modern teams?



How is modern tech used to manage Modern Teams?



How modern tech is used to communicate with Stakeholders?



How does modern teams aid inclusivity and accessibility?



How does modern tech impact on organisations?



How does modern tech impact on individuals?

What is Modern Technologies?

Modern Technologies have changed the way in which teams from around the world can work together with complete flexibility.

It enables staff within organisations to work together more effectively by allowing them to communicate and share information and documentation more easily.

It allows you to use a wide variety of technologies and software to communicate and collaborate, enabling people to work together on day to day tasks and projects.

Benefits include:

Multi-cultural World Teams - Employers are not limited to just one area of the world

Multicultural - Employees from various cultures can work as a team

Inclusivity - More people are able to make valuable contributions

24/7/365 – allows collaboration to happen anytime

Flexibility – allows work to be carried out around individual responsibilities.



Multi – Cultural World teams

Bringing together people from all over the world into a single team enables diverse range of ideas to flow. People from different **cultures** bring a **diverse** set of experiences which will benefit organisations, especially multinational companies.

Video conferencing and instant messaging facilities bring everyone together without the need of travel.

Time zone differences between team members enable a team to work continuously on a project round the clock, passing projects from one team to the next throughout each day. There is no restriction on who can be involved in a team based on geographical location.

Flexible working and inclusivity

Team members can work any time of day or night meaning that they can choose to work when they wish to with no set work hours. This is often referred to as **24/7/365**.

It is also possible for them to be working in different **time zones**. This flexibility enables people to fit work more comfortably around their own lives. This often improves productivity and happiness.

Some team members may be permanent staff, other specialists may be bought in for part of a project where they are required. Some team members may be based in a central office; others may work from home.

Remote working allows people who cannot work in an office to also be able to participate in teams. People with disabilities or those unable to travel can find **inclusion** in projects, enabling them to make a valuable contribution to the team and to society.



Permanent and Casual Staff

The flexibility given to companies by using modern technologies allows them to make greater use of **casual staff**, such as freelancers, rather than permanent employees.

This benefits the company as they can increase the size of teams to complete projects. Whilst many freelancers may appreciate the flexibility, some people may dislike the insecurity of not having a permanent job.

Push Doctor allows customers to have appointments with a doctor via their phone or computer

Customers who go on holiday can access a UK doctor from abroad

The doctor can prescribe drugs or refer the patient to a local hospital

What other advantages could such systems have for patients?

How are modern technologies used to manage modern teams?

Modern technologies provide features to help manage a team that may be working remotely from each other.

Features include

What other benefits can you think of sharing documents online?

Collaboration Tools

Shared documents enable several people to work together on the same files at the same time, creating a **single, consistent version**.

Any changes made by members of the collaborative team can be seen instantly as they are made.

A record of who changed what is kept with the document and a **version history** is stored providing access to older versions of the file each time it was saved.

Shared calendars allow events or entire calendars to be shared with others.

This helps with **scheduling tasks**.

Reminders can be set and the time shown will correspond with a person local time.

Communication Tools

Can use to communicate information in many ways such as:

- **E-mail** (Outlook and many other email clients)
 - Can be sent to a group of people at the same time
 - Files can be attached
- **Instant Messaging** (Skype, Microsoft Teams)
 - Internal messages to and from team members
- **Message Board** (Microsoft Teams, Slack)
 - Updates are posted for the whole team to see

- Messages from team members can be posted
- **Texting**
 - Groups can be set up to receive messages at the same time
- **Video conferencing**
 - A group of employees can have discussions and meetings with both video and audio

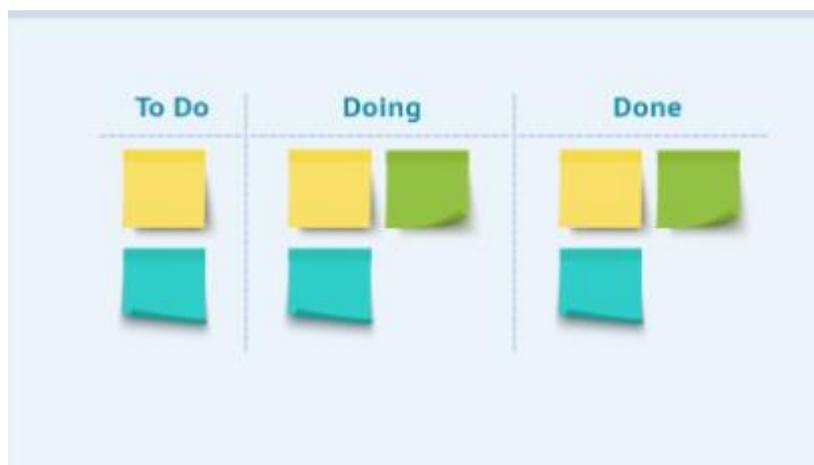
Scheduling and Planning Tools

Scheduling and planning tools increase productivity and help organise task within the workplace.

This may include to do lists and calendars which notify users of upcoming events, meetings or task that need to be addressed.

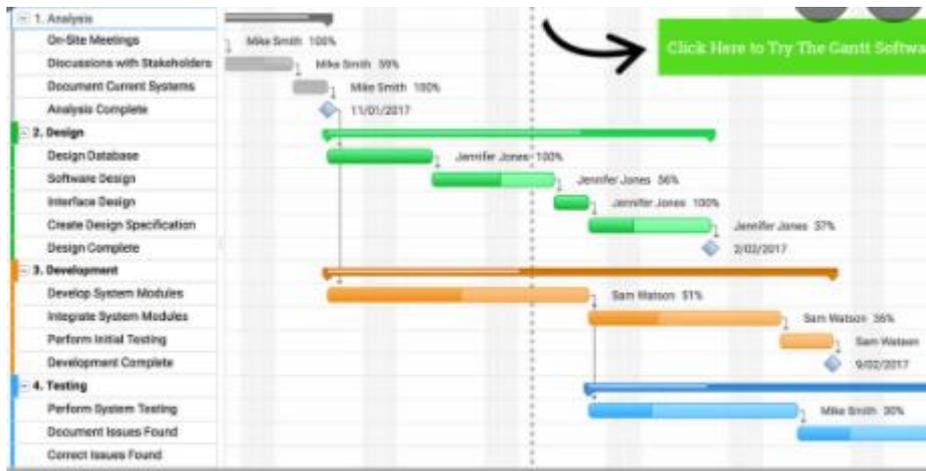
Projects can be organised using many methods, two of which are **Gantt charts** or a **Kanban system**.

Kanban System -> allow multiple users to create tasks and move them to different stages, known as buckets, according to progress. For example, a building company may have the following tasks: 'Sales call', 'Survey', 'Quote', 'Job in progress, 'Invoice'.



A Gantt chart shows subtask of a project but takes into account the length of each job, project milestones, tasks that are dependent on the completion of others and the length of time allocated to each subtask.

Project management software using Kanban systems or Gantt charts can automatically notify group members of any tasks they have been assigned to.



Task 2A

In pairs create a presentation on the topic of on how modern teams can be used to manage teams

The slide must include:

- Collaboration tools
- Communication tools
- Scheduling and Planning

You must do this using **Office365**, share the document and then use **teams chat** to communicate with your pair.

Task 2B

Match the types of collaboration and scheduling tools below to their description.

Collaboration and scheduling tool	Description
Text messages	Messages are organised into different categories and can be searched at a later date
Message board	Messages sent direct to a worker's phone
Gantt chart	An electronic form of letter which can contain attachments such as documents or images
To do list	A plan with key milestones and deadlines for each subtask
Email	A set of tasks that need to be completed. Once completed, each task can be ticked off

Communication with stakeholders

Organisations use a wide range of communication technologies to connect with their stakeholders, from their corporate websites to social media platforms such as Facebook.

A **stakeholder** is anyone who has an interest in an organisation or is affected by the decisions, actions or policies that it makes.

Common stakeholders include:

- Employees
- Customers or clients
- Suppliers



There are many ways organisation communicate with their stakeholder such as:

- Websites
- Social media
- Email
- Live chat
- Voice communication

These can be either private or public.

Private Communications

These are those between specific individuals, with the expectation that only they will be able to see the messages.

Types of information that the organisation may private:

- ⇒ Customer queries such as orders
- ⇒ Customer contact details
- ⇒ Customer payment details

Public Communications

With public communications the anticipation is that anyone can see the information. Information that the organisation might want to share more publicly includes:

- ⇒ Product information such as special features
- ⇒ Price reductions and other offers
- ⇒ Advice on products

Task 3

Create the table below in a Microsoft Word document. Explain how the different communication methods can be used to communicate with the different stakeholders.

Channels	Description
Websites	
Social Media	
Email	
Voice communication	
Live chat	

Exam Question:

Jim has his own personal training business.

(a) Jim uses social media to communicate with his clients.

Give two advantages of using social media to communicate with clients. **2 marks**

1

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2

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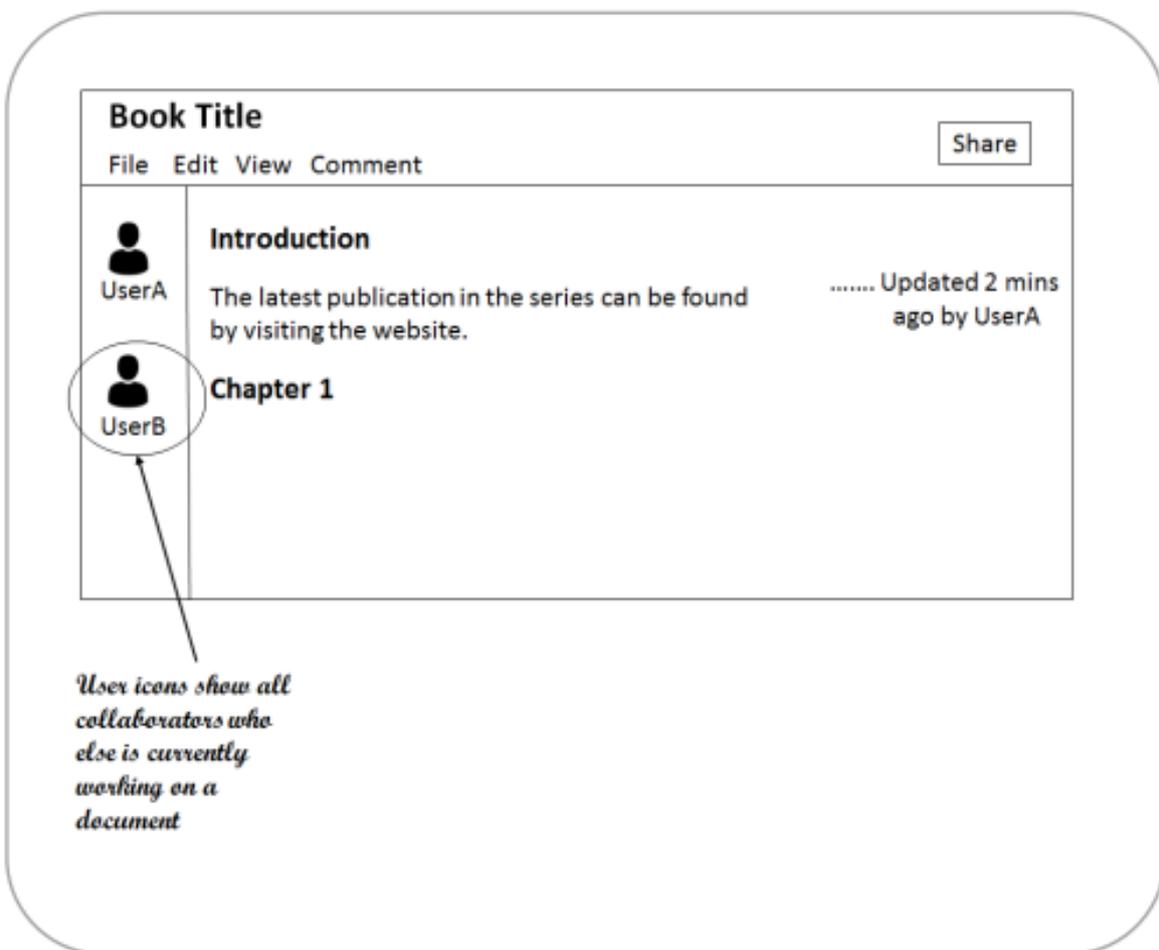
PublishShare works with writers from all over the world.

They use cloud computing technologies for employees and writers to collaborate.

Annotate the diagram to **explain** how two different features of this cloud computing system can be used to aid collaboration.

Your annotation should include the identification of each feature and an explanation to show how the feature can be used to aid collaboration.

An example has been provided **4 marks**



BTEC SAMPLE

How do modern technologies aid inclusivity and accessibility?

With the help of modern technologies a wide variety of users can utilise such systems to carry out work.

Computer should be capable of being accessed and used by everyone, but some have physical challenges that make aspects of computers use difficult or impossible. Technologies that help users overcome some of these challenges are becoming increasingly available.

It is important to consider **accessibility** of technologies along with how they help organisations to be **inclusive**.

Accessibility – there are many people who require additional support, such as users with visual impairment, hearing impairment, cognitive and motor impairment.

Interface Design and Layout

The **layout, font and colour** scheme of a web page or software application can affect its usability.

Screen layout should maximise the available visible area and use plenty of white space.

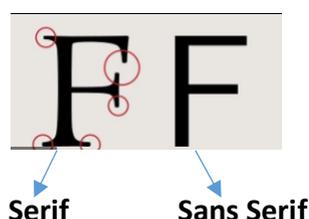
White space is the part of the screen designed that does not contain content. This may be margins, between columns or around graphics. Screen content should also automatically adjust to fit the screen sizes and proportions of most common services. This is known as **responsive design**.

Fonts

Fonts can affect readability. **Serif** fonts contain serifs which are small strokes at the ends of letters. This style of font tends to be harder to read on screen, however, it may give a more traditional feel.

Sans serif fonts do not have serifs and tend to give modern feel. They are easier to read on screen and can improve accessibility for dyslexic readers as they appear less cluttered.

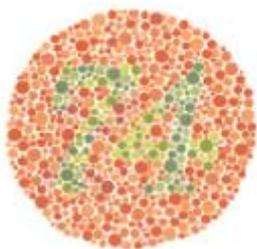
Facilities to **magnify** the screens or to change the font size displayed are also helpful.



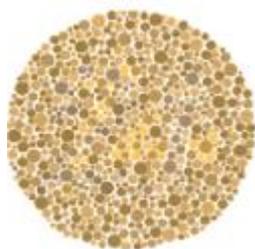
Colour schemes

Colour schemes should use contrasting text and backgrounds. Dark text on a light background is easiest to read, however, white text on a black background can also be very effective.

Colour blindness can cause colours of a similar tone to look alike so greens and blues used together in a colour scheme, for example, would be difficult for some to tell apart.



Colour blindness test



Simulated image as seen by a colour blind person

Alt text

Alt text should be added to images and videos.

Screen readers or **text to speech** readers use this to inform a blind or partially sighted user of what media is showing.

Text to speech also allows users to listen to page of text.

Buttons

Navigation buttons should be clear and in consistent positions on each page of a web site or on each software screen.

Large buttons can also help those who find mouse accuracy difficult.

Exam question

State **two** ways in which organisation could design a website interface to support users with limited vision. **(2 marks)**

Task 4

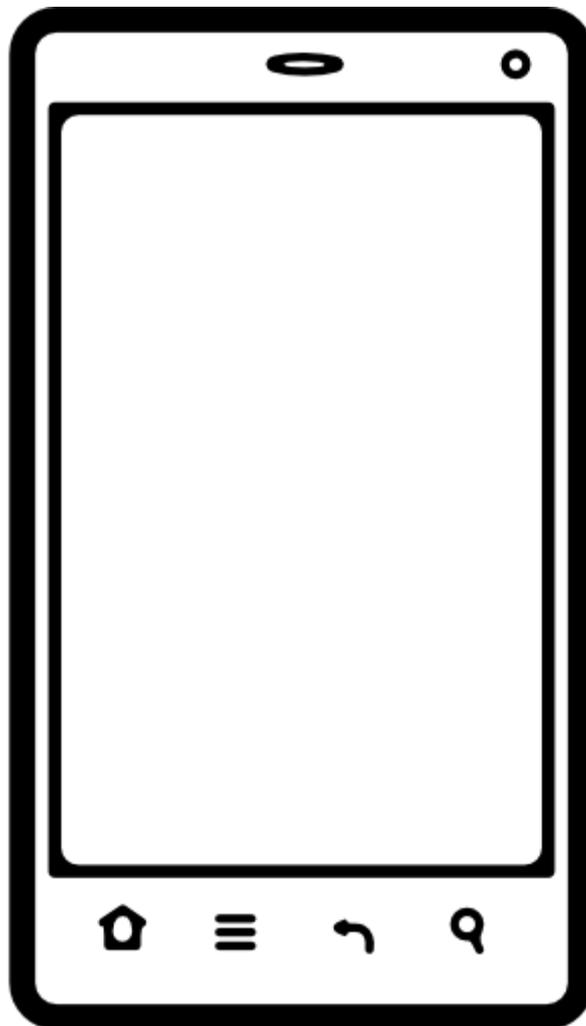
Mobile Phone App Interface

A number of older people have yet to make full use of smart phones for Internet. Many of these people have age related disabilities.

Design a user interface for a phone app that will help these users to find information about the following:

- Activities
- Restaurants
- Places to visit

Use the space around the phone to explain how you have made the design accessible.



How modern technologies impact on organisations

Modern technologies have made improvements for organisations and customers, but they also bring with them a variety of issues which need to be considered, such as cost, time, staff and security.

24/7 access, remote working and inclusivity

+	Customers can access technologies, websites and telephone support any time of day or night	-	Remote workers will each need additional devices such as printers as these cannot be shared.
+	Staff may work more independently in a home environment and may take fewer days off sick.	-	If a remote worker loses their internet connection, they may be unable to continue their work or communicate with their colleagues.
+	Less office space required for remote employees which lowers rent and other overhead costs.	-	24/7 access may encourage staff to work longer hours or feel unable to disconnect from work.
+	If the company has 24/7 access, staff may be able to work more flexibly around their personal circumstances such as childcare or family member disabilities.	-	Staff at home can be harder to manage remotely.
+	Remote working removes the need to commute. This means that a company can employ people with disabilities such as physical or mental health conditions For instance, someone who is agoraphobic (someone who has fear of open or crowded places) may find working from home easier than in an office.		

	Computer systems need to have consideration for the additional needs that people may have. For instance, they allow text to be resized for those who have poor eyesight. Voice assistants such as Amazon's Echo and Apple's Siri allow use with the need to type.
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Collaboration

	Collaboration tools, such as wikis and blogs improve the speed of developing websites		A user can deface a website or add information to a website that is factually untrue – this is especially a problem with wikis that have little restriction on the users that can update them.
	Many users are able to remove errors and make improvements as soon as they them		It can be harder to control projects where everyone has access to make edits.

Accessibility

	Modern technologies have vastly improved the quality and accessibility of devices and user interface. For instance, a modern tablet is far easier to use than an old text-based PC.		Wearable devices can collect very personal data such as medical information and location details – some will be uncomfortable with this.
	Operating systems, websites and software must have features to make them accessible to people with disabilities, such as changing text size, voice inputs.		Any personal data collected by smartphones and wearable devices will need to be stored securely in line with the Data Protection Act 1998

+	Companies need to make provisions for a variety of different accessibility needs. For example, adding braille to an ATM machine makes it more accessible for visually impaired.
+	Wearable technologies allow people to access their messages or health apps at any time.
+	Organisations must make technology accessible part of the Equality Act 2010.

Security of distributed/ dispersed data

+	If copies of data are stored in many locations, then the data won't be lost if there is a fire or flood in one location.	-	Having many copies of data stored in different location means that some copies of the data many are not updated. This will lead to inconsistencies
+	If small parts of data are distributed across the different locations, and a criminal gains access to one server, they won't have access to all the data owned by the organisation.	<p>Distributed data – is data that has been split into separate blocks and then stored in different locations.</p> <p>Dispersed data – means that many copies of the same data are stored in different locations.</p>	
+	Content delivery networks (CDNs) disperse copies of the same photos and videos in many data centres around the world. This allows website user to get data from servers nearer to them.		

Required infrastructure

Whilst modern technologies have many positive features, their impact on infrastructure require careful management.

Infrastructure refers to the hardware and software systems. Cloud services and general supplies that enable an organisation to run smoothly. The installation and maintenance costs of new infrastructure needs to be justified by increased futures benefits or profits.

	Description	Positive impacts	Negative impacts
Communication technologies	Now common practice for managers to be issued with laptops, smartphone, and tablets	Less paperwork to carry as files can be accessed electronically. Communications technology improve collaborative working and increases the channels through which customers can contact an organisation.	Increased communications aren't always a constructive use of time. For instance, workers may find they are constantly interrupted by email, chats, and text messages. If people don't have face to face, contact they may feel more isolated.
Devices		Personal devices for each employee may provide greater flexibility of working.	Devices are expensive, have smaller screens than desktops display and can be more easily damaged.
Local and web-based platforms	Software installed and used locally.	Local platforms keep control of security and data in-house. Local platforms may run faster then web based. Web based platforms are accessible from anywhere and can improve collaborative working.	Web based platforms cannot operate without a good internet connection. Local platforms require an in-house technical support team which may be more expensive. Cannot be accessed outside the office
Demand on, and availability of infrastructure		Cloud based software can usually make use of existing computers and Internet connections. This saves companies the cost of buying new equipment.	A greater resilience on any network infrastructure will create greater issues when is fails to work. Training on how to use various platforms may also be required. A new cloud service may require an internet connection with more bandwidth to be installed.

Task 5

Infrastructure

The impact of information technology can have positive and negative impacts on organisations.

For each of the impacts below, tick whether they are positive or negative.

Impact	Positive	Negative
Less paper is used		
Employees can be contacted at any time which has an impact on their mental health		
When using software that is locally installed, it may work faster than if it ran off the Internet		
When using a cloud-based system, software and files can be accessed from outside the office		
Files stored on a cloud-based system won't be accessible if the Internet connection is lost		
Mobile devices allow key people to be contactable in the event of an emergency or crisis		

Exam Question

A call centre uses a local platform to answer customer calls and take notes. They will be moving to a web-based platform.

Explain one impact on their infrastructure as a result of this change. (2 marks)

How modern technologies impact on individual's

Modern technologies have transformed the way that people work in organisation.

	<p>Early starts or commutes could be a thing of the past for remote worker, saving valuable time and shortening the working day. This creates more time for family or leisure.</p>
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	<p>Flexible working means that staff can have schedules that best suit their lifestyle and family life. They can also work late at night or early in the morning if they prefer.</p>
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	<p>Public transport or fuel costs would be greatly reduced without regular commute. This would also benefit the environment.</p>
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	<p>Home may be less stressful working environment with greater control over the daily schedule leading to greater satisfaction.</p>
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	<p>Access to a wider range of opportunities may be available to the less able or those who live very remotely.</p>
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	<p>Staff can move about during the day switching from one device to another depending on which is most suitable for their location. This may include working from home or remote working at other offices, customer's location, and coffee shops or on trips. .</p>
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Task 6

It is common for companies to now employ people who work remotely from home.

(a) What are three technologies that have made this possible?

(b) If a student was unable to come into school due to an illness, discuss how modern technologies could be used to help them to study at home.

Thinking about your own experience during lockdown, how did you benefit from modern technologies'?

A2: Exam Questions

l) New patients can register with the surgery using an online form.

Online forms must include accessibility features to assist users with additional needs.

State **two** accessibility features the surgery could include on the form.

(2)

Jim has his own personal training business.

(a) Jim uses social media to communicate with his clients.

Give **two** advantages of using social media to communicate with clients.

(2)



State – to recall a piece of information.

Articles for Wider Reading and Flipped Learning

Subscribe and watch the YouTube clips to help you revise for BTEC Tech Award Component 3.

<https://www.youtube.com/watch?v=veBiCewfOFs&list=PLmyUnKEeJk-6gijRiVKEfcvZhwcj6LWpo&index=2>

Impact of Modern Technologies - Know it all Ninja

Read through the topics on **Impact of Modern Technologies** Remember to complete the on-line quiz to gain house points!

<https://www.knowitallninja.com/>