Markscheme

May 2025

Digital Society

Higher and standard level

Paper 2

1. With reference to Source A, identify **two** ways in which *MMDA*'s data could be kept
secure when employees work remotely from home. **[2]**

Answers may include:
Network security such as:
- Use a secure and encrypted Wi-Fi connection.
- Avoid public Wi-Fi for work-related tasks.
- Use a virtual private network (VPN) for a secure connection.
- Encrypt sensitive files and communications (can accept Blockchain as a different form of encryption if specifies purpose).
- Using data masking techniques to change key elements of the data.
- Use of a firewall to prevent intrusion/hacking.

Authentication and access such as:
- Implement strong, unique passwords for devices and accounts.
- Enable two-factor authentication for added security.
- Secure physical access to work area and devices.
- Do not allow family members to use the device.

Software security such as:
- Regularly update and patch software and operating systems.
- Install and update antivirus and anti-malware software.

Awareness and data management such as:
- Be cautious of phishing emails and verify the legitimacy of links.
- Backup important data regularly.
- Follow company policies and guidelines for data security.
- Company Policy requiring specific data protection actions.
- Device settings that restrict usage to specific applications/restricted or approved software.

Award [1] for each way of keeping MMDA's data secure identified up to [2].

2.   With reference to Source B:

(a)   suggest **one** reason why employees may want to use software that has not been
approved by the IT manager for their work;   **[2]**

Answers may include:
- May be easier to use than the approved software.
- Meaning the employee can be more productive / produce higher quality work.

- Familiarity Preference/like using software they're already used.
- Makes their work easier.

- Special Features/it can do things that approved software can't.
- Making work better and faster.

- Not knowing approved options/lack of awareness of approved software.
- They use what they already know.

- Limited IT Help/support/updates.
- Approved software doesn't get enough support or updates; employees might
turn to unapproved software to get their work done.

- Time constraints/When time is tight.
- Faster than waiting for IT approval.

*Award **[1]** for each reason why employees may want to use software that has not
been approved by the IT Manager for their work and **[1]** for a development (why)
up to **[2]**.*

(b)   suggest **one** potential impact for *MMDA* if employees use software that has not been approved by the IT manager.   **[2]**

Answers may include:
- May create large files.
- That take up large amounts of space on the server / in the cloud storage.

- May not be compatible with approved software.
- Which may mean employees are unable to use both software types effectively.

- Unauthorized software can have weaknesses or harmful programs
- Which may put the company's data and systems at risk.

- Using software without permission can break licensing rules and laws.
- Which may cause legal trouble and fines.

- Work disruptions
- Software that isn't approved can cause problems and make work slower, reducing productivity.

- Software may not be properly backed up
- Which may increase the risk of data loss in case of system failures.

- Extra Costs
- Dealing with unapproved software can end up costing more money, including legal expenses, replacing software, and fixing problems.

- The IT department may struggle to help with unapproved software .
- Which may take away resources from important projects.

- Tech compatibility Issues (such as file formats).
- When everyone uses different software, it can lead to problems with making everything work together and slow down cooperation between employees.

Note: Answers could include positive impacts, for example improved efficiency due to familiarity etc

Award [1] for identifying a potential impact for MMDA if employees use software that has not been approved by the IT Manager and [1] for a development up to [2].

3. Compare and contrast what Source C **and** Source D reveal about the opportunities **and** dilemmas for *MMDA* employees when working remotely from home.   **[6]**

Answers may include:
*An **opportunity/advantage** for an employee could be a chance for personal or professional growth, like taking on new tasks, learning new skills, or getting promoted. In this context the opportunity arises with <u>working from home</u>.*

*A **dilemma/disadvantage** for an employee could be faced with the difficult choice between two or more alternatives, especially when each option involves undesirable consequences or conflicting values. In this context the dilemma/disadvantage arises from concerns with <u>working from home.</u>*

Autonomy
- Both sources C and D suggest employees will be more autonomous, both in terms of working hours and degree of oversight by other colleagues (opportunity).
- However, MMDA may track online usage/use monitoring (surveillance) software, and the degree of autonomy could be reduced (dilemma).
- Self-management - balancing flexible work hour (opportunity) however, missing meetings and team co-ordination (disadvantage/dilemma).

Productivity
- Both sources suggest employees may be more productive (opportunity) as they are able to work without distractions/interruption by setting their own work time (Source C – Sam (childcare, doing household chores)) and Source D suggests that employees can set their own work hours outside of 10-2.
- However, if the employee is not sufficiently self-disciplined, s/he may be less productive at home as the distractions provided by colleagues may be replaced with domestic distractions (Source C - Sam (childcare, doing household chores etc)). Source D requires a designated space in the home to use as an office.

Responsibility
- Workers need to be responsible for equipment and keeping data secured (Source D) and this could be hard in a household with children (Source C – Sam) (dilemma), where the children are using the device(s)

Trust
- Both sources C and D suggest employees will feel trusted (Source C – Alex), for example to deal with sensitive data/information outside of the office, use of work resources (Source D) (opportunity).
- However, if there is a data breach or equipment fails employees may be concerned that they will be blamed/do not want the responsibility outside of the workplace (dilemma).

Flexibility
- Both sources C and D suggest employees will be more flexible as they can choose when they want to work (opportunity). However, if the organisation uses the core time (between 10am and 2pm) for meetings, this additional flexibility may be illusory (dilemma).

Financial
- Source D indicates the organisation provides equipment for employees to use at home can be used for non-work-related tasks (Source C – children's homework) (opportunity) which is a cost to MMDA; however, Source D also highlights the need to take responsibility – raising the question of who pays for or fixes the equipment if it breaks.
- Additionally, from Source D not all homes have space for a designated workspace to safely and securely set up computer equipment [dilemma: responsibility for maintenance and suitability of home environment].

Being connected
- Source D requires them to be available between 10-2 (opportunity). Source C - Alex implies that some more comfortable f2f while some employee may feel socially isolated and one may miss the meeting entirely (Source C Ash) (dilemma/disadvantage)

The following markband should be used with responses to Question 3.

Marks	Level Descriptor
0	• The response does not reach a standard described by the descriptors below.
1–2	Opportunities/advantages and/or dilemmas/disadvantages or specific points from each source for MMDA employees working from home are Stated/identified. The response: • lacks direct comparison or contrast to link the sources • The reference to the sources may be implicit. For 1 mark, one opportunity/advantage **or** dilemma/disadvantage. For 2 marks, at least two opportunities/advantages **and/or** dilemmas/disadvantages.
3–4	Opportunities/advantages and dilemmas/disadvantages for MMDA employees working from home are outlined (what + one of who, where, when). Comparison/contrasts may use words like whereas, however, while to compare/contrast sources. For 3 marks - response is unbalanced between opportunities/advantages and dilemmas/disadvantages and/or more reliance on one source over the other. Limited attempt/s to compare and/or contrast sources. For 4 marks – balanced outline of opportunities and dilemmas with comparisons/contrasts of points/ideas drawn from C and D.
5–6	Opportunities/advantages and dilemmas/disadvantages for MMDA employees working from home are **described** (What and 2 of who, where & when). There are explicit references to the sources (Source C and Source D links/connects to description). For 5 marks – Brief descriptions of comparisons/contrasts between Source C and D are linked to the opportunities/advantages and dilemmas/disadvantages for the MMDA employees working from home. For 6 marks – Detailed descriptions of comparisons/contrasts between Source C and D are linked to the opportunities/advantages and dilemmas/disadvantages for the MMDA employees working from home.

4. With references to Sources A–D **and** your own knowledge, discuss the impacts **and** implications for *MMDA* of adopting a hybrid work model. **[12]**

Answers may include:

Stakeholders for MMDA would include the managers, technical team and the other employees of MMDA. It would not be the children or spouse of the employee, or the customer/client. Answers that come from the perspective of the employee are acceptable.

From Guide page 8: Impacts are effects and outcomes related to digital systems. Implications are opportunities and risks associated with digital systems. Impacts and implications overlap and inform one another.

Note: Responses that include content from the background will be accepted.

Background
- *3-2-2 Hybrid model*
- *Reference to advertising*

Source A
- The home office may not be secured to prevent observation from other people (e.g. window and visitors/shared spaces).
- The employee may not follow good practice, for example, may allow family members to use the computers.
- Discussion of furniture/space/environment.
- Security issues, ergonomics and other opportunities/dilemmas may be noted due to the graphics.

Source B
Use of Unapproved software
- The use of unapproved software may mean that confidential information is shared with people or organizations that have not been approved by the company.
- Unapproved software may contain malicious code for example trojan horse.
- Unapproved software may be in breach of licensing agreements.
- Unapproved software may use different file formats making products incompatible.
- Unapproved software may not have been obtained legally.
- Entertainment and gaming software may be a distraction.

Source C
- Hybrid working may give the employee greater autonomy and flexibility, but this could impact to the extent the organisation decides to utilise monitoring software.
- Managers may feel there is a disconnect between them and their subordinates.
- Employees may feel there is greater trust in the organisation (i.e., they do not need to be under direct supervision).
- Reduced overheads for MMDA (office space, utilities and auxiliary workers such as cleaners). Cost savings due to 25% reduction for office space but have to provide equipment for home office.
- Team coherence - social isolation vs connectiveness.

Source D
- Hybrid working may have little impact on the hours the employee works if s/he decides to work 'traditional' office hours.
- Employees may feel they cannot ever get away from work (Source C Ash), the distinction between home and work may have disappeared.

Conclusions may include:
- The hybrid model may suit some employees but not others which may lead to performance issues.
- The redistribution of power, i.e., the relationship between an employee and his/her line manager may be affected.
- For some employees the reduction of direct supervision and f2f contact may be seen as an affirmation of the work they are doing/they are trusted.
- Some employees may feel disempowered by the shift to hybrid working and their reduced access to their line manager and other work colleagues.
- Some employees may feel a sense of isolation and not part of the team as they did in a f2f environment, this may impact their performance.
- The success of hybrid working may be dependent on the values of the senior managers.
- The IT systems may not be able to facilitate the same level of work, the ability to carry out the same tasks as in a f2f environment.

Developing a common understanding of the 3Cs in the context of this question.

The 3Cs are usually embedded in discussions, with ideas that frequently intersect within the same C and across other Cs. e.g. ethics/values and privacy, privacy and data (ownership).

3Cs	From the guide	Suggestions of what we are looking for in the response
Content	**Data**, Algorithms, **computers**, **Networks** and **the internet**, Media, AI Robots and autonomous technologies	**Data:** hacking, privacy, security of data, synchronous and asynchronous communications (e.g. Instant Messaging), data encryption, data masking, file formats and compatibility. **Computers:** ergonomic peripherals e.g. keyboards, mouse, laptops (mobility) vs desktop, office set up (e.g. monitors), smart phones. **Algorithms (including software):** Malware, blockchain, productivity tools, antivirus, video conferencing systems. **Networks and the Internet:** access to the application, equity of access, digital divide, security of data, utilise monitoring software, VPN, wifi, conferencing tools, access to the application, equity of access, digital divide, networking and cloud-based services, firewall, two-factor authentication.
Concepts	**Change**, identity, expression, **power, space**, **systems**, value and **ethics**	**Change:** impact on working hours/environment, employee greater autonomy and flexibility, transformation of workday and work expectations, outcome rather than time-based work. **Expression:** changes in communication using synchronous and asynchronous tools, formal to informal, different forms of digital expression, shift from F2F to online. **Identity:** Change in identity with change in work environment – team member to individual worker, group/team member, blurring of employee's work and personal roles. **Power:** MMDA utilise monitoring software, shift in team dynamics, greater trust in the organisation (employee), change in influence and control as time management shifts to employee within restrictions of rules. Rules set by MMDA. **Space –** needs to be a digital society context – online working space vs physical space (e.g. online conferencing tools), digital divide, change of physical space to accommodate working from home, change to office structure like hot desking etc.

		Systems: Consideration of unintended consequences**,** human elements of system (e.g. company policies/processes (Source D), systems for hybrid model. **Value and ethics:** Expressed through policies/procedures, unauthorised software, licencing, distraction/gaming/entertainment during work hours, self-management, self-organsiation.
Context	**Cultural**, **economic**, environmental, **health**, human knowledge, political, **social**.	Suggestions of how Context is being applied/used in and beyond the source (contextualised) : **Cultural** – gaming, work culture, collaboration. **Economic** – change in working practices (remote working, design home vs office environment), operation of business (e.g. savings in reduction in office space, on-site support employees vs costs of setting up home offices (MMDA and employee). **Health -** the human body – ergonomic, wellbeing/mental health, reduced stress due to flexibility. **Social –** families and relationships, social interaction, social isolation, interaction between team members impacted, Shift to digital interactions rather than F2F.

Keywords: VPN, network, bandwidth, Wi-Fi, trust, transparency, change, power, space, systems, ethics, values

Notes:
It is not necessary to explicitly refer to each source to achieve the highest mark band.
To achieve the highest marks the sources must be synthesized in an integrated manner rather than a systematic analysis of each individual source.

Please refer to the Question 4 markband on Page 13.

The following markband should be used for responses to Question 4.

SL and HL Paper 2, question 4	
Marks	**Level descriptor**
0	• The work does not reach a standard described by the descriptors below.
1–3	• The response shows a limited understanding of the demands of the question. • There is limited relevant knowledge. • Evidence from sources is not integrated with the response. • The response has limited organization.
4–6	• The response shows some understanding of the demands of the question. • Some knowledge is demonstrated but this is not always relevant or accurate. • Evidence from sources is partially integrated into the response. • The response is partially organized.
7–9	• The response shows adequate understanding of the demands of the question. • Relevant and accurate knowledge is demonstrated with some lapses. • There is adequate integration of evidence from the sources, but this is not always sustained. • The response is adequately organized.
10–12	• The response is focused and shows an in-depth understanding of the demands of the question. • Relevant and accurate knowledge is demonstrated throughout, adding insight to the response. • There is consistent and effective integration of evidence from the sources. • The response is well-structured and effectively organized.