THE HONG KONG UNIVERSITY OF
SCIENCE AND TECHNOLOGY

HKUST Staff Mobile Computing Guidelines

RECOMMENDATIONS & CONSIDERATIONS FOR MOBILE

COMPUTING CAPABILITIES FOR HKUST STAFF

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HKUST Sustainability

Table of Contents

Section 1. Mobile Computing Overview

The term "mobile computing" encompasses the devices, network connectivity, and cloud services that enable users to perform their duties while not based in one fixed location. For the purpose of this guideline, we consider "mobile computing" is switching from using a desktop PC towards a laptop as a first step. Other aspects that the team recommends to consider are outlined in the Section 5.

Overview

Over the past decade, increasing numbers and types of organizations have enabled their employees to work seamlessly and securely from anywhere. COVID-19 accelerated this existing trend and the need for work to be done virtually has pushed organizations to adopt more flexible and digital approaches. Furthermore, the availability of file sharing, videoconferencing, collaboration tools, data, and analysis tools has added momentum to this transition.[1]

Key Objectives

The primary outcomes of enabling HKUST staff to transition from desktop PC to laptop include the following:

1. **Staff well-being through flexible office design (on-campus mobility)**

   Laptop devices support a more flexible workspace design compared to desktop PC. By "unlinking" workstations from the workspace:

   a. HKUST can explore more flexible and space-optimised office design, such as hotdesking (no reservations) and hoteling (reservation-based). This includes the use of standing tables.[2]

   b. HKUST Staff can take their computer to different locations in the office or on campus that suit the range of contemplative, collaborative and focused tasks that make up their working day. This ability to select working environment improves both productivity and employee wellness.[3] 86% of companies are actively mobilizing to increase the number of employees that occupy activity-based seating.

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[1] https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/reliably-connecting-the-workforce-of-the-future-which-is-now

[2] https://www.bmj.com/content/363/bmj.k3870

[3] https://www.cbre.com/insights/articles/the-growth-of-flexible-office-space

2. **Staff well-being through work-life balance and flexibility (off-campus mobility)**
    a. Laptop devices can facilitate and open the door to more flexible working arrangement, including work from home options, an increasingly important factor in employee satisfaction and well-being: a May 2022 Randstad Employer Brand Research study, showed that 60% of Hong Kong employees voted "work-life balance" as the most important employee value proposition. More specifically, according to a May 2020 study by Lingnan University, 80% of Hong Kong workers prefer to maintain 1-2 days work from home.[4]
    b. Examples of organisations experimenting with such flexible working arrangements include New World Development's 4.5 day work week and WFH day pilot.[5]

3. **Strengthening HKUST's employer value proposition/competitiveness**
   Laptops that enable "work anywhere" flexibility can also support a greater degree of flexible working hours which is increasingly becoming an important employer value proposition:
    a. According to an August 2022 study by Ranstad 35% of respondents said they wouldn't accept a job if it doesn't provide flexible working hours.
    b. In the same study, 19% of respondents aged between 45 and 54 years old say that they have quit their jobs because of the lack of flexibility at work (work from home or flexible hours).[6]

4. **Staff productivity, transparency, and efficiency through digitalisation**
   Laptops and the potential for flexible work arrangements can support greater productivity and efficiency due to the adoption of more digitalised work tools and practices:
    - Laptop enabled employees to attend meeting or conferences and efficiency take notes and share information;
    - WFH/flexible work arrangements accelerate the adoption of digital tools, such as cloud storage for file sharing, calendar management for scheduling, and online "whiteboards" for collaboration.
    - Of the 1,000+ respondents, 76% added that having the digital tools they need at work makes them more productive and 53%, said it makes them more successful. A third said it makes them smarter, and 28% said it makes them happier.

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[4] https://www.ln.edu.hk/sgs/news/survey-findings-on-working-from-home-under-covid19

[5] https://www.nwd.com.hk/content/%C2%ACnew-world-group-pilot-45-day-work-week-summer-optimising-family-friendly-measures-include-0

[6] https://www.randstad.com.hk/hr-trends/workforce-trends/29-percent-hongkongers-quit-jobs-lack-flexibility-at-work/

5. University agility and resilience

External events and government policies may require non-critical staff to work remotely (either from home or from a second work site). Staff equipped with laptops can respond rapidly to this requirement, affording the university greater agility and resilience in the face of volatility.

Section 2: Desktop to Laptop – Equipment Recommendations

Work From Anywhere Hardware Procurement Guidelines

To enable work from anywhere, office equipment may need to be adjusted from existing desktop-based devices to mobile devices. This guideline addresses the need to change and provides recommendations to the future procurement, along with selection criterion for the adoption.

1. **Mobile device adoption**

   To facilitate a grab-and-go working environment, mobility would be the prime requirement. Procurement of mobile devices is much more complicated than that of desktop devices. Device selection and pricing varies by functionality and mobility. An option for consideration is to maintain 2 tiers of procurement guidance for officer grade (general) and executive/management grade. The procurement may also depend on other criteria like job nature.

   Please refer to Appendix A for laptop device specifications.

2. **Office working environment adjustment**

   To better suit the new mobile device as primary working environment, the working desktop may need to be adjusted. ITSC would recommend hub monitors that provide power, display and networking functions to the mobile device. With the deployment of hub monitors, users' desktops will not be cluttered with various supporting devices like chargers, monitor connection cabling, network cabling.

   Please refer to Appendix B for hub monitor specifications.

3. **Supporting accessories for transition**

   Some of the existing office equipment may still be working in good condition when the working environment starts to change. For example, users may want to use existing monitors with old connection standards as a second monitor. Also, they might want to keep their ergonomic keyboards and mouse for the laptop.

   To facilitate transition, ITSC would recommend some additional accessories that may allow the new mobile device to work with existing equipment.

   Please refer to Appendix C for additional (optional) accessories specifications.

Guidelines for Managing Computing Devices

All university owned devices used for administrative purpose are expected to be managed and protected by the latest security protection solution with behavioural heuristics to meet the Minimum Security Standard as defined in the ITSC Cybersecurity policy.

ITSC offers device management services to university-owned devices for campus users. Desktop and notebook computers handling confidential university information are required to utilize services for enhanced protection. Other devices may also use these services to strengthen their security protection.

Devices protected by the device management services are enhanced with the following benefits.

- Inventory management of devices and installed software
- Locating and Remote wiping of lost devices with confidential information
- Windows logon using ITSC accounts, both on and off-campus, with the benefits of single sign-on to most Microsoft services
- Central configuration of security policies to reduce the risk of tampering
- Central management of Windows system and Office 365 software versions to avoid the risk of having security vulnerability after reaching end-of-life
- Use of modern cybersecurity technologies for protection (e.g. AI based behaviour detection, cloud-based sandbox verification) which are not available in traditional signature-based Anti-virus tools.
- Passwordless authentication using device pin or biometric authentication, such as fingerprint and face recognition.

Reference:
- Device Management Using Microsoft Intune
- Minimum Security Standard for Endpoints

Section 3: Ergonomics & Safety

To support the wellbeing of staff as they transition to mobile computing and work from home, HSEO has prepared a three companion documents and guides available on their department website at https://hseo.hkust.edu.hk/RA/workstation:

1. **Guidelines for Setting Up Portable Computer Workstation:** provides tips and photographic examples of laptop accessories to make workstations more ergonomic.
2. **Work from Home Ergonomics Self-Assessment**: provides health and safety guidance to users working from home. The checklist should be used in conjunction with other guidelines for setting up a proper computer workstation.
3. **Health Tips for Working from Home:** provided by the Center for Health Protection.

Section 3: Ergonomics & Safety

Section 4: Working from Home Set Up Recommendations

The guideline below summarizes some of the technical topics you need to pay attention to when you work remotely.

1. **Internet Connection**
   a) Wired or wireless connection: wired connection is in general faster and more stable than wireless connection at home. However, it lacks the mobility provided by Wi-Fi connection.
   b) Using Wi-Fi network in campus: The eduroam Wi-Fi network provides secure and reliable wireless internet access to HKUST members. Wi-Fi tuning tips may assist you to troubleshoot connection difficulties. For hub monitor users, you may enjoy fast network connection from the wired network with a USB-C cable to your notebook. Refer to Appendix B for hub monitors.
   c) Securing and optimizing your home Wi-Fi router:
      - Use a strong network password to replace the default password for the Wi-Fi network. Also update the password regularly.
      - Adopt WPA3 or WPA2 security standards in your Wi-Fi router to secure connection
      - Change your default router admin password to a strong one. Always apply system updates to your router.
      - For faster speed and better coverage of your Wi-Fi network, use a Wi-Fi router that supports Wi-Fi 6 (or 6E) standards. Some routers that support Mesh Networking (with additional adoption of satellite routers) offer even better Wi-Fi coverage and performance, especially in a multi-room environment.
      - Some Wi-Fi routers offer configuration to further optimize the performance of the Wi-Fi network (e.g. channel switching against interference, device priority and frequency band selection, etc.). Refer to the manual of your router for details.
   d) Using public Wi-Fi network
      - Avoid using public Wi-Fi for office tasks as its safety is uncertain. If Internet access is needed, use mobile phone hotspot sharing to share internet access to your computers or other mobile devices.
   e) Accessing HKUST Network Securely
      - Use ITSC VPN Service to secure communication when using your computers or mobile devices from off-campus to access campus network through the public Internet. ITSC VPN service only secures communications to campus network.

2. **Communication Tools**

   a) Voice phone calls:

   Deltapath allows you to receive or make office phone calls with your mobile phone or computer. Follow the links below to install the apps:

   - [Deltapath mobile app](#)
   - [Deltapath desktop app](#)

   Microsoft Teams supports voice and video calls, virtual meetings, file sharing and collaboration:

   - [How to make a call in Teams](#)
   - [More about Teams in HKUST](#)

   b) Video calls or virtual meetings

   Zoom - Online meeting with colleagues and external parties:

   - [Zoom Get Started Guide](#)

   Microsoft Teams – a collaboration tool for meetings or video conferencing.

   - [How to schedule a meeting in Teams](#)

3. **Productivity and Collaboration Tools**

   a) Microsoft Office 365 and cloud-based storage space
   - Besides the traditional desktop applications (i.e. Word, Outlook, Excel and PowerPoint) that run in your computer, Microsoft Office 365 also offers web-based counterparts to facilitate anywhere access, easy collaboration and document protection with any computers and mobile devices.

   b) Access anywhere and easy collaboration
   - Use Office 365 web-based applications (e.g. Word on the Web, Outlook on the web, and etc.) for document editing or collaboration without installing the traditional software into your computers. For mobile devices, mobile applications are also available.
     [Using web-based applications](#)
   - Using mobile office apps (Links: [iOS](#), [Android](#))
     (Notes: For documents with complex formatting controls, you may also use "Open in app" to edit the documents in your desktop applications without first downloading them to your computer.)
   - When documents are stored in cloud-based storage (e.g. OneDrive, Shared Library, Teams or SharePoint), they are [ready to share](#) and [collaborate (co-author) with others](#).

c) Document storage and protection

Documents can be stored directly into cloud-based storage space (e.g. OneDrive, Shared Library and SharePoint) to have the following benefits:

- Restoring a previous version of a file
- Ransomware detection and file recovery
- Use OneDrive to backup Desktop, Documents and Pictures folders

d) Online privacy protection

Best practices for protecting your Zoom meetings

- Best practices of using zoom in HKUST
- FAQ on privacy and security issue of Zoom
- More info of Zoom in HKUST

Protecting personal data under work-from-home arrangements (by Office of the Privacy Commissioner for Personal Data, Hong Kong)

- Guidance for employees
- Guidance on the use of video conferencing software

Appendix A: Laptop Device Specifications

Officer Grade Laptop

	Specification
CPU	Not higher than Intel i5 series, or AMD Ryzen 5 series Must support latest Windows version
RAM	8 – 16 GB, 16 GB recommended
Screen Size & Resolution	13 – 15.6in, at least 1600x900 FHD 1920x1080 recommended
Graphics	Integrated recommended
Monitor	Support at least ONE external monitor via HDMI or USB-C (DP)
HDD	At least 256GB SSD (M.2 or 2.5" SATA SSD) 512GB recommended
Ports	At least ONE USB-C 3.2 Gen1 that supports data transfer, Power Delivery and Display Port
Network Adapter	Both Wi-Fi and Bluetooth
Biometric Authentication	Support at least one of the following Biometric Authentication • Finger Print Reader that supports Windows Hello Fingerprint • IR WebCam that supports Windows Hello Face
Power	At most 65W
Weight	No more than 2kg Recommended ~1.6-1.7 kg
Management	Disk Encryption using Bitlocker, Intune Management
Pricing	HK$4,000 – HK$6,500
Sample Models	Dell Latitude 3420 w/FingerPrint~HK$5,999

Executive / Management Grade Laptop

	Specification
RAM	16 GB (or 8GB for MacBook Air)
Screen Size & Resolution	14 – 15.6in, at least 1600x900 FHD 1920x1080 recommended
Graphics	Integrated or standalone
Monitor	Support at least ONE external monitor via HDMI or USB-C (DP / Thunderbolt)
HDD	At least 512GB SSD
Ports	At least ONE USB-C 3.2 Gen1 or ThunderBolt 3.0+ that supports data transfer, Power Delivery, and external display
Network Adapter	Wi-Fi, Bluetooth
Biometric Authentication	Support at least one of the following Biometric Authentication • Fingerprint Reader that supports Windows Hello Fingerprint • IR WebCam that supports Windows Hello Face
Weight	No more than 1.5kg Recommended ~1.2 kg
Management	For Windows Devices • Disk encryption using Bitlocker • Intune Management
Pricing	Less than HK$13,000
Sample Models	ThinkPad T14s Gen 3~HK$9,540 Dell XPS 13~HK$12,499 Macbook Air 13 w/16GB & 512GB SSD~HK$11,899

Appendix B: Hub Monitor Specifications

Officer Grade

Specification	
Screen Size	24-27"
Screen Resolution	FHD (1080p) 1920 x 1080 @60Hz
Ports	At least: 1 x HDMI, 1 x USB-C
Hub Function	USB-C upstream with DisplayPort 1.2 and Power Delivery (power up to 65W); Downstream USB ports; Network (RJ-45)
Power Connecter	Built-in, no external power supply needed
Ergonomic Design	Support height, pivot (rotation), swivel, and tilt position adjustment
Pricing	HK$1,800 - HK$2,000
Suggested Model	Dell P2422HE / P2722HEHK $2,000

Executive/Management Grade

Specification	
Screen Size	27"+
Screen Resolution	FHD (1080p) 1920 x 1080 @60Hz or higher like QHD (1440p) 2560 x 1440
Ports	At least: 1 x HDMI, 1 x USB-C Optional: DP Out for chaining another monitor
Hub Function	USB-C upstream with DisplayPort 1.2 and Power Delivery (power up to 65W); Downstream USB ports; Network (RJ-45)
Power Connecter	Built-in, no external power supply needed
Ergonomic Design	Support height, pivot (rotation), swivel, and tilt position adjustment
Pricing	HK$2,000 - HK$4,000
Suggested Model	Dell P2722HE~HK$2,000

Appendix C: Additional (Optional) Accessories

	Specification
Type-C hub	• HDMI or VGA to support existing Monitor • Type C port support PD charging up to 87W • RJ-45 for wired connection • Around HK$350
Type-C Cable	• Support PD Fast Charging and data transfer • Around HK$70
HDMI to VGA/DVI Adaptor	• Connect Laptop to existing monitor • Around HK$30
Kensington Lock	• For securing the notebook physically • Depending on the lock adaption (standard / nano) • Around HK$200 – HK$350
External Mouse and Keyboard	• Wireless connection via Bluetooth or USB dongle • Enables more adjustable positioning for ergonomic considerations