15 June 2020

**To: ELT**

# MOBILE WORKING SOLUTION (mws)

## ISSUE

1. As the college moved into lockdown there were no laptop computers available that were suitable to be allocated to teaching staff.
2. As lock-down progressed and became prolonged some staff found a way to work with personally owned equipment whilst some did not have access to equipment to enable them to support their learners.
3. From September there is an increasing possibility that delivery will need to support student groups that alternate between college and home requiring a longer term and more scalable solution for remote delivery.
4. In addition, the lockdown survey has provided evidence that staff would like more home working and this will also have implications for provision of equipment if it is accepted and adopted.

## RECOMMENDATION

1. The recommendation is to bring forward the commitment of £727.5k of capital to replace out-of-date computer equipment and the associated hardware that is not compatible with modern laptops.

## TIMING

1. The timing is contingent on any decision to make capital funds available however it is recommended that the technical investigation and preparation begin immediately to minimise any delivery delays.

## BACKGROUND AND ANALYSIS

1. The existing fleet of college laptop computers are unsuitable for enabling the delivery of digital and remote education.
2. There are 905 laptops on the asset register though many of them are unusable. The average age of all laptops is 8 years and 4 months and excepting the recent Learner Support Fund and Institute of Technology laptops they are all over 5 years old.
3. The age of the existing laptop fleet has made it necessary to reconfigure them to work by relying on the server-side resources hence they will not work independently outside of the college network. The only exceptions to this are ELT Surface Pros and Instructor Assessor laptops.
4. In summary although there are many laptops on the asset register none of them are capable of being repurposed for a mobile working solution (MWS).
5. The ideal scenario is the allocation of a modern, high performance, reliable and durable laptops to teaching staff that would work seamlessly in the staffroom, classroom and at home.
6. This would enable each new laptop to replace two old desktop computers (i.e. the staffroom and classroom computers) and would provide a seamless experience to teachers wherever they are working.
7. However, there are many issues to be considered before this vision can be realised.
8. A key issue is compatibility with existing hardware, software and networks.
9. Modern, high performance laptops are incompatible with the existing fleet of interactive whiteboards and projectors. Each of the 250 classrooms and teaching spaces has a whiteboard and projector and these have an average age of 11 years and 3 months.
10. The interactive whiteboards are licensed with a software package called SMART Notebook which most curriculum areas do not extensively but some teachers have a significant investment in SMART teaching resources. The SMART software also has significant compatibility issues with modern laptops.
11. The college wireless infrastructure is made up of 309 wireless access points which have an average age of 7 years and 3 months. Most of these units will exit from extended manufacturers warranty within the next 12 months and will need to be updated and replaced.
12. The college network needs to be significantly re-configured to enable the proposed additional devices. In the current configuration the maximum is 250 and this number will almost certainly be exceeded in a mixed home / remote working scenario.
13. The work required to support an MWS is significant; some compatibility with historical software cannot be supported and the hardware required is much wider than just the laptops.
14. However, the proposal can certainly be implemented and the out-of-date hardware indicated above will have to be replaced at some point. A planned and integrated replacement where the amount of available capital is known will produce a much better result than a strategy that replaces hardware in an ad-hoc fashion as it fails.
15. The key factor to a successful change to a MWS is to replace the existing SMART boards and replace them with high-quality 75” flat-screens that do not have traditional interactivity –
    1. This means the loss of two key functions – the screens will not be touch sensitive and teachers will not be able to draw on them using electronic pens.
    2. The viability of this change has been tested by consulting academic staff in two areas and the response has been positive.
    3. The cost of a like-for-like replacement with a 75” SMART board is £4,786.80 per unit and the non-interactive 75” 4k HDMI option is £800 per unit.
    4. The cost to replace the entire fleet with SMART equivalents is £1.25m vs. £200k for high quality, non-interactive screens.
16. The IT team believe that there is a way to provide software whereby teachers can continue to use their banks of SMART Notebook resources and project them onto the new flat screens. It is just the ability to touch the screen and write on it using e-pens that will be lost.
17. Although the curriculums and learner profiles are very different, the University of Nottingham recently made this change and erected a traditional plastic whiteboard next to the non-interactive screens where the teachers can write notes during lessons.
18. Even if the capital could be found to invest £1.25m in replacement SMART boards there are a range of factors indicating that this approach is undesirable –
    1. The SMART solution (hardware and software) is much more complex than non-interactive screens which would reduce reliability and increase the support burden.
    2. Remote learners cannot “touch” the screens and teachers rarely use this functionality.
    3. Modern interactivity can be achieved by engaging learners with smartphone activity, for example Padlet quizzes, and touch-screen interactivity is old-fashioned and obsolete in comparison.
    4. The interactivity requires a complex system in order to connect to roving laptops whilst the non-interactive flat-screens would be connected by a single cable attached to the front desk which would be fast, easy and reliable.
19. There are also some compromise solutions that could be considered if the curriculum staff consulted so far are not representative –
    1. If it was strictly limited and justified some areas of the curriculum (for example Electronic Engineering) could be considered for full SMART solutions as they have the biggest bank of legacy resources.
    2. Another potential compromise would be to purchase high-end laptops with touch screens and styluses enabling the teacher to write on the laptop screen. However, an early investigation has concluded that this would introduce more complexity and would add significantly to the laptop costs.
20. Although the work required to deliver a comprehensive MWS solution is significant there are aspects that can be delivered quickly.
21. The recommendation is to begin delivering laptops to teachers as soon as the capital is available.
22. In the first phase the teacher laptops would be in addition to the staffroom and classroom laptops and teachers would not be able to use them to project the laptop screens in the classroom.
23. Work would then begin in defining and implementing the changes and deliverables necessary to achieve the “one computer, one experience” vision.
24. It is strongly advised that the entire project be approached in a staggered fashion –
    1. This will enable issues to be resolved on a small scale before fully committing.
    2. It will enhance the teacher experience and encourage buy-in by avoiding widespread rollout of solutions that have not been fully tested.

## SUMMARY

1. There is a clear need to liberate and enable teaching staff to deliver their curriculum within a modern mobile working solution where staff computers work seamlessly and reliably in all environments.
2. Just procuring laptops will not enable a seamless and reliable environment. Issues with compatibility with ageing hardware and software must be resolved and the network must be upgraded and re-configured.
3. Replacing the interactive whiteboards is a key aspect to enabling this vision which is linked to dropping backwards compatibility to what was traditionally considered to be interactivity, however there is a way to retain access to banks of teaching resources developed in SMART Notebook and to display them on modern screens.
4. The laptops can be rolled out first if there is a commitment to replacing the legacy hardware and software as well.
5. Each stage, including the initial laptop rollout, will be staggered to enable technical solutions to be fully tested before a widescale rollout.
6. At this stage the work has not been completed to develop detailed timelines for all the tasks. If agreement is given in principle the planning could be completed within 4 weeks.

## FINANCIAL IMPLICATIONS

1. £280k to provide enterprise grade laptops for teachers. This cost will increase if some or all the devices are specified with touch screens and styluses for writing and annotating.
   1. If the touch-screen with writing stylus option were taken the cost for the laptops for teachers would be £523.2k instead of £280k.
2. £200k for 75” 4k HDMI flat screen displays to replace the interactive whiteboards.
3. £144k for upgrade and replacement of the wireless access points.
4. Items to support the laptops – additional chargers, laptop carry cases and other equipment - £36k
5. Items to support the installation of the flat screen displays – HDMI cables, wall mounts, fittings and labour - £67.5k
6. Standard plastic whiteboards, pens, fixtures and fittings – TBC.
7. Total - £727.5k inclusive of VAT.

## INFRASTRUCTURE AND HEALTH AND SAFETY ISSUES

1. There are no infrastructure issues; potentially the health and safety for staff will be positively impacted by providing reliable, modern equipment that enables home working and for students by enabling the continuation of learning in a mixed home / remote delivery model.

## CLIMATE CHANGE AND SUSTAINABILITY

1. The ageing whiteboards are energy inefficient although it has not been possible to quantify the impact in terms of electricity usage or CO2 emissions.

## INTERNAL AND EXTERNAL COMMUNICATIONS CONSIDERATIONS

1. Internal communications will be required to inform all teaching staff of the changes, to steer them towards free training and support resources and to consult more widely about the loss of touch-screen interactivity capability.
2. External communications will be required to publicise the changes and to use them as an opportunity to promote the college to potential future learners and other key stakeholder groups.

**A close up of a device

Description automatically generated**

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**Annexes:** None