STRATEGY REPORT ON
PAPERLESS ASSESSMENT
PROCESSES IN THE SCHOOL OF
LIFE AND HEALTH SCIENCES

FIRST DRAFT

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Executive Summary

The aim of this report is to identify opportunities for improvement within the coursework submission and assessment procedures in the School of Life & Health Sciences at Aston University. A multilayered or hybrid analytic strategy consisting of SWOT-TOWS, Value chain analysis and a Balanced score card technique was used to examine all stakeholder requirements and existing operational processes alongside the schools executive strategy. This analysis highlighted eight processes with a high priority for change. Each of these eight high priority processes can be improved with the school wide adoption of a paperless submission strategy. To address these priorities four school wide recommendations for change are then provided as is a plan for effective implementation of these recommendations. On the basis of these recommendations it is anticipated that the School of Life & Health Sciences should achieve a completely paperless submission and assessment strategy by the end of the 2012/2013 academic session. For ease of reading extensive use of appendices/footnotes are used throughout.

DEFINING THE PROBLEM

The School of Life & Health Sciences (LHS) comprises of the Optometry, Audiology, Pharmacy, Biology and Psychology groups. Together, these five groups deliver a wide a range of courses on both the post and undergraduate portfolios. There are three coursework submission modes encountered by students in LHS. The ‘traditional’ mode, which is largely used by practical or laboratory-based courses and entails submitting a paper based report for assessment. The ‘mixed-mode’ of submission
requires students to submit a paper based report to the school office whilst also uploading an electronic version to the virtual learning environment (VLE: Blackboard). The uploaded version is then considered for possible collusion/plagiarism etc. A few courses in LHS also require students to submit coursework via a ‘paperless’ mode which has consisted of a variety of different steps from merely asking the students to email reports directly to module convenors to uploading into the VLE for the markers who then printout and assess 1. In light of the fact that there is considerable overlap between the processes involved with the mixed and traditional mode this report will only consider and compare the mixed and paperless mode of coursework submission.

Recent changes in UK Higher Education funding has ensured the development of a highly competitive market culture which in turn will see more emphasis being placed on the delivery of a high quality, but cost effective, learning experience. To this end various strategies/initiatives have been developed throughout Aston University. With regards to the coursework submission process the university has recently purchased a three-year site license of ‘Grademark’ which is part of the Turnitin (Tii) suite of software that all staff are encouraged to use 2. However, staff resistance to any change, specifically the move in assessment modality, remains strong. Indeed, as of yet only a small handful of modules have undergone a complete assessment cycle with Grademark 3. The aim of this report is therefore to consider the optimal strategy for

1 The range of approaches to marking modes in LHS is expensive. Last year the school spent approximately £30K on office consumables alone. A large proportion of this figure was dedicated to supporting the assessment process (source: 2010 LHS office spend report which is available from the author).
2 The cost of the three-year Grademark site license was £24K and covers all users in the University (source: personal communication with Kevin Brace, Associate Head, Technology Enhanced Learning, Centre for Learning, Innovations and Professional Practice, CLIPP. 30/5/11).
3 See Appendix 1 for a list of modules that are currently using the Grademark /Tii assessment process in LHS.
business process improvement within the current coursework submission process in LHS (see e.g., Harrington, 1991).

**ANALYTICAL APPROACH TO ADDRESSING THE PROBLEM**

This report will focus on how best to implement an efficient coursework submission process in LHS and identify what processes, if any, can be delivered more efficiently. In light of the fact that the technology itself is already in place the analytical approach used to address this problem will be developed from Tan et al (2004) and Tang et al (2003) and consist of a multilayered hybrid analysis that will examine the stakeholder requirements, operational processes and strategic implications behind a redesign of the coursework submission process (see Hooft & Stegwee, 2001 for a critique of this approach).

To this end a series of semistructured interviews were carried out with various members of academic and administrative staff as well as undergraduate students. Where relevant evidence from these interviews is included throughout the body of this report. The data from these interviews was used to develop subsequent SWOT-TOWS and Value chain analyses (VCA) which identified the possible strategic implications of the stakeholder requirements and operational processes. Next the dependencies between these requirements and processes were considered and, following a discussion with a senior executive in the school, ranked in order of importance within the school’s strategic mission. These rankings were then used to calculate a weighted importance ranking and subsequent improvement priority with the Balanced score card technique (BSC). Although difficult to implement this multilayered hybrid approach allows for the identification of issues that can be

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4 See Appendix 2 for the demographic details of all interview participants.
improved across all stakeholder groups associated with the coursework submission process in LHS i.e., students, administrators, academic staff and the school executive.

**DESCRIPTION OF THE CURRENT BUSINESS PROCESS**

The mixed mode of submission contains many steps across three layers of organisational structure\(^5\). Students tend to spend a considerable period of time preparing for submission. Some report that they ‘take a day out’ to submit coursework while others indicate that the queues which occur at the LHS school office on submission dates as a ‘nightmare’. Students also execute various strategies to ensure that they have a backup version of their coursework. Some will email it to themselves to ensure that they have an easily accessible version while others upload to a shared network drive\(^6\). All enjoyed the security of physically handing coursework to the administrator at the LHS coursework hatch, take for example ‘sometimes you did hear of somethings going missing in the office however you kind of felt that you can always go back to the person that you gave your coursework too if things went awry’ but none felt comfortable physically receiving it back from the hatch and cite the potential to be embarrassed by peers when potentially receiving low grades ‘... some people may be really embarrassed or even shocked if they went to collect their coursework with friends and found out that they got a really low grade. I don’t know if that would bother me but I can imagine it would be really embarrassing’ [my underline].

However, the students were unanimous in their resentment of being required to subsequently upload their assessments to the VLE, see for example ‘I just don’t feel that there is a good reason to submitting twice it just adds to the stress’ [my underline]

\(^5\) See Appendix 3 for the work flow diagrams for all processes involved in the current mixed and paperless mode of coursework submission for the Psychology group in LHS.

\(^6\) e.g., www.dropbox.com
as well as 'you simply aren’t treated well if, as a student, your university is prepared to waste your time and require you to upload your coursework which isn’t even marked… I mean how much respect do you really have for us?'

The academic staff are primarily concerned with two central themes, these being flexibility and ease of the assessment procedure. Most staff assess coursework at home and as such find having to carry multiple coursework scripts difficult. Take for example this quote from a staff member ‘I have to carry a box of say 70-80 scripts from the school office and then to my office to my flat - believe me it’s quite depressing’ or even ‘I just can’t carry [the scripts] they are far too heavy so I have to move them in chunks’. All of the academic staff also expressed a need for ease when physically interacting with the coursework scripts during actual process of assessment as can be seen here ‘I tend to divide the scripts into small piles of 10 which I mark daily, I then rank these according to the feedback I have given them and here I sometimes go back and adjust the ranking of a particular script if I feel it is too harsh or lenient and once I got the whole pile in ranking order I will assign the grades’.

Regarding paperless marking, it is remarkable that few people had knowledge of the various processes that were available to them. When asked to define what they thought was meant by the phrase ‘paperless marking’ both staff and students alike responded with phrases like ‘marking on a computer’ or ‘doing it without paper’ etc. However, as can be seen from the various workflow diagrams, the existing mode of paperless marking i.e., non Grademark, consists of a variety of stages that are predominantly focused towards the staff, that is academic staff tend to independently manage the whole process with little administrative support. Notwithstanding staff perceptions,

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7 See Appendix 3
those students who have experienced coursework submission via Grademark are overwhelmingly positive about their experiences and realised issues such as the quick return of feedback, improved legibility and specificity of feedback comments as well as the privacy that they were afforded when they received their grades to be a significant improvement to the existing system. Take for example the following comments from second year students ‘anything that cuts down the hassle, is quicker, is clearer is a good idea’ or ‘think about the money I will save if I don’t have to print out every single piece of coursework, also think of the trees you’re saving. I like to think of the trees but it’s mostly the money I think about’ and finally ‘Now that I have worked with Grademark I don’t see any point in a paper submission at all’.

Within the administrative staff a number of clear differences emerge when comparing the two distinct modes of coursework submission. The paper component of the mixed mode is used to generate a subsequent papertrail to ‘keep track’ of the assessments as they are processed. This papertrail is used to maintain a regimented system of quality checks which also has the unfortunate side-effect of generating a backlog for subsequent filing. This backlog is so significant that whole days such as ‘filing fridays’ are put aside for completion of this task. Taking this in hand the administrative staff also see several advantages to paperless coursework submission e.g., ‘it will cut input delays down a lot... everybody would be able to access the information straightaway’.

ANALYSIS OF THE STAKEHOLDER REQUIREMENTS

To highlight the strategic importance of stakeholder requirements a SWOT-TOWS analysis was carried out on the data from all stakeholders. As can be seen from the

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8 See Appendix 4 for the complete SWOT-TOWS analysis plus strategic implications for both the
SWOT-TOWS process several strategic opportunities emerge for both the mixed and paperless mode of submission, for sake of brevity a summary is provided here. With regards to the mixed mode of marking there is a clear need to move some of the processes to an electronic format immediately thus saving costs. Moving the coursework front cover sheets (and indeed all paperwork) to a downloadable PDF format and ensuring that markers send a completed excel set of the final moderated grades to the school office will ensure transaction costs are reduced immediately. Furthermore, moving the coursework submission register to SITS\(^9\) would allow an electronic submission register that automatically updates the student files, as well as allow an automatic receipt to be printed out for the student\(^{10}\). The effective communication and management of the various timelines associated with the assessment process was raised by administrators, academic staff and students alike. The students felt that not enough information was provided and often had to rely on ‘word of mouth’ to know when hand in / hand back dates occurred. Such issues could be circumvented with effective use of the ‘early warning system’ or ‘announcements’ facility on the VLE to ensure students are aware of when they can collect coursework from the office. The use of a group outlook calendar which each of the groups administrators can use to manage the coursework flow through the various stages of the assessment process with individual assessors\(^{11}\) should also be considered across LHS. The automation of such a process is particularly relevant when considering the existing paperless marking mode i.e., non-Grademark, which is indeed onerous on the academic staff time.

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\(^9\) SITS: Vision is the content management system that is used to manage the complete student academic lifecycle at Aston University.

\(^{10}\) The SITS: Programmes module is currently being used in the ABS postgraduate office and allows such automatic updating to occur at point of submission.

\(^{11}\) See sub process 1 in Appendix 3 for the process outline detailing when the BB announcements are set for the students and the outlook reminders are set for the staff.
While there has been criticism of the SWOT-TOWS technique for strategic planning (e.g., Ghazinoory, Zadeh & Memariani 2007) it still remains the optimum technique for identifying possible strategic implications behind stakeholder requirements for a range of business processes (Jackson, Joshi & Erhardt, 2003). As can be seen with the SWOT-TOWS analysis several strategic implications regarding coursework assessment processes were revealed. However, one strategic opportunity and one threat is discussed further here.

The instigation of paperless marking in LHS can provide the school with both a unique opportunity to develop outsourcing strategies for the core portfolio of internal courses and ‘insourcing’ strategies for the external or overseas market. For the internal portfolio this could see the development of assessments being sent out to competitive tender. It goes without saying that academic staff responsible for a particular module would be accountable for its quality. However such an approach could free academic staff to engage in other endeavours such as the generation of research grants etc and would thus lead to an increase in research income. Additionally, coursework that is assessed by Aston based staff would be a unique selling point for overseas students on franchised courses. The students who engage with Aston staff indirectly via the Grademark system are also likely to develop an affinity that can be used to market subsequent applications to postgraduate/professional courses (see e.g., Macchiette & Abhijit, 1993). In other words, the use of paperless marking in this context would create a ‘cluster effect’ around the academic programs in LHS which would lower the subsequent acquisition costs associated with marketing these programs (Crawley & Hill, 2007).12

12 In addition to this a ‘network effect’ which will see strong social ties developed between students can also be utilised with the peer review facility on Grademark (Shanker & Bayus 2003).
The issue of physical strain when assessing the paperless scripts as well as change resistance towards adopting the paperless processes are significant threats posed by the academic staff. The significance that these threats pose is summarised with this quote ‘Change resistance in academia simply cannot be underestimated’. However, the drivers of such resistance, while just as significant, are less explicit. Take for example ‘I have a back problem so need to move around more, so I will mark in the garden, lounge etc. I won’t be able to do this if I have to mark scripts via a computer’ as well as this exchange between a member of staff and the interviewer: ‘I breakdown marking into tolerable segments, I have to or I will go mad with boredom. So I tend to mark a pile of 10 or so and then have a mini distraction, like a cup of tea, this way the suffering will be contained. I can’t really do this with electronic marking and this is something that I will really miss’ ‘this is actually quite possible with the Grademark system’ ‘no no I like actually physically putting them [the scripts] into piles and seeing them develop - it’s a dynamic process’

While this exchange clearly shows that the act of physically interacting with the scripts is a vital component of the assessment process for this member of staff it is worth comparing it with this quote from another member of staff who had completed a Grademark assessment cycle, here when she was asked if she felt overly fatigued or strained during the process she responded ‘no not at all – I have been reading from a screen most of my life and its something I do every day. For me it’s a natural form of reading’. The evidence reported here highlights the fact that while some staff may experience no increase in fatigue when carrying out paperless marking others are significantly anxious. The concerns of these staff are rightly justified as contemporary empirical investigations into assessor strategies across submission modes also indicate

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See Appendix 5 for an initial analysis into the utility of using various equipment such as portable computer tablets etc for paperless marking.
a significant effect on fatigue for the paperless marking mode (Shiell, Johnson, Hopkin, Nadas & Bell, 2011). Clearly, any recommendation to develop paperless processes would need to take such issues into account

The analysis of stakeholder requirements and subsequent strategic recommendations highlights a number of organisational needs. In order to examine how these needs can be met with the current processes currently in place within LHS a Value chain analysis will be carried out to identify the effective business processes associated with coursework submission in the school.

**ANALYSIS OF THE COURSEWORK SUBMISSION PROCESSES IN LHS.**

The Value chain analysis (VCA) technique was developed by Porter (1996) with the intention of identifying effective business processes that can be utilised for process improvement or implementation. Utilising the VCA technique in this context allows a clear perspective on where real value can be added by various processes involved in coursework submission. Porter’s VCA divides business operations into five groups of activities. Thus the VCA can be used to map the interfaces between the various processes that support coursework submission and assessment. In doing so it is therefore possible to identify, and make informed judgements, about the nature of existing and future relationships between these process (Porter, 2001). As Tan et al (2004) states the VCA analyses maps ‘the relationships between the business and its various stakeholder groups from a clear operational perspective’ (P. 808).

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12 Needless to say that in any paperless assessment scenario the option for the assessor to print out the scripts and mark in the traditional fashion would always remain.
Using the VCA approach the coursework processes in LHS were divided into five main categories, these being: ‘school infrastructure’, ‘human resource management’, ‘technological developments’, ‘procurements (which concerns exchange costs between stakeholder groups) and ‘supporting processes’. It is clear that there are a variety of processes currently in place that overlap across both the mixed and paperless mode of coursework submission. Taken together with the outcome of the SWOT-TOWS analysis reported above they will form the two major inputs for the subsequent BSC analysis which follows.

Of the several overlapping processes the issue of automation is one that is discussed further here as it also featured in the various interviews with the stakeholders. Take for example this quote from a student ‘I get to hear about coursework from the student grapevine as communication from the office isn’t that reliable’ compared with this quote from a member of staff who convenes a paperless module ‘it’s just easier for the students everything can be controlled from the hub of your desk’ which, taken together, highlight the importance of automated processes in facilitating communication.

With the current paperless marking system academic staff are responsible for managing all processes e.g., e-mailing late submitting students who have missed a deadline. This would entail manually checking the cohort submissions, identifying the students (most submissions are anonymous) and then finding an e-mail address on MAP prior to contacting them. Here there are a variety of mechanisms which are

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13 See Appendix 6 for the VCA matrix for all processes associated with coursework submission in the School of Life & Health Sciences.
14 Within the Psychology group regulations state that the c/w is capped at 40% if submitted a week late then at zero it submitted any later.
15 ‘My Aston Portal’ is a content management system that is used to manage student the student interface with SITS: Vision.
based within the VLE which can be used by the academic member of staff to manage the student submissions.

From the staff perspective the universal usage of the Outlook exchange server for all e-mails at Aston University ensures that the Outlook calendar system can be used to ‘invite’ each member of staff at the start of the year to attend to certain events associated with coursework submission e.g., submit coursework to moderators etc by a certain date. The need for such automation can be seen clearly with the evidence from this member of staff ‘There are so many calls on my time so I would much prefer if an appointment to complete a certain task was put directly in my diary that would be so much better. I hate having to copy a date and a task into my Outlook calendar from an Excel sheet that gets e-mailed around. Why is this necessary? Automated systems - I simply don’t understand why we do it any other way!’

ALIGNMENT WITHIN THE SCHOOLS STRATEGIC MISSION

The output from both the SWOT-TOWS and VCA analyses have been developed from processes that are already in place within LHS. The next stage of this strategy report is to bring them together with a ‘balanced scorecard’ approach to examine which factors are in alignment with the overall strategic mission of the school. This will then lead to a set of recommendations and plan for implementation that has been integrated between operational level activities as well as the executive objectives.

16 The ‘Early Warning System’ (EWS), ‘Performance Dashboard’ and even the ‘Announcements’ function on Blackboard 9.1 can be used to assist members of staff in this regard.
To this end a senior member of the school’s executive management team was interviewed\textsuperscript{17} and asked to rank the processes in terms of overall strategic importance. These data were then used to calculate the final ‘balanced scorecard’ (Kaplan & Lawson, 1992) which identified the specific coursework related processes that should be targeted for improvement within LHS\textsuperscript{18}.

The school’s mission statement focuses on the excellence of the student learning environment and the development of an environment that allows staff to carry out world leading research. This clearly identifies LHS as an organisation with a set of ‘customer facing’ priorities. As a result of these priorities a modified balanced scorecard approach was carried out (Treacy & Wiersema, 1994). Here, the customer or stakeholder importance is identified and placed into three operational strategies, these being: a: ‘operational excellence’, b: ‘product leadership’ and c: ‘stakeholder intimacy’. Relational dependencies between the stakeholder requirements and these operational strategies are then identified and a weighted importance score is calculated. From this an improvement priority is calculated with the higher priorities requiring more immediate improvement (Treacy & Wiersema, 1994).

This final balanced scorecard analysis revealed that a total of eight processes should be considered for improvement within the current coursework assessment infrastructure (see table 1).

\textsuperscript{17} See Appendix 2
\textsuperscript{18} See Appendix 7 for the full BSC analysis of the coursework process in the School of Life & Health Sciences.
Table 1: Stakeholder processes/strategies that should be considered for improvement in the School of Life and Health Sciences. The improvement priorities (out of 10) for each of these processes are also provided.

<table>
<thead>
<tr>
<th>Stakeholder Process/Strategy</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Flexibility of student processes</td>
<td>6</td>
</tr>
<tr>
<td>2. Flexibility of staff processes</td>
<td>6</td>
</tr>
<tr>
<td>3. Overall clarity of the submission process (dates, naming conventions etc)</td>
<td>8</td>
</tr>
<tr>
<td>4. Clarity of student feedback</td>
<td>8</td>
</tr>
<tr>
<td>5. Overall automation of processes</td>
<td>8</td>
</tr>
<tr>
<td>6. Diagnostic/constructive feedback</td>
<td>8</td>
</tr>
<tr>
<td>7. Training to use all processes</td>
<td>6</td>
</tr>
<tr>
<td>8. Retaining the ‘Aston brand’</td>
<td>8</td>
</tr>
</tbody>
</table>

RECOMMENDATIONS FOR CHANGE AND A STRATEGY FOR IMPLEMENTATION

On the basis of the analysis carried out in this strategic report the following recommendations are made:

1. A shift in school culture towards paperless processes be instigated immediately. Such a shift can be initiated on a number of different levels. First, all forms and documents should be placed on the VLE subsequent to downloading by the students. Second, the Health E–Learning centre should be used to generate a series of coursecasts that demonstrates the ease with which Grademark can be implemented the links to these videos can be embedded on the Aston Teaching and Learning community server thus ensuring wide accessibility.

2. A code of practice for the effective use of paperless marking strategies be developed. Among other things the code should consider the range of hardware that staff can use to facilitate flexible marketing strategies where

\(^{19}\) See e.g., [http://vimeo.com/17676076](http://vimeo.com/17676076)

\(^{20}\) See e.g., [http://tlc.aston.ac.uk/tool/turnitin](http://tlc.aston.ac.uk/tool/turnitin)
ever possible\textsuperscript{21}. Furthermore, the code should also include the recommendation that staff are encouraged to assess no more than 10-15 full scripts a day.

3. Each of the academic groups in LHS be encouraged to adopt paperless marking within their own assessment portfolios and to liaise with the Health E-Learning centre to fully automate all processes\textsuperscript{22}. Where students are required to submit diagrams/lab notes for assessments it is recommended that they are encouraged to photoscan such material to include within their submission. In partnership with the Health E-Learning centre each group should also examine the potential to use the ‘Rubric’ facility on Grademark to automate the generation of cohort level diagnostic feedback on all submissions. Furthermore the utility of using the Ti\textit{i} report as a form of diagnostic feedback for each submission should also be examined.

4. The potential to utilise paperless assessment as an effective marketing aspect should also be examined. While special emphasis should be placed on the overseas market consideration should be given to all programs in the LHS portfolio.

Implementation can be managed in three clear stages and progress through each of these three stages can be assessed with clear outcomes:

Stage 1 (Recommendations 1 and 2): It is imperative that all stakeholders become aware of the possibilities afforded to them via the implementation of paperless processes. To this end the Health E-Learning centre school wide coursecasts noted

\textsuperscript{21} See e.g. Appendix 5

\textsuperscript{22} See Appendix 8 for a full workflow of a recommended paperless marking strategy including extending deadlines, moderation etc.
above should be effective in highlighting such benefits. Success at this stage can be confirmed when all staff have received a link to the videos and they are communicated to the incoming undergraduate cohort.

Stage 2 (Recommendations 1, 2 and 3): Given the significant effect that change resistance will have on the implementation of such an initiative it is important to ensure that all staff are aware of the advantages of paperless processes. Success at this stage can be evaluated by comparing the number of modules converted to paperless processes within six months from the start of the academic year.

Stage 3 (Recommendations 3 and 4): For the adoption of paperless processes to be successful a working party would need to examine the range of applications throughout the school. Success at this stage can be evaluated with the completion of a code of practice from the working party.

Taking in hand the significant effect that will be incurred by change resistance in LHS the fact that the technology is already in place should ensure that the recommendations made in this report are unlikely to prove onerous to implement. Here it is anticipated that a goal of 100% paperless assessment processes can be achieved within the School of Life & Health Sciences by the end of the 2012/13 academic session.

REFERENCES


See Appendix 9 for a Gantt chart of recommended changes to assist in the management of the move to overall paperless assessment processes.
Conference paper at the 37th Annual Regional Science Association British and Irish Section.


Appendices

Appendix 1: Modules in the School of Life & Health Sciences that contain paperless marking processes.

Appendix 2: Demographic information for individuals who took part in the stakeholder analysis.

Appendix 3: Full process maps for both the existing mixed and paperless mode of coursework submission in the School of Life & Health Sciences.

Appendix 4: SWOT-TOWS analysis of both the existing mixed and paperless mode coursework submission.

Appendix 5: Analysis of the utility of a range of hardware that can be used to carry out paperless marking.

Appendix 6: Value chain analysis of all operational processes in place to support marking in the School of Life & Health Sciences.

Appendix 7: Balanced Scorecard Analysis and priorities for process change.

Appendix 8: Full process maps for a recommended paperless marking strategy in the School of Life & Health Sciences.

Appendix 9: Gantt chart detailing potential timelines for the implementation of changes towards a complete paperless marking strategy.
Appendix 1:

Appendix 1: List of modules that are currently paperless in LHS.

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PY1125</td>
<td>Psychology Practicals</td>
</tr>
<tr>
<td>PY1109</td>
<td>Developmental Psychology</td>
</tr>
<tr>
<td>PY1128</td>
<td>Studying Psychology in Higher Education</td>
</tr>
<tr>
<td>PY1129</td>
<td>Introduction to Psychology</td>
</tr>
<tr>
<td>PY1131</td>
<td>Introduction to Psychology (CH)</td>
</tr>
<tr>
<td>PY1118</td>
<td>Social Psychology I</td>
</tr>
<tr>
<td>PY2219</td>
<td>Cognitive Psychology (visual cognition)</td>
</tr>
<tr>
<td>PY 2205</td>
<td>Certificate in Personal and Professional Development</td>
</tr>
<tr>
<td>PY2229</td>
<td>Social Psychology II</td>
</tr>
<tr>
<td>PY2224</td>
<td>Advanced Statistics</td>
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<tr>
<td>PY3125</td>
<td>Social Cognitive Neuroscience</td>
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<tr>
<td>PY3129</td>
<td>Psychosis</td>
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<tr>
<td>PY3360</td>
<td>Models of Psychotherapy</td>
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<tr>
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<td>Counselling and Personal Development</td>
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<tr>
<td>PYPL06</td>
<td>Psychology Placement</td>
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<tr>
<td>BFD102 **</td>
<td>The Philosophy of Management Research</td>
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<tr>
<td>PYM701</td>
<td>Qualitative Research Methodology</td>
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<tr>
<td>PYM702</td>
<td>Quantitative Methods &amp; Advanced Statistics</td>
</tr>
<tr>
<td>PYM703</td>
<td>Health Behaviours</td>
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<td>PYM704</td>
<td>Health Inequalities &amp; Developmental Processes</td>
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<tr>
<td>PYM705</td>
<td>Illness Processes &amp; Behaviour</td>
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<tr>
<td>PYM706</td>
<td>Professional issues &amp; applications</td>
</tr>
</tbody>
</table>

* This is an ABS postgraduate module that is delivered by an LHS member of staff
** This is an ABS postgraduate module is delivered by ABS member of staff who adopted a Grademark process after discussion with LHS module convenors.
Appendix 2:

Appendix 2: Demographic details for the participants who took part in the stakeholder analysis. Samples of the audio files of the interviews are available from the author.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Stakeholder Category</th>
<th>Time at Aston (years)</th>
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</thead>
<tbody>
<tr>
<td>F1</td>
<td>Academic/Administrator</td>
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</tr>
<tr>
<td>M1</td>
<td>Academic</td>
<td>7</td>
</tr>
<tr>
<td>M2</td>
<td>Academic</td>
<td>5</td>
</tr>
<tr>
<td>F2</td>
<td>Academic</td>
<td>12</td>
</tr>
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<td>M3</td>
<td>Academic</td>
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<tr>
<td>M7</td>
<td>Academic</td>
<td>7</td>
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</tbody>
</table>

* participated in a complete assessment cycle with Grademark/Tii
Appendix 3:

Complete workflow diagrams for the mixed mode and the current paperless mode of coursework submission in the School of Life & Health Sciences.
To include assessment name if known

Student

\[\text{Submit through BB} \rightarrow \text{Correction w/ saved files saved}\]
Appendix 4:

SWOT-TOWS analysis of the mixed and current paperless mode of coursework submission in the School of Life & Health Sciences.

Key
S= Student, AD = Administrative Staff, AC= Academic Staff
Appendix 4: SWOT analysis of the mixed mode coursework submission

Strengths

1. (S) Self-concept is good for feeling of security
2. (S) Substantial effort required to print and submit coursework
3. (S) Possibility of coursework author being identified
4. (S) Students are expected to complete different forms that need to be filled in
5. (S) Marking takes place at any and every opportunity
6. (S) Handback dates create bottleneck at last minute
7. (S) Turnaround time is difficult
8. (S) Unjust of the timescale of the hand in/hand back

Opportunities

1. (O) The moderated grades
2. (O) Sometimes overlooked the different forms that need to be filled in
3. (O) Always guaranteed a copy as security
4. (O) Would be easier if markers sent in excel sheet of grades
5. (O) Makes it easier for the students
6. (O) Easier to read and annotate in a Word
7. (O) Minimal effort with regards to coursework
8. (O) Students sign a declaration confirming authenticity

Weaknesses

1. (W) Coursework returned is often illegible and too general to read
2. (W) Teacher struggles with literature
3. (W) Teacher struggles with marking
4. (W) Students are expected to complete different forms that need to be filled in
5. (W) Students are expected to complete different forms that need to be filled in
6. (W) Coursework returned is often illegible and too general to read
7. (W) Unjust of the timescale of the hand in/hand back
8. (W) Unjust of the timescale of the hand in/hand back

Threats

1. (T) Students are expected to complete different forms that need to be filled in
2. (T) Substantial effort required to print and submit coursework
3. (T) Possibility of coursework author being identified
4. (T) Students are expected to complete different forms that need to be filled in
5. (T) Marking takes place at any and every opportunity
6. (T) Handback dates create bottleneck at last minute
7. (T) Turnaround time is difficult
8. (T) Unjust of the timescale of the hand in/hand back
<table>
<thead>
<tr>
<th>Build new strengths to counter threats</th>
<th>Build new strengths to take advantage of opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Develop盯着 the role of the coursework assistance in the class.</td>
<td></td>
</tr>
<tr>
<td>- Ask students to complete a feedback sheet.</td>
<td></td>
</tr>
<tr>
<td>- Use a central outlook calendar to manage all points on moderation.</td>
<td></td>
</tr>
<tr>
<td>- Hand back to students etc.</td>
<td></td>
</tr>
<tr>
<td>- Ensure that students are reminded of submission deadlines a week in advance plus also reminded of the submission process.</td>
<td></td>
</tr>
<tr>
<td>- The main....</td>
<td></td>
</tr>
<tr>
<td>- Students when needed.</td>
<td></td>
</tr>
<tr>
<td>- Forms to the VLO so that they can downloaded by the student.</td>
<td></td>
</tr>
<tr>
<td>- Move all of the coursework from cover forms (in fact all submission)</td>
<td></td>
</tr>
<tr>
<td>- Use electronic receipt straight from SITS at point of submission.</td>
<td></td>
</tr>
<tr>
<td>- Apply strengths to areas of opportunity.</td>
<td></td>
</tr>
</tbody>
</table>

Appendix 4: SWOT-TOWS Strategic Implications of the mixed mode coursework submission
**Strengths:**

1. Feeds back is clear and there is more of it.
2. Feedback is quick and available.
3. Similarity detection tool is rapid and appropriate.
4. Less storage space required for C/W feedback and the student.
5. Less storage space required for C/W feedback and the student.
6. Fewer process delays in getting grades turned out.
7. Accessing grades/feedback is less stressful as it is present.

**Weaknesses:**

1. Inability to select specific feedback in favor of larger.
2. Less variety to work towards the deadlines.
3. Quality check to ensure errors are announced on.
4. Computer/Hardware compatibility and feedback take.
5. Current process delays in getting grades turned out.
6. Branding grades to components is complex and marketing.
7. Quality clear and transparent.

**Opportunities:**

1. Comprehensive group feedback based.
2. Potential to set up auto email via BB to entire cohorts.
3. Feedback is for better.
4. CAN outsource marketing/moderation programs.
5. Reasonable adoptions would need to be made for.
6. Students use for international submissions, adding on to.
7. Interactivity with such software is a transferable skill.

**Threats:**

1. Is inherently to regulations in LHS/Regulating late
2. Physical stress in reading scripts from screen is
4. Unfamiliar process impact wholesale
5. Reasonable adoptions would need to be made for.
6. CAN; Outsource marketing/moderation programs.
7. Interacting with such software is a transferable skill.

---

During the generation of this report the Global II server crashed twice.
<table>
<thead>
<tr>
<th>Build new strengths to counter threats</th>
<th>Apply strengths to areas of opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use existing strengths to counter threats</td>
<td>Submissions</td>
</tr>
<tr>
<td>Ensure that the DNV is aware of paperless marking procedures</td>
<td></td>
</tr>
<tr>
<td>Enrol students in such scanning facilities in main computer</td>
<td></td>
</tr>
<tr>
<td>Develop such scanning facilities in main computer</td>
<td></td>
</tr>
<tr>
<td>Ensure students are aware of paperless marking procedures</td>
<td></td>
</tr>
<tr>
<td>Assessors with large cohorts</td>
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</tr>
<tr>
<td>Large submission from large cohorts introduce</td>
<td></td>
</tr>
<tr>
<td>Develop response of assessor markers who can be used to mark</td>
<td></td>
</tr>
</tbody>
</table>

**Appendix 4 SWOT-TOWS strategic implications of the current paperless coursework submission**
Appendix 5:

Evaluation of hardware
for use with paperless assessment.
Four separate office environments were created and the impact that these environments had on paperless marking was examined. Bearing in mind that there is still ample opportunity to examine a more in-depth set of assessor experiences only a small set of descriptive data is presented here. A number of academic staff were invited to participate in either a stand-alone office condition – here no additional equipment was provided and assessors merely marked scripts via a standard office environment. Some staff are also invited to participate in a widescreen environment – assessors were given a high-definition widescreen computer monitor (Dell UltraSharp U3011 76cm (30") Monitor with PremierColour). Some assessors were also assigned a portable computer device (Inspiron duo Tablet PC with Touch Screen) while a final group had their office environments completely retrofitted with a variety of equipment such as an orthopaedic task chair, feet, arm and wrist rests, a high-definition widescreen computer monitor and ergonomic radio trackball to replace the standard computer mouse setup\(^1\). Taking in hand the very early nature of the survey it is worth highlighting the very distinct themes emerging from interviews with assessors so far:

**Stand-alone office set up:**

It was a bit odd not physically handling the work. In a paper form, I would have put the assignments into piles based on grade and then compared and contrasted to get a feel for each of the classifications. Obviously this wasn't possible. I don't think that this affected things overall but it certainly slowed me down in the marking process. Someone who was more familiar with the experiment/literature/marking criteria probably wouldn't have this problem.  

Nice to be able to access marking at a convenient time and place rather than having to carry masses of paperwork with me.

**Widescreen:**

It is simply great!  

I like it... but I did start to go a bit mad after the first 20 scripts. In some ways it’s quite problematic because I wanted to sit down at this fancy new computer (thank you!) and get all of them done at the same time. I do think that with time and practice things may get easier.

**Portable devices:**

Not fit for purpose - they were just too small and clunky - I ended up using my laptop in the end which worked fine.  

It was great being able to do the marking anywhere and not been tied to the office. In fact I did most of my marking on my laptop in a hotel room in San Francisco while at a conference.

**Retrofitted office:**

It's great  

It is really good but it would be better if I could do some marking on the train

As noted above these are very early data yet two themes may be evident. The first is the notion of unfamiliarity with the procedures. Secondly is the need for flexibility with marking with assessors actually using hardware that they are familiar with in order to take advantage of the portability that Grademark provides.

\(^1\) Support from the university modernisation fund is gratefully acknowledged here
Appendix 6

Value Chain Analysis of all business processes associated with coursework assessment in LHS.

- School Infrastructure
  - Internet and paper based c/w submission system
  - Global VLE usage
  - Module specific processes

- Human Resources Management
  - Administrative support staff
  - Dedicated e-learning staff (health e-learning centre)
  - Bespoke training packages

- Technological Development
  - Blackboard development teams
  - Quality checks in process
  - Outsourcing processes

- Procurement*
  - Outlook reminders to manage staff processes
  - Blackboard reminders to manage student processes

* Exchange costs between the various stakeholder groups involved in the assessment process
Appendix 7:

Balanced Scorecard Analysis of all Stakeholder Requirements

A note on methodology

To arrive at the final improvement priority the three stakeholder strategies (A) were assigned a weight depending on the rankings provided by the member of the executive management team (B). The relationships between the stakeholder requirements (C) and each stakeholder strategies were then assigned a high, medium or low dependency and an appropriate weight (9,3 or 1). Each of the weighted columns in (C) were multiplied by their respective weight in (A) and summed together to arrive at the weighted importance score (D). Those processes that scored a weighted importance above 0.5 received an absolute need for improvement score (E), which was either 1 or 0 and a subsequent ranked improvement priority.
### Relationship Dependancy Key:
- **Operational excellence**: 0.1
- **Product leadership**: 0.2
- **Stakeholder intimacy**: 0.7

### Stakeholder Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Operational Excellence</th>
<th>Product Leadership</th>
<th>Stakeholder Intimacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retaining the 'Aston brand'</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Set turnaround times for feedback</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Dedicated person at the LHS hatch</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Outsourcing assessment</td>
<td>0.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Internet-based system</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dedicated E-learning staff</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Administrative support staff</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Module specific processes</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Global VLE usage</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Quality checking/error traps</td>
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<tr>
<td>Receipt of submission</td>
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<td>Training to use processes</td>
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<td>0.6</td>
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<td>E-archive</td>
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<td>Marketability</td>
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<td>Diagnostic feedback</td>
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<td>Automation</td>
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<td>0.8</td>
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<tr>
<td>Clarity of feedback</td>
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<tr>
<td>Clarity of the submission process</td>
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<td>0.8</td>
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<tr>
<td>Flexibility of all staff processes</td>
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<td>1</td>
<td>0.6</td>
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<tr>
<td>Flexibility of all student processes</td>
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<td>0.6</td>
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### Strategic Ranking

<table>
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<th>Strategic Category</th>
<th>Operational Excellence</th>
<th>Product Leadership</th>
<th>Stakeholder Intimacy</th>
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<td>(A) Stakeholder Strategies</td>
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<td>(B) Strategic Ranking</td>
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### Weighted Importance

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<th>Improvement Priority</th>
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* = high priority for change
Appendix 8:

Workflow diagram for a recommended paperless marking strategy in LHS.
[Workflow for Recommended Paperless Coursework Submission Process in LMS]
Moderator

1. Load file
2. Adjust grade
3. Download grades excel file
4. Find c/w in grade center

[Sub Process 8]
Appendix 9:

Gantt Chart