

Board of Management Audit and Assurance Committee

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| | |
| Date of Meeting | Wednesday 13 May 2020 |
| Paper No. | AAC4-E |
| Agenda Item | 5.3.3 |
| Subject of Paper | Internal Audit Report – Web-based Services |
| FOISA Status | Disclosable |
| Primary Contact | Henderson Loggie |
| Date of production | May 2020 |
| Action | For Discussion and Decision |

Recommendations

The Committee is asked to consider and discuss the report and the management responses to the internal audit recommendations.

1. Purpose of report

The purpose of this review is to provide management and the Audit Committee with assurance on key controls relating to the curriculum and financial plans in place for City of Glasgow College and their alignment with the regional plan for Glasgow and the college student number targets.

2. Context and Discussion

This internal audit of Web-based Services provides an outline of the objectives, scope, findings and graded recommendations as appropriate, together with management responses. This constitutes an action plan for improvement.

The Report includes a number of audit findings which are assessed and graded to denote the overall level of assurance that can be taken from the Report. The gradings are defined as follows:

| | |
|----------------------|---|
| Good | System meets control objectives. |
| Satisfactory | System meets control objectives with some weaknesses present. |
| Requires improvement | System has weaknesses that could prevent it achieving control objectives. |
| Unacceptable | System cannot meet control objectives. |

3. Impact and implications

Refer to internal audit report.

City of Glasgow College

Web-based Services

Internal Audit Report No: 2020/05

Draft issued: 1 May 2020

2nd Draft issued: 6 May 2020

Final issued: 6 May 2020

LEVEL OF ASSURANCE

Satisfactory

Now, for tomorrow

Contents

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Level of Assurance

In addition to the grading of individual recommendations in the action plan, audit findings are assessed and graded on an overall basis to denote the level of assurance that can be taken from the report. Risk and materiality levels are considered in the assessment and grading process as well as the general quality of the procedures in place.

Gradings are defined as follows:

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| Good | System meets control objectives. |
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| Requires improvement | System has weaknesses that could prevent it achieving control objectives. |
| Unacceptable | System cannot meet control objectives. |

Action Grades

| | |
|-------------------|--|
| Priority 1 | Issue subjecting the College to material risk and which requires to be brought to the attention of management and the Audit and Assurance Committee. |
| Priority 2 | Issue subjecting the College to significant risk and which should be addressed by management. |
| Priority 3 | Matters subjecting the College to minor risk or which, if addressed, will enhance efficiency and effectiveness. |

Management Summary

Overall Level of Assurance

Satisfactory

System meets control objectives with some weaknesses present.

Risk Assessment

This review focused on the controls in place to mitigate the following risks on the City of Glasgow College's (the College's) Risk Register:

- Failure of compliance with the General Data Protection Regulations (GDPR) (net risk: amber).
- Failure of IT system security (net risk: amber).

Background

As part of the Internal Audit programme at the College for 2019/20 we carried out a review of the College's web-based services. The Annual Plan, approved by the Audit and Assurance Committee in November 2019, identified this as an area where risk can arise and where Internal Audit can assist in providing assurances to the Board of Management and to the Principal that the related control environment is operating effectively, ensuring risk is maintained at an acceptable level.

Web-based Services

Scope, Objectives and Overall Findings

The scope of the audit was to consider the controls in place over the College's web-based services and their usefulness to staff and students.

The table below notes each separate objective for this review and records the results:

| Objective | | Findings | | |
|--|--------------|---|---|---|
| The objective of our audit was to obtain reasonable assurance that web-based services: | | 1 | 2 | 3 |
| | | No. of Agreed Actions | | |
| <ul style="list-style-type: none"> conform with users' needs; are user friendly, including that navigation capabilities make the website utilisation intuitive; comply with laws and regulations, including over data protection; are secure and reliable; are appropriately managed; and training is provided to users. | Satisfactory | 0 | 0 | 7 |
| Overall Level of Assurance | Satisfactory | 0 | 0 | 7 |
| | | System meets control objectives with some weaknesses present. | | |

Audit Approach

From discussion with IT staff and a sample of users and business system owners, and review of documentation, we considered whether the above objectives are being met.

Summary of Main Findings

Strengths

- Overall, staff interviewed spoke positively on the range of systems and services which are available within the College and that staff were satisfied with the training and guidance available for most systems.

Weaknesses

- We noted that there is no end of year exercise to formally seek the views or feedback of College departments on how well the website has served the needs of departments during the year (e.g. recruitment, marketing, communications, highlighting achievements, etc), nor is there a mechanism for collating the views or identifying future development opportunities for the website.
- Single Sign-On (SSO) is a property of identity and access management (IAM) that enables users to securely authenticate with multiple applications and websites by logging in only once, with just one set of credentials (username and password). We noted that there is no SSO for providing ease of access to each College system. A single sign-on process for accessing College services would improve access, improve the user experience and free up staff time to focus on learning activity.

Summary of Main Findings (continued)

Weaknesses

- Several weaknesses and limitations of the College server based VLE were identified and having considered these we have concluded that there is a case for conducting a review of any potential benefits, costs, and opportunities of moving to another VLE platform.
- We identified data protection risks arising from the use of user group profiles which potentially result in inappropriate staff access to student data and we have recommended additional controls to address this issue.
- Enquirer is a legacy reporting system, which was developed in-house prior to merger. Therefore, the system relies on the knowledge of a few specific College staff, who were involved in its development, to maintain and provide system support. This gives rise to a business continuity risk if these key staff were to leave the College mitigated by plans to phase out Enquirer. This risk is amplified due to a lack of user guide information for staff in relation to student applications and enrolment.
- Formal Service Level Agreements (SLAs) have not been established between the IT Service Desk and other college departments. Therefore, service delivery expectations have not been outlined to users and there is no defined set of metrics to gauge the ongoing performance of the IT Service Desk.
- The current IT Service Desk solution which Enquirer provides does not provide instant service desk metrics data and reporting functionality is limited. There is scope for implementing a service desk solution which tracks and reports performance metrics and allows the capture and reporting of user feedback on service desk performance in much shorter timescales, such as immediately after an IT Service Desk ticket is closed off. This would allow access for the IT team to analyse performance more efficiently and inform service delivery and improvement decisions.

Acknowledgment

We would like to take this opportunity to thank the staff at the College who helped us during our audit visit.

Action Plan

Objective 1: Web-based services:

- conform with users' needs;
- are user friendly, including that navigation capabilities make the website utilisation intuitive;
- comply with laws and regulations, including over data protection;
- are secure and reliable;
- are appropriately managed; and
- training is provided to users.

The College makes use of several web-based systems and services which are used by staff and students. These include:

- Connected - College intranet
- College website
- MyCity – Virtual Learning Environment (VLE), which is a gateway for staff and students to access additional services such as learning and development resources and Moodle, the student VLE.
- Enquirer – a legacy reporting tool developed in-house which draws data from other College systems, including student records, estates, timetabling, IT Service Desk and the enrolment portal.
- Library Management System

Several other systems are in use which are owned and supported by a third-party, such as the Finance, Student Records and HR systems, where the College has very little influence in the design and management of the system and therefore we have considered these to be outside the scope of our review.

Our overall approach included discussion with the member of staff identified as the departmental lead for each system to understand: how it was used; responsibilities for maintenance and content management; access controls; integration with other College systems; how user feedback was obtained and considered in development of the system; and user training. For some of these systems, we were also able to draw on our previous experience of using the systems during previous internal audit and other assurance assignments, including Enquirer and MyCity VLE.

Web-based Services

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From discussions with relevant staff we noted a range of views on the systems considered as part of this audit. Overall, staff interviewed spoke positively on the range of systems and services which are available within the College and that staff were satisfied with the training and guidance available. We have identified a small number of issues relating the usability and performance in terms of meeting the requirements of users' needs which we have outlined in the sections below.

Intranet

The College has identified (via feedback from staff) that the College intranet is not meeting the requirements of staff in terms of internal communications, content, design in terms of navigation, and support. An intranet project group has been established comprising the Brand & Communications and IT teams to begin a process of rebuilding the intranet. At the time of our review a project plan had been developed and the process of obtaining the views from College departments had begun to allow a clearer picture to be established of what each department expects of an intranet service (i.e. user specification). Several products had been identified and the information gathered on the technical and user specifications will inform the tender exercise for a new platform. Bidders will be expected to provide a demonstration of the system with the successful bidder invited to deliver training to staff. An initial launch target of September 2020 (in line with new academic term) has been identified in the project plan.

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| Observation | Risk | Recommendation | Management Response |
|---|--|---|---|
| <p>College website The design and content of the College website has been updated over time to improve the experience for the different stakeholder visitors to the site, including prospective and current students, staff, commercial and strategic partners, with separate areas for each highlighted on the landing page.</p> <p>The website is used primarily as an information source for various stakeholder groups and plays a crucial role in the recruitment of students and marketing commercial courses. Annual feedback questionnaires are issued to students which include questions on the experience of the online application process which is accessed via the College website. We noted that there is no end of year exercise to formally seek the views or feedback of College departments on how well the website has served the needs of departments during the year (e.g. recruitment, marketing, communications, highlighting achievements, etc), nor is there a mechanism for seeking the views or future development requirements for the website.</p> | <p>The College website does not meet the needs of stakeholders and puts the achievement of College objectives at risk.</p> | <p>R1 Develop mechanisms for obtaining the views or feedback of College departments on how well the website has served the needs of departments during the year. This could include Marketing issuing an annual internal customer satisfaction and future requirements survey for the website. Over time this could be extended to obtain user feedback on the College intranet after the new platform has been implemented.</p> | <p>Agreed.</p> <p>To be actioned by: Vice Principal Corporate Development & Innovation</p> <p>No later than: 30 June 2021</p> |
| | | | <p>Grade 3</p> |

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| Observation | Risk | Recommendation | Management Response | | |
|--|--|---|--|--------------|----------|
| <p>Virtual Learning Environment (VLE) / Library</p> <p>The College VLE, MyCity, is accessed via the College website and is split into separate environments for staff and students and provides each group access to a range of learning and development resources. Both MyCity and the student VLE (Moodle) sit inside a single content management framework (Drupal) which is supported by IT. We noted that there are synchronisation issues between the three systems resulting in delays in content being updated.</p> <p>Other College systems, such as the Library Management System, can also be accessed via the College website. Our review noted that there are separate log-in processes for each system.</p> <p>Single Sign-On (SSO) is a property of identity and access management that enables users to securely authenticate with multiple applications and websites by logging in only once, with just one set of credentials (username and password). We noted that there is no SSO for providing ease of access to each system in use at the College. Discussions with staff noted that the administrators for each system can spend a significant amount of time at busy points in the year responding to password reset requests from staff. A single sign-on process for accessing the various systems such as MyCity, Moodle and the library services would improve access, improve the overall user experience and free up staff time to focus on learning activity.</p> | <p>College systems do not meet the needs of stakeholders and puts the achievement of College objectives at risk.</p> | <p>R2 Review the feasibility of developing single sign-on for accessing College systems and services to provide a more efficient and seamless user experience and to provide improved accessibility.</p> | <p>Single Sign On (SSO) is a strategic objective of the IT Team and is a key functional requirement for all future system developments and integration.</p> <p>There are a number of legacy challenges to overcome, in terms of system development, authentication methodologies and hosting decisions however Microsoft Active Directory provides the foundation for providing federated access to all College Systems.</p> <p>To be actioned by: Director of IT</p> <p>No later than: 30 June 2021</p> | | |
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Virtual Learning Environment (VLE)

The College currently operates an on-premises server hosted Moodle environment. The Learning Technology team manages the surface layer and is responsible for managing the content and appearance. IT provides the technical platform support and are responsible for applying software upgrades and patches. The teaching resources in Moodle are updated to reflect changes in the curriculum portfolio and course content based on course frameworks requirements and feedback from teaching staff and students. The on-premises server model requires College staff to produce and publish the content on Moodle which also requires staff to provide support and to train staff on that content once published.

Discussions with staff noted that the capacity of the current VLE server-based model may not be maximised which may limit system development opportunities and in turn learning and teaching capabilities. A review of the performance, support, and content of MyCity is recommended to assess the potential system development requirements and opportunities.

Data reporting from the VLE can provide a range of useful management information to show user access trends at a course and individual level which can be useful for curriculum staff to check if students are engaging effectively with the College. However, we noted during discussions with staff that in order to ensure that server capacity is maintained IT regularly delete the VLE activity logs from the server. However, management reports are based on the data held in activity logs and deleting logs impacts the management reporting functionality.

The Library system can integrate with the VLE. However, we understand that the College has taken the decision to keep both systems separate. The new department of the Learning & Teaching Academy was launched in April 2020 and is modelled the on four pillars of learning, which includes learning, research and technology as key principles. To facilitate this there would be benefits in integrating Moodle and the Library system to assist staff and students in adopting the principles of the four pillars model. As both the library team and the Digital learning team that manages the VLE both are part of the College Learning & Teaching Academy integration of systems would facilitate the integration of teams within the Academy.

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|--|--|---|--|-------|---|
| <p>Virtual Learning Environment (VLE) Taking each of the above issues into consideration we have concluded that there is a case for conducting a review of any potential benefits, costs, and opportunities of moving to a to another VLE platform.</p> | <p>The VLE does not meet the needs of stakeholders and puts the achievement of College objectives at risk.</p> | <p>R3 A detailed review should be conducted which examines the case for potentially moving to another VLE platform. Consultation on the review should include curriculum staff and students to test perceived benefits, costs, and opportunities and to identify further risks and opportunities which may not have been considered in the assessment of MyCity.</p> | <p>Agreed.</p> <p>To be actioned by: Depute Principal</p> <p>No later than: 31 October 2020</p> <table border="1"> <tr> <td>Grade</td> <td>3</td> </tr> </table> | Grade | 3 |
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| Observation | Risk | Recommendation | Management Response |
|---|--|---|--|
| <p>Enquirer – Curriculum Manager</p> <p>The Curriculum Manger element of Enquirer allows staff access to data pulled from the student records system, UnitE. To ensure that the College maintains compliance with data protection legislation access to student data should be restricted to staff that have a business need to access it. Like all systems in use at the College, staff user accounts and associated access permissions are based on group profiles to which they are assigned based on job role. During discussions with staff we identified that all Heads of department, including support and curriculum areas, are assigned to the same user group profile which increases the risk of inappropriate access to student data. Curriculum staff should only have access to data of students within their respective faculties.</p> <p>Regular reviews of IT user accounts are undertaken to ensure that accounts remain valid. Currently there is a reliance is on established starters, leavers, change of role procedures working effectively. It is good practice to perform an annual review of user access permissions by each business system owner based on access lists provided by HR / IT.</p> | <p>Inappropriate access to personal data resulting in non-compliance with the College's data protection procedures and / or data protection legislation.</p> | <p>R4 A review of user access permissions should be conducted by each business system owner at least annually to ensure that access to systems and data remains appropriate. Creation of user group profiles which allow users access only to the data required to fulfil their roles. Separate group profiles should be created for senior curriculum staff and senior support staff.</p> | <p>Agreed. Enquirer has evolved over a number of years based on an outdated data access model. To fully meet this requirement would require an entire re-write of the Enquirer system which isn't a cost-effective option. To minimise the risk the strategic objective to remove functionality from Enquirer will reduce the number of users having access to the wider system.</p> <p>To be actioned by: Director of IT</p> <p>No later than: 31 July 2021</p> |
| | | | <p>Grade 3</p> |

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| Observation | Risk | Recommendation | Management Response |
|---|--|---|--|
| <p>Enquirer – Curriculum and Enrolment Enquirer captures data from the online application and enrolment portal before it is transferred into the student records system, UnitE. Enquirer does not interface directly or automatically with UnitE and the system requires staff to manually transfer the data from Enquirer into UnitE. This impacts the availability of data if running management reports from UnitE as a result of timing differences if there is a batch of student applications approved in Enquirer which have not been transferred into UnitE. Since the College generates Credits monitoring reports from the UnitE data forecasting is impacted by delays in transferring data between the two systems. Alternative integrated solutions which allow real time transfer of data captured at the website level to Enquirer and through to UnitE are available and are used by the other Glasgow colleges.</p> <p>Enquirer is a legacy system which was developed in-house prior to merger and therefore relies on a few College staff, who were involved in its development, to maintain and provide support for the system. This gives rise to a significant business continuity risk if these key staff were to leave the College. This risk is amplified due to a lack of a user guide for staff in relation to the student applications and enrolment element of Enquirer.</p> | <p>Business continuity risks that are not addressed put the achievement of College objectives at risk.</p> | <p>R5 Consideration should be given on ways to mitigate business continuity risks relating to the Enquirer system, such as knowledge transfer, training, and development of user guides.</p> | <p>It is recognised that Enquirer functionality requires to be reviewed and “de-coupled” onto the most appropriate technology platform. There are a number of staff within IT who have worked with Enquirer for over 10 years so there is not a risk of a single point of failure. We will be conducting a full review of Enquirer functionality and migration plan (as required) for next year’s operational plan.</p> <p>To be actioned by: Director of IT</p> <p>No later than: 31 March 2021</p> |
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| Observation | Risk | Recommendation | Management Response | | |
|--|--|--|---|--------------|----------|
| <p>Enquirer – IT Service Desk Formal Service Level Agreements (SLAs) have not been established between the IT Service Desk and other college departments. Therefore, service delivery expectations have not been outlined to users and there is no defined set of metrics to measure performance of the IT Service Desk. However, we did note that metrics are used informally within the IT Service Desk team, but these are not reported the wider College management.</p> <p>The IT Service Desk team have identified the need to develop formal SLAs in accordance with recognised IT service desk frameworks such as ITIL. At the time of our review the IT Service Desk team were in discussions with the Nautical department regarding developing an SLA. The IT Service Desk team were also in the process of developing an IT service catalogue which will assist in identifying where SLAs are required.</p> | <p>Management do not receive enough information to monitor performance effectively and / or support key decisions.</p> | <p>R6 The College should:</p> <ul style="list-style-type: none"> • Develop and agree a set of defined metrics and key performance indicators, which reflect the customer focussed approach of the IT Service Desk team, in order to monitor and assess the performance of the service. • Define the operational requirements for achieving the defined metrics and implement a procedure to monitor and report on performance issues as they are encountered. | <p>Agreed. Development of SLA's is part of the 2019/20 IT Operational Plan and is underway.</p> <p>To be actioned by: Director of IT</p> <p>No later than: 31 July 2020</p> | | |
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|---|--|--|---|--------------|----------|
| <p>Enquirer – IT Service Desk</p> <p>There are mechanisms in place for obtaining feedback on the performance of the IT Service Desk team, although we noted that these are issued infrequently. Staff wide surveys are issued annually, and although seek to obtain feedback on the College's IT services in general, include questions relating to the performance of the IT Service Desk team. Survey results can be labour intensive to collate, analyse and report.</p> <p>Surveys issued to staff also include a section aimed at identifying future user requirements, and although this is aimed at IT services in general, include an opportunity to identify user requirements for the IT Service Desk. Survey results are reviewed annually and subject to appraisal and approval are taken forward as system development projects.</p> <p>The current IT Service Desk solution in Enquirer does not provide instant service desk metrics data and reporting functionality is limited. The IT Service Desk team is reviewing tools which can automate the process of collecting and reporting performance metrics, however these would be of limited use until the College defines what performance metrics are required. Decisions also need to be taken at an operational level on whether to use ITIL 3 based metrics, which traditionally focus on time taken to close tickets, or ITIL 4 which focuses more on service delivery, added value and ensuring that tickets are closed with a positive outcome for the customer.</p> | <p>Management do not receive enough information to monitor performance effectively and / or support key decisions.</p> | <p>R7 a review should be conducted to explore the benefits of implementing a new service desk solution which tracks and reports performance metrics and also allows the capture and reporting of user feedback on service desk performance in much shorter timescales, such as immediately after an IT Service Desk ticket is closed off. This would allow the IT Service Desk team access to up to date data which could inform service delivery and improvement decisions more quickly.</p> | <p>While the IT Service Desk solution based on Enquirer isn't a modern solution, users are able to log calls through the portal (or over the phone) and the IT Team are able to log, fix and close calls as required. Basic logging and resolution reports can be run however they are time consuming, while there is a recognition and aspiration to improve the Service Desk functionality including, dynamic reporting.</p> <p>To be actioned by: Director of IT</p> <p>No later than: 31 March 2021</p> | | |
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