

Glasgow Kelvin College

Systems Development / Implementation

Internal Audit report No: 2024/06

Draft issued: 2 April 2024

Final issued: 19 April 2024



Contents

		Page
Section 1	Management Summary	
	• Overall Level of Assurance	1
	• Risk Assessment	1
	• Background	1
	• Scope, Objectives and Overall Findings	2
	• Audit Approach	3
	• Summary of Main Findings	3
	• Acknowledgements	3
Section 2	Main Findings and Action Plan	4 - 9

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:

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.

Action Grades

Priority 1	Issue subjecting the organisation to material risk and which requires to be brought to the attention of management and the Audit and Risk Committee.
Priority 2	Issue subjecting the organisation to significant risk and which should be addressed by management.
Priority 3	Matters subjecting the organisation 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 risk on the Glasgow Kelvin College ('the College') Risk Register:

- Risk 9 – Digital Transformation: Inability to deliver Digital Transformation Strategy & Programme (Residual Risk Score – 6: Medium).

Background

As part of the Internal Audit programme at the College for 2023/24 we carried out a review of the project management controls in relation to IT systems development and implementation. The Audit Needs Assessment identified this as an area where risk can arise and where Internal Audit can assist in providing assurances that the related control environment is operating effectively, ensuring risk is maintained at an acceptable level.

The College has spent significant resources in developing, acquiring, and maintaining application and business systems. These systems in turn manage critical information and should be considered an asset that needs to be effectively managed and controlled. The appropriate use of a formal systems development methodology is essential for mitigating project failure risks associated with systems development projects.

Scope, Objectives and Overall Findings

The scope of this audit was to carry out a review of the IT project management controls in place within the College.

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

Objective		Findings		
		1	2	3
The objective of this audit was to ensure that:		No. of Agreed Actions		
1. The College has established formal documented project management standards and policies, which reflect best practice.	Requires Improvement	-	1	-
2. Project teams and managers receive adequate project management training.	Good	-	-	-
3. All requests for new projects are supported by a detailed business case and, where approved, a feasibility study, project initiation document and detailed project plan are established.	Satisfactory*	-	-	-
4. A functional specification is prepared which sets out users' requirements and a technical specification prepared based on this.	Satisfactory*	-	-	-
5. An outline testing plan with acceptance criteria is written at the functional specification stage and complied with during the implementation phase.	Satisfactory*	-	-	-
6. Relevant staff are appropriately trained at the right time in the new system and operational guides, user manuals and support are supplied to system users.	Good	-	-	-
7. Post-implementation reviews are carried out by project teams to compare the actual costs and benefits etc. with those originally expected.	Satisfactory*	-	-	-
Overall Level of Assurance	Satisfactory	-	1	-
		System meets control objectives with some weaknesses present.		

* Recommendation made under Objective 1 also links across into these Objectives.

Audit Approach

Through discussion with the Director of Digital and Information Services, and other relevant College managers and staff, and review of project documentation for a sample of recent IT projects, we considered whether the above objectives are being met.

Summary of Main Findings

Strengths

- Senior members of the IT team have received project management training and are experienced in leading on IT development projects;
- For each IT project a Project Team is created, with involvement of relevant College staff and any external contractors brought in where necessary;
- Where applicable, a functional specification is prepared, which sets out users' requirements and a technical specification is prepared based on this;
- Testing plans are incorporated into the project development and implementation phases; and
- Relevant staff are appropriately trained, at the right time, in the new system and operational guides, user manuals and support are supplied to system users.

Opportunities for Improvement

- For a sample of six completed IT development projects reviewed we noted some evidence that project management documentation had been maintained, which demonstrated that project management principles had been applied. However, the College had not developed a formal suite of systems development project documents, which are aligned with a recognised project management methodology, such as Agile or PRINCE2. Whilst it is not realistic or practical to expect that a full project management methodology is applied for smaller or less complex projects there should be guidance that sets out the minimum requirement for projects of different sizes and complexity, as well as the basic information required for all projects e.g. approach, Business Case and PID (project initiation document). To ensure that staff are aware of the College's requirements for initiating and managing projects there should be guidance available to staff that provides a high-level summary of the minimum documentation that must be prepared for different projects, details the methodology that should be applied and the circumstances in which it should be applied. This will enhance consistency in the approach to project management across the organisation and across individual projects.

Acknowledgments

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

Main Findings and Action Plan

Objective 1: The College has established formal documented project management standards and policies, which reflect best practice.

To achieve the College's strategic aims in relation to large and medium sized IT projects, project proposals are presented, and consulted on, through the College's Senior Management Team. These are then reflected in the operational plans for the IT Team and / or other relevant teams within the College, as appropriate. For smaller IT development projects, a formal project request system has been established through the IT service desk, which requires the general project scope and requirement to be outlined. The IT team then undertakes a high-level feasibility review to determine resources, timing, existing capability, and compatibility.

Although several members of the IT team are trained in recognised project management methodologies, such as PRINCE2 and Agile, and apply recognised principles to projects, the College has not formally developed a suite of project management templates, which are aligned with the approach followed under PRINCE2, Agile or other project management methodologies. Typically, this would include:

- Business Case, which includes justification for the project based on costs and anticipated benefits. The Business Case should include a WHY, HOW and WHAT approach and identify timescales, risks, and investment appraisal.
- Project checkpoint report for providing progress updates.
- Communication plan.
- End of project report (from project manager to project team at the end of the project) – includes a review of the original Business Case, review of project objectives, review of project team performance, review of outcomes and any follow up actions identified.
- End of stage report (i.e. scope and review stage reflecting on Business Case, objectives and outcomes) identifying lessons learned and any forecast outcomes.
- Issues log: project issues that require any change approvals or any other issues raised during the project.
- Lessons learned report: produced at the end of the project covering what went well / not so well etc, measurements review and significant lessons.
- Project mandate: identifies the Senior Management Team sponsor, project manager and the subject matter – used to inform the Business Case.
- Plan: a statement of how and when the projects objectives are to be achieved by showing the major outcomes, activities and resources (including budgets) required on the project.
- PID (project initiation document): used to form the basis for the project management and the assessment of its overall success. Includes: background, approach; Business Case outline; project management team structure; role descriptions; quality management strategy; configuration management strategy; risk management strategy; communication strategy; initial project plan; project controls (e.g. stage boundaries, tolerances, monitoring, reporting).
- Risk register: project risks including impact, probability, mitigation and risk owner.
- Works package: Includes agreed standards; reporting arrangements; agreement between project manager and recipient on what is to be done; agreement on project constraints; problem handling and escalation and approval requirements.



Objective 1: The College has established formal documented project management standards and policies, which reflect best practice (continued).

For a sample of six projects reviewed we found that the projects demonstrated key elements of recognised project management methodologies, such as Agile and PRINCE2, although these were not used consistently or formally documented across all projects. Examples included:

- establishing project teams;
- producing project briefs, although we found that these did not fully document the project outcomes and intended benefits;
- developing detailed system and user specifications;
- producing project plans, although these could be further enhanced by formally identifying project dependencies and key milestones such as stop, review and test phases;
- sprint timeboxed development activity; and
- undertaking user training before projects go live.



Objective 1: The College has established formal documented project management standards and policies, which reflect best practice (continued).

Observation	Risk	Recommendation	Management Response
From our review of available project documents, review of supporting information, and discussion with the IT development team, we noted some evidence that project management documentation had been maintained (as referred to above), which demonstrated that project management principles had been applied and documented. However, the College had not developed a formal suite of systems development project documents, which are aligned with a recognised project management approach, e.g. Agile / PRINCE2. Whilst it is not realistic or practical to expect that all the project documents identified on page 4 of this report are completed for smaller or less complex projects there should be guidance which sets out the minimum requirement for projects of different sizes and complexity, as well as defining the basic information required for all projects, e.g. Business Case and PID. In order to ensure that staff are aware of the College's requirements for initiating and managing projects, including projects led by the College and those led by an external agent, there should be guidance available to staff that provides a high-level summary of the minimum documentation that must be prepared for projects, details the methodology that should be applied and the circumstances in which it should be applied. This will enhance consistency in the approach to project management across the organisation and across projects	Staff may not be aware of the requirements for initiating and managing projects, resulting in an inconsistent approach to project management across the organisation and across projects. There may be insufficient project documentation in place on projects which could lead to difficulties in project delivery or completion.	R1 A suite of systems development project documents should be developed, as outlined in this report, and summary guidance for staff should be created which describes the College's approach to project management. Guidance should outline: the methodology to be adopted; in what circumstances the methodology should be applied; the governance arrangements and standard documentation which should be prepared and retained (including outline business case; PIDs; system and user specifications; project plans; testing; and post-implementation reviews). Guidance should be included which clearly states the College's role in project management where an external agent leads the project delivery. The methodology should suit the type of project, for example waterfall \ PRINCE 2 for infrastructure-based projects and Agile for digital projects. The key improvement opportunity is to develop a robust benefits realisation plan, which will be based on metrics agreed as part of the business case and revisited after project delivery.	Agreed. A suit of project management documents will be produced to ensure a consistent and clear approach is adopted by the College when undertaking digital projects. To be actioned by: Director of Digital and Information Services No later than: 31 July 2025
			Grade 2

Objective 2: Project teams and managers receive adequate project management training.

A key strategic objective for the College is to drive continuous improvement and digital transformation. The College has invested in its staff through delivery of continuous improvement training as part of a programme to improve the design and efficiency of its processes. IT and digital projects have a key role to play in the continuous improvement programme and therefore it is vital that IT and digital projects are led by IT staff trained in appropriate project management approaches. For a sample of projects reviewed we noted that in each case a project team was created, with representation from IT and relevant College departments, and any external contractors brought in where deemed necessary. Although the College does not currently have a dedicated in-house project management resource, several members of the IT team are trained in Agile project management and have many years of experience in lead systems development roles.

Objective 3: All requests for new projects are supported by a detailed business case and, where approved, a feasibility study, project initiation document and detailed project plan are established.

The project management approach adopted by the College considers the scale and risks associated with each project. However, the absence of a standard suite of systems development project documents means that intended benefits, outcomes and associated risks are not always formally recorded. Large scale projects, which are conducted jointly with external agencies and suppliers, are progressed through a formal process designed to ensure that a business case, feasibility study, project initiation and project plan are all considered and defined. These projects are required to be approved by the Senior Management Team and, where applicable, the Board of Management. Where significant work is tendered, the College will prepare a user and technical specification based on a project brief and this forms the basis for suppliers to bid on.

Smaller in-house projects that require no external agencies / suppliers (and where the costs are limited to internal developer time only) are progressed through an internal evaluation process which follows the completion of a project request form and approval by the IT team.

As outlined at **R1** under Objective 1 above, the College's approach to development projects would benefit from a suite of systems development project documents which ensures that the business case for all projects fully captures the intended benefits, costs, outcomes, and risks and for the results of feasibility studies to be formally recorded.

At the time of our audit fieldwork the College did not have an IT / Digital Steering Group in place, with a remit to review initial IT project proposals. Current practice includes the identification and consideration of IT / digital projects as part of the development and approval of operational plans, and work considered by the continuous improvement group. Agreed projects are then considered by the Senior Management Team and are incorporated into IT and other relevant departmental operational plans.

Objective 4: A functional specification is prepared which sets out users' requirements and a technical specification prepared based on this.

For in-house development projects users' requirements are established through direct discussion between IT staff and other College teams or staff groups. The IT staff subsequently develop a technical specification, which is shared with users to obtain feedback and further input, with the technical specification then subject to further refinement. From our review of a sample of projects we identified that this feedback loop is often informal, and the improvement action raised earlier in this report (refer to **R1**) is intended to formalise this process through standardisation and consistent completion of the College's project management documentation.

For projects with third party involvement, such as the procurement of a business system from a vendor (for example the SUN finance system) a high-level user specification and detailed technical specification is prepared by the relevant College department identified as the business system owner. This process is supported by the IT team and both specifications are included within tender documents. The supplier then provides a system which best satisfies the prescribed criteria within the identified resource parameters.

Objective 5: An outline testing plan with acceptance criteria is written at the functional specification stage and complied with during the implementation phase.

For larger IT or systems projects, testing is embedded throughout the project plan and is usually conducted at key project milestones. Records of testing performed, including results, are formally documented. Results are then used to inform the next stage of development or are used to loop back to the previous stage and make technical adjustments before re-testing.

For smaller in-house development projects, we noted some evidence that testing activity was being undertaken although the precise testing conducted, and results of that testing, were not always formally recorded. Recommendations raised earlier in this report (refer to **R1**) seek to formalise this process through standardisation and consistent completion of the College's project management documentation.

Objective 6: Relevant staff are appropriately trained at the right time in the new system and operational guides, user manuals and support are supplied to system users.

Systems testing is performed in a secure environment with a target group of stakeholders used to confirm that the system is achieving the desired benefits. Procedures are in place to ensure that users are notified in advance of any systems implementation. User guidance notes are made available to staff and, if required, workshops are run to provide further opportunities for training on the system or application. We noted that responsibility for developing user manuals of work instructions for new systems is not always defined from the outset and usually agreed at hand-over prior to implementation. Recommendations raised earlier in this report (refer to **R1**) seek to formalise this process through standardisation and consistent completion of the College's project management documentation.

Objective 7: Post-implementation reviews are carried out by project teams to compare the actual costs and benefits etc. with those originally expected.

It is good practice for a stop and review process to be built into development projects, which includes regular review points before the system or application goes 'live.' The suggested suite of project management documents noted under Objective 1 includes both an End Stage Report and End Project Report. Our review noted that post-implementation reviews are not typically undertaken as part of a standardised approach to projects. Any lessons learnt are not formally documented and the opportunity to use these to inform future phases of the project or future projects is not leveraged (refer to **R1**).

In addition, where business cases or PIDs have not been prepared it may be difficult to evaluate the interim project outcomes, through the stop and review process, or to compare final realised project outcomes against those originally envisaged.

Due to the nature of large systems implementation projects, which tend to be one-off in nature and involve dealing with specific vendors and systems, there is limited risk that system specific issues or supplier issues will be taken forward into future projects.

For smaller in-house systems development projects, we noted evidence of an incremental product launch approach adopted on some projects whereby specific features and functionality are developed in stages and are tested prior to release in order to identify any issues. On other projects, we noted that the College's approach was to allow systems to be monitored in a live environment to provide the project teams with the opportunity to identify any issues which users may have with the systems or applications, with any issues flagged and addressed as they arise.

Aberdeen 45 Queen's Road AB15 4ZN
Dundee The Vision Building, 20 Greenmarket DD1 4QB
Edinburgh Ground Floor, 11-15 Thistle Street EH2 1DF
Glasgow 100 West George Street, G2 1PP

T: 01224 322 100 **F:** 01224 327 911
T: 01382 200 055 **F:** 01382 221 240
T: 0131 226 0200 **F:** 0131 220 3269
T: 0141 471 9870

Henderson Loggie LLP is a limited liability partnership registered in Scotland with registered number SO301630 and is a member of PrimeGlobal, a global association of independent accounting firms, the members of which are separate and independent legal entities. Registered office is: The Vision Building, 20 Greenmarket, Dundee, DD1 4QB. All correspondence signed by an individual is signed for and on behalf of Henderson Loggie LLP. Reference to a 'partner' is to a member of Henderson Loggie LLP. A list of members' names is available for inspection at each of these addresses.

