KPMG

INTERNAL AUDIT, RISK & COMPLIANCE SERVICES

Argyll & Bute Council

Internal audit report - IT service desk review

10 June 2009

Report Number 001

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Executive summary

Summary of objective and scope

As part of the 2008-09 internal audit plan, as approved by the audit committee of Argyll and Bute Council ("the Council"), an internal audit review of the IT service desk was performed in February and March 2009.

The overall objective of this review was to consider the processes and controls to manage the IT service desk.

The specific objective, scope and approach in respect of this internal audit are detailed in Appendix 1.

Background

The Information and Communication Technology ("ICT") service desk uses a fault and request logging and monitoring system 'HEAT'. The system lies at the heart of the ICT service and is used for fault recording, monitoring and sign-off as well as a central resource for recording all other requests for IT assistance.

All IT staff within ICT and financial services use the system with access also available to all departmental IT staff. One of the key factors in measuring the success of the service desk and support functions is their 'time to fix' IT related problems.

The review considered all aspects of the service desk function, particularly whether the technology is being used effectively to reduce the time taken to resolve IT related problems – the 'time to fix'. The review also considered how to increase the number of calls closed at the first time of asking.

The review used the IT Infrastructure Library ("ITIL") framework as a structure and benchmark to compare against the Council's IT service desk.

Key findings and recommendations

The findings identified during the course of this internal audit are summarised below. A full list of the findings and recommendations are included in this report. Classification of internal audit findings are detailed in Appendix 2.

	High	Medium	Low
Number of internal audit findings	-	5	9

During the course of our review, based on the detailed scope of work completed, we identified no significant control weaknesses around the processes and controls to manage the IT service desk. In relation to the comparison against ITIL, a series of performance improvement opportunities have been identified.

These findings and recommendations were discussed with management who have accepted the findings and have agreed actions to address the recommendations.

Executive summary

Summary of internal audit findings

Ref #	Description of internal audit findings	Rating of internal audit findings			Target date
		High	Medium	Low	
1	**Goals and objectives.** There are no formalised / published objectives, and Service Level Agreements 'SLA's' for the service desk.				**December 2009**
2	**Processes and procedures.** Processes and procedures are not all formalised, reviewed and regularly updated.				**December 2009**
3	**Customer support.** Customers do not have access to guidelines to enable self-service resolution of IT issues.				**February 2010**
4	**Known error database.** There is no centralised 'known error' database or central knowledge repository.				**January 2010**
5	**Prevention and monitoring.** The process of prevention and monitoring is inconsistently applied across individual departments.				**March 2010**
6	**User self-service.** Users cannot log or track the progress of calls without contacting the helpdesk.				**March 2010**
7	**Categorisation / prioritisation/diagnosis.** Some calls are being incorrectly categorised and tickets can lack sufficient information to diagnose the problem.				**September 2009**
8	**Escalation.** There is a lack of formalised proactive monitoring.				**December 2010**
9	**Investigation and diagnosis.** There is no formalised investigation and diagnosis process.				**December 2010**
10	**Closure and resolution satisfaction.** There is a duplication of effort in closing calls and ineffective feedback on user satisfaction.				**March 2010**
11	**Reporting.** There is no formalised reporting procedure, leading to inconsistent use of the reporting function.				**March 2010**
12	**Risk management.** There is no formal linkage with the Council's risk management process.				**December 2009**
13	**Incident grouping.** The incident grouping functionality is not fully utilised.				**December 2009**
14	**Service desk allocations.** The service desk is not being effectively utilised due to escalation of all calls.				**December 2009**

Internal audit findings to be actioned

1. Goals and objectives		Rating of internal audit finding: Low
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
The service desk does not have a customer service catalogue that clearly defines targets and objectives. This has been acknowledged and is currently under development. At present the service level agreements are not published and are not updated on a regular basis. This lack of published information creates a situation where users may not be fully aware of the services provided by IT or the expected response times to resolve their problems. In addition to limited performance related information, there are no definitions of what a standard or major incident are, other than the escalation times and prioritisation/severity of incidents which are in built into the system. This can result in a lack of awareness of a major incident should it occur and, no key steps to ensure quick resolution.	1) The service desk should create and publish a detailed service catalogue that clearly defines targets and service level objectives for call resolution. 2) Management should consider developing flow charts to clearly define the routes a standard incident or a major incident should take to ensure these calls are accurately categorised.	**Action:** The service desk catalogue will be further developed to include SLAs that are agreed with the user group. Flowcharts will be created for standard and major incidents. **Responsibility:** Douglas Bailey **Target Date:** December 2009

2. Processes and procedures		Rating of internal audit finding: Medium
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
Although the service desk does have some processes and procedures many of these have not been reviewed/updated regularly and do not cover all aspects of the service desk. There is a risk that there is an inconsistent approach to the delivery of support to customers. There are key dependencies where only certain staff members can perform procedures as they are the keepers of this knowledge and it is no fully documented.	Management should develop policies and procedures for all parts of the service desk, including second level support teams. These should also be reviewed and updated on a regular basis.	**Action:** Policies and procedures will be developed for all parts of the ICT service desk including second level support teams. These policies will be reviewed annually. **Responsibility:** Douglas Bailey **Target Date:** December 2009

3. Customer support		Rating of internal audit finding: Low
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
No guidance exists at present that allows users to attempt resolution of IT issues before raising a service desk call. The development of user guidelines would have a number of benefits including; reducing users calling the service desk unnecessarily, or without the full details required to help diagnose the problem. This would then maximise the time spent by the service desk team to identify the cause of the problem and deliver the solution.	Management should develop a user guide to communicate how to use the service desk, details of common faults with quick fixes (i.e. password reset) and guidance of where to get additional information (e.g. MS Office user guides).	**Action:** A user guide will be created to communicate how to contact the service desk that will also show the way that faults are categorised and capture any additional useful user information. **Responsibility:** Iain Crockett **Target Date:** February 2010

4. Known error database	Rating of internal audit finding: Medium

Finding(s) and impact	Recommendation(s)	Agreed Management action(s)
The ICT department currently has no central database of known errors and resolution options. Each team has developed their own way of resolving incidents. These can include using the search function in HEAT for a similar call type, procedural documents or experience. There is a risk that knowledge is not being shared, there is inconsistent resolution, and/or additional time to fix as information may be difficult to find.	A centrally held 'known error' database should be developed to provide the following functionality: • storage point for all procedural documentation; • details on how to resolve common or known errors; and • search facility to identify the appropriate solution to known problems.	**Action:** Infrastructure and applications staff will work with the user group to develop a 'known error' database for each section. **Responsibility:** Iain Crockett **Target Date:** January 2010

5. Prevention and monitoring	Rating of internal audit finding: Low

Finding(s) and impact	Recommendation(s)	Agreed Management action(s)
Monitoring to prevent incidents is performed by each department, however these are all done in different ways with some automated and some manually controlled. For example: • The applications team use an automated monitoring system, Oracle's built in tool, to monitor and raise ATG "Automatic Ticket Generator" tickets; and • The servers team use various procedures which are not integrated into the ATG system. This inconsistent approach to monitoring raises the risk that hardware and software incidents may not be identified and therefore resolved in a timely manner.	A consistent approach should be adopted to ensure that all monitoring is automatic, where possible, and results in an ATG ticket being generated to allow a log of all service downtime or unavailability.	**Action:** We recognise that there are a number of different systems in use. A solution will be implemented where our research shows it is possible and practical to use an automated alert system. **Responsibility:** Iain Crockett **Target Date:** March 2010

6. User self-service		Rating of internal audit finding: Low
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
A number of inefficiencies were identified when considering the process for user self-service. These included the following points: • Users logging calls via email do not always have enough information or may give too much information. This results in additional time for the helpdesk to call users back before being able to begin to work on a resolution. • Users have no way of knowing the progress of their calls without calling the help desk, which results in additional call volume. • User contact details/locations are not updated regularly. The Council has frequent staff moves between locations, offices, and departments, making it difficult to track down users which, subsequently delays the time to resolve calls. .	Management should consider updating and documenting the user self service process including the following points: • Users raise tickets themselves by filling in a few key fields rather than a freeform email. These could be used to either automatically assign the call through the ATG functionality or pass to the service desk to review and allocate. • Users can review the activity status on their ticket and ensure that all tickets are being actioned in a timely manner. • A new update process should be implemented to ensure that all user details telephone number, department location and IP addresses are updated on a regular basis. • The call capture process should be updated to ensure caller details are verified before proceeding with the call.	**Action:** Point 1&2 – A review of the service desk software will be undertaken with the vendor to allow this functionality to be incorporated in the product. Point 3 – The most appropriate means of implementing a new update process will be investigated; that captures this information and updates the service desk records. Point 4 – This will be implemented in the call initiation process. **Responsibility:** Douglas Bailey **Target Date:** March 2010

7. Categorisation/prioritisation/diagnosis		Rating of internal audit finding: Medium
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
We identified from discussions with management that a number of instances exist where calls were categorised incorrectly resulting in delays before the call is allocated to the correct second level support team. This issue was confirmed to varying degrees in all IT areas reviewed. The main contributing factor is the lack of accurate and detailed information to be able to categorise calls correctly. In addition, second level support teams often do not have enough information to resolve the issue and have to call back the user for further information, potentially delaying the 'time to fix'. Although calls are allocated a severity this is an automatically generated field based on call category. This may not always be the most appropriate priority, based on other factors (e.g. number of people affected or certain priority calls). A review of the Service Level Agreements "SLA's" 'time to fix' found that some of these are very high for the type of incident (e.g. seven days for a virus attack). There is a potential that tickets are being measured against inappropriate targets, which exposes the business potentially to risk and reduces the efficiency of issue resolution.	Management should consider implementing the following improvements: • Call categorisations should be reviewed on a regular basis to ensure these are still valid and up to date. • Call severity and SLA times should be reviewed on a regular basis to ensure they are still valid, the 'time to fix' is reasonable and the descriptions are clear and understandable. • Typical questions to ask for each type of fault could be developed to aid the service desk staff to identify the nature of the incident to help give the engineers as much information as possible. • Training could be given to the service desk staff by each of the second level support teams to provide more information on the types of faults they deal with and also the key pieces of information to be able to resolve the issue promptly.	**Action:** Point 1 & 2 – Call categories, call severity and SLA times will be reviewed on an annual basis. It is recognised that there are some unrealistic SLA times in the database. All SLA times will be reviewed to ascertain correct SLA 'time to fix' values. Point 3 – These questions will be incorporated in the next release of the new software, including a review of call severity. Point 4 – Collection of key pieces of data during the first point of contact is very important to providing the correct level of support for users. Second line support will be consulted to identify these key pieces of data: training requirements will be investigated and where beneficial will be undertaken. **Responsibility:** Douglas Bailey **Target Date:** September 2009

8. Escalation		Rating of internal audit finding: Low
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
When we considered the performance monitoring process it was confirmed that once a ticket is allocated to a second level support team there is no specific monitoring of the progress by the service desk until it is over its Service Level Agreement "SLA" time. This may result in tickets sitting idle until they breach their service level agreement time.	A formalised reporting structure should be established to actively monitor the progress of the second level support teams to ensure they are resolving tickets promptly prior to SLA's limits.	**Action:** The reporting structure will be formalised. **Responsibility:** Iain Crockett **Target Date:** December 2009

9. Investigation and diagnosis		Rating of internal audit finding: Low
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
The service desk and second level support team do not have a formalised investigation and diagnosis process. This results in a lack of guidance for the service desk and second level support teams on the steps to diagnose and resolve an issue, as well as any measures that could be taken to prevent reoccurrence.	A formalised investigation and diagnosis process should be developed, including: • establishing exactly what has gone wrong; • understanding chronological order of events; • confirming the full impact of the incident including the number and range of users affected; • identifying any events that could have triggered the incident; and • knowledge searches for previous occurrences (e.g. in the known error database).	**Action:** The informal investigation and diagnosis process will be formalised for business critical incidents. **Responsibility:** Douglas Bailey **Target Date:** December 2009

10. Closure and resolution satisfaction		Rating of internal audit finding: Medium
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
When calls are resolved, the second level support engineer will close their assignment and pass back to the service desk to call the user to ensure their ticket has been resolved satisfactorily. This can lead to delays in final closing of the calls in comparison to when the call was resolved. If a user is uncontactable, (e.g. contact details inaccurate or individual not available) the ticket is left open until they can be contacted which can result in significant delays in closing tickets. This can also result in duplication of effort as the engineer sometimes will call the user to keep them up to date or to test if the solution has worked. The user satisfaction from the resolution and service received is also gauged by the service desk. However, they do not ask the users to grade the service, they grade based on how positive or negative the user sounds, based on how they reply to the closure call. This does not give constructive or useful feedback. Although user satisfaction is gained from an annual customer satisfaction survey, more timely feedback, direct from the customer would provide better quality feedback on the service delivered.	Management should consider the following improvements: • If the second level support engineer has called the user they should close the full call at that time not just their assignment, saving duplication of effort, limiting the number of times a user is contacted, and streamlining the process. • If there are multiple assignments on the call this should still be closed by the service desk, who should monitor completion of each assignment. • If a caller cannot be contacted there should be an automatic incident closure period. For example, after 48 hour the call is closed if the ticket is resolved and the user unavailable. • The user satisfaction process should be developed further to include calling only a sample of closed calls a day/week, and asking the user to rate the service themselves or sending out a short automated email questionnaire to a sample/all users to gauge user satisfaction.	**Action:** Points 1& 2 – These have been implemented. Point 3 – If a caller cannot be contacted at the time when a call is being closed by either line support or the service desk an automated email will be sent to the call originator and the call will be closed. Point 4 – An automated user satisfaction survey system will be developed. **Responsibility:** Douglas Bailey **Target Date:** Point 3 - September 2009 Point 4 – March 2010

11. Reporting	Rating of internal audit finding: Low

Finding(s) and impact	Recommendation(s)	Agreed Management action(s)
Performance monitoring is informal and ad hoc with the exception of the reporting performed for ACHA (Argyll Community Housing Association). The new performance measuring tool being implemented, Pyramid, could be further enhanced by developing more appropriate key performance indicators linked to the service desk. Indicators such as, 'time to fix', has only been recently added. In addition, only certain second level support teams are included within the monitoring. Although some of these statistics are currently available they are only monitored on an ad hoc basis, and are not providing information on overall service desk and second level support team performance. The HEAT system has reporting functionality, but all interviewees seem to use the system in a different way, resulting in inconsistent reporting, and the monitoring of different statistics per department.	1. Management should consider the following improvements; • A more consistent and all encompassing reporting framework for the service desk (i.e. Pyramid) should be standardised for all ICT reporting requirements; • Guidance on how to run different report types could help address consistency, and explain functionality. 2. Management should identify the appropriate indicators to be utilised and these should be standardised across all the relevant teams. These could include: • average number of open tickets; • how long each team takes to resolve tickets; • number of open tickets; • cost per incident; • number of incidents incorrectly assigned; • number of incidents per team and percentage of total; and • incidents resolved by each engineer.	**Action:** Point 1 - The appropriate performance indicators will be adopted and reported via the Heat system. The department will continue to report on the SOCITM key performance indicators via Pyramid. Point 2 – Agreed. Performance indicators will be identified. **Responsibility:** Gerry Wilson **Target Date:** March 2010

12. Risk management		Rating of internal audit finding: Low
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
Whilst a risk management framework was evident within the Council, there is no regular monitoring and updating of the risks and challenges facing the incident management service. This creates a situation where the risks impacting the service desk and second level support teams are not captured within the Council's existing risk management process and therefore do not have clear transparency and visibility of mitigating actions being addressed.	The service desk should ensure the critical risks to the function are communicated and incorporated into the Council's risk management process to allow its risks to be monitored regularly and tracked via the operational and strategic risk registers. This would allow process improvements to be identified and the consideration of resource utilisation and training requirements to meet user's needs.	**Action:** Ongoing business critical risks are identified. These risks will be included on the departmental operational risk register. **Responsibility:** Douglas Bailey **Target Date:** December 2009

13. Incident grouping		Rating of internal audit finding: Low
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
Management confirmed that the incident grouping functionality is not being used to its full potential. This can result in potential inefficient logging and closure of tickets, and major incidents not being identified and tracked.	The incident grouping functionality should be used to group similar incidents, and ensure that similar incidents do not clutter the ticket queues. This would then allow the following improvements to be realised: • the ability to monitor ticket progress and if multiple users are affected prioritisation may need to be increased; and • grouped incidents could then be monitored more easily, by all areas, real time and for monthly reporting purposes.	**Action:** Agreed. The ticket grouping and consolidation function within the Heat system know as 'Heat Board' will be used to group incident tickets that are related. This will present Heat users with a single view of how these grouped incident tickets are managed and closed as a single entity. **Responsibility:** Iain Crockett **Target Date:** December 2009

14. Service desk allocations		Rating of internal audit finding: Medium
Finding(s) and impact	**Recommendation(s)**	**Agreed Management action(s)**
The current call resolution process involves, invariably the service desk allocating all calls to the second level support teams, with the only exception being password reset. This creates longer resolution times and is potentially an inefficient use of the service desk teams. Service desk staff currently have the ability to deal with only certain ticket types, however with minimal training they may be able to deal with other requests, which could decrease the current 'time to fix'.	Management should consider utilising the service desk to resolve a broader range of calls than is currently the case (i.e. password resets). This consideration should include the following elements: • review all ticket type categories and identify which resource is most suited to addressing the calls raised, including the current workloads of the relevant teams; and • an appropriate training programme should be implemented to ensure the service desk has the necessary skills to resolve call categories and taken on additional call responsibilities.	**Action:** Agreed. A review of call categories, types and processes will be carried out with a view to identifying the most appropriate resource that should be used. Training where required will be given. **Responsibility:** Douglas Bailey **Target Date:** December 2009

Appendix 1 – Objective, scope and approach

As part of the 2008-09 internal audit plan, as approved by the audit committee of Argyll and Bute Council ("the Council"), an internal audit review of the IT service desk was performed in February and March 2009.

Objective

To review the Argyll and Bute Council IT service desk against the ITIL framework, to identify efficiencies, such as the time to resolve calls.

Scope

Based on the objective outlined above, we:

- Considered all aspects of the service desk function to determine whether the technology is being used to minimise the time taken to resolve IT problems – the 'time to fix'.
- In particular, the review would focus on how the Council can increase the number of calls closed at the first time of asking.
- Use (IT Infrastructure Library) ITIL framework as a structure and benchmark for the review.
- The review included the structure of the operation, the technology used (HEAT), and the reporting of performance.

Approach

The internal audit was be conducted by holding discussions with key members of the Council's staff and considering available documentation. Key staff members with whom we held discussions included:

- Douglas Bailey, Production Manager
- Iain Crockett, IT Officer (Service Desk)
- Christina Bromley, Service Desk Supervisor
- Arthur Connolly, Network Manager
- Alex McDougall, IT Officer (Servers)
- Andrew Allan, IT Officer (Applications)
- Richard Tepe, IT Officer (Communications)
- Russell Clark, IT Officer (UNIX)
- Katrina Duncan, IT Business Manager

Appendix 2 – Classification of internal audit findings

The following framework for internal audit ratings has been developed and agreed with Council management for prioritising internal audit findings according to their relative significance depending on their impact to the process. The individual internal audit findings contained in this report have been discussed and rated with management.

Rating	Definition
High	Observations on high level controls and other important internal controls. Significant matters relating to factors critical to the success of the objectives of the system. The weakness may therefore give rise to loss or error.
Medium	Observations on less important internal controls, improvements to the efficiency and effectiveness of controls which will assist in meeting the objectives of the system and items which could be significant in the future. The weakness is not necessarily great, but the risk of error would be significantly reduced it if were rectified.
Low	Observations to improve the efficiency and effectiveness of controls, one-off items subsequently corrected. The weakness does not appear to affect the ability of the system to meet its objectives in any significant way.