Central Bedfordshire Council Priory House Monks Walk Chicksands, Shefford SG17 5TQ

Central Bedfordshire

TO ALL MEMBERS OF THE CUSTOMER AND CENTRAL SERVICES OVERVIEW & SCRUTINY COMMITTEE

14 June 2010

Dear Councillor

CUSTOMER AND CENTRAL SERVICES OVERVIEW & SCRUTINY COMMITTEE – MONDAY, 21 JUNE 2010

Further to the agenda and papers for the above meeting, previously circulated, please find attached the following report which was marked to follow:-

10.   ICT Infrastructure Review

To provide an overview of the ICT infrastructure review.

Should you have any queries regarding the above please me.

Yours sincerely

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Meeting:	**Customer and Central Services Overview and Scrutiny Committee**
Date:	**21st June 2010**

Subject: ICT Infrastructure Review

Report of:	**Steve Male, Portfolio Holder Customer, Systems & Property**
Summary:	Central Bedfordshire Council was created in April 2009. A year after transition, the Council commissioned a review of ICT, particularly in light of some significant system interruptions earlier this year. This report outlines the key findings of the review and the Council's proposed action plan.

Advising Officer:	Richard Ellis, Director of Customer and Shared Services
Contact Officer:	Clive Jones, Assistant Director Customer and Systems
Public/Exempt:	Public
Wards Affected:	All
Function of:	Executive

CORPORATE IMPLICATIONS

Council Priorities:

ICT is an essential part of the Council's operations and is critical to its ability to effectively serve the public.

Financial:

The provision of reliable ICT systems on a constant basis is a fundamental requirement for the productivity of the Council.

Legal:

Secure and stable ICT systems are key to the provision of all services. Any failure of ICT could cause the Council to be liable for service delivery or system failure and potential legal action.

Equalities/Human Rights:

None.

Community Safety:

There are no Community Safety implications arising from this report.

Sustainability:

The provision of virtualised servers will contribute to the overall reduction in CO_2 emissions

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RECOMMENDATION(S):

1.   That the Committee considers the ICT review and proposals for action in response to it.

Introduction

1.   The new unitary authority came into being on in April 2009. To support the creation of the new Council, new ICT infrastructure was needed and a programme for the implementation of this was initiated in 2008.

The programme consisted of 19 projects aimed at delivering a set of infrastructure that could overlay existing infrastructure and provided access to applications and data via virtual servers, accessed via Citrix technology and the use of two Storage Area Networks (SAN).

The new ICT arrangements went live on 1st April 2009. A year later, Central Bedfordshire Council commissioned an independent review of ICT infrastructure design and implementation, the management of ICT, the assurance over ICT, incident management and disaster recovery.

The Council has also experienced major ICT availability incidents and the review addresses the controls and related issues that have contributed to these.

2.   The newly appointed Assistant Director for Customers and Systems has considered the review and prepared a response report which proposes actions to all recommendations. This is attached at Appendix A.

Review Findings

3.   Before vesting day and live operations, the initial system design was not driven directly by service requirements and disaster recovery system testing was inadequate.

4.   Post live operations, upgrade processes for the infrastructure were not conducted as a matter of routine, largely because the limited resources of the ICT team were focused on the large change programme being delivered.

5.   It is important that the culture within the ICT team enables the professionals within it to challenge and raise issues of concern about systems.

6.   In Feb 2010, the infrastructure failed to recover automatically when there were two disk failures within the same array. These disks contained critical data that was not replicated off site resulting in a prolonged outage to recover the data.

ICT Response

7.0   As a result of the review ICT have:
- Changed the configuration of the SAN to a standard supported configuration.

7.1   Upgraded the SAN firmware which may have contributed to the disk failure.

7.2   Employed a data technician to monitor the infrastructure daily for hardware alarms and take corrective action.

7.3   Created a stabilisation project that will deliver the main off site replication by the end of July 2010 and improved reporting tools for error detection and additional SAN resilience by the end of December 2010.

7.4   Created change control processes to ensure appropriate design scrutiny and configuration management is in place.

7.5   Scheduled ICT attendance at directorate management teams meetings (DMTs) in June to confirm their business requirements and translate these into a programme of ICT work for the corporate management team (CMT) to accept.

7.6   Proposed disaster recovery requirements are established from the analysis of the emerging Business Impact Assessments (BIAs). An ICT disaster recovery strategy will be developed that will meet all of these indentified requirements.

7.7   Commenced regular team meetings, drop in sessions with the Assistant Director and are adopting appropriate work management processes to enable the culture of challenge and involvement of staff to improve. Staff views on the prevailing culture will be solicited through a staff survey later this year.

8.   Although there is no evidence that power failures contributed to the SAN failure, fault tolerant power supplies have been investigated. Further power resilience will be very costly to implement. Bedford has standby generation capability but Priory House has planning regulations that prevent back up generators being deployed for the building. To provide generators in Dunstable would also be costly. The risk of a prolonged power outage at these two sites simultaneously is negligible and with appropriate off site replication, staff should be able to move to other buildings and work if the outage was prolonged. Therefore it is proposed to make the existing infrastructure as resilient as possible without providing new power generation facilities.

9.   Eventually a move of the core ICT infrastructure to a highly resilient data centre is an option that is being considered. This fully aligns with Her Majesty's Government ICT Strategy to create 10 -12 core data centres for the whole of the public sector.

        Progress against these proposed actions in the response will be monitored via the Organisational Plan.

Appendices:
Appendix A – ICT Review Response Report

Background Papers:
ICT Review Report

Location of papers: Priory House, Chicksands

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colspan="5"	**Response to ICT Review**

Author: Clive Jones		**Date:** 19th May 2010

A series of recommendations came from the ICT review. These recommendations have been actioned and the activities planned are detailed in this formal response statement from ICT.

	Recommendation	**ICT Response**	**Task Deadline**	**ICT Owner**
	**Immediate Actions - by the end of July**
	**1. ICT Infrastructure Design and Implementation**
1.1	Continue with recovery work from incidents and stabilisation efforts	Stabilisation project established. Activities completed so far include changes to the storage area network (SAN) configuration, the upgrading of SAN firmware and the employment of a data technician to monitor metrics.	31/7/10	Paul Arthur
1.2	Continue to engage with the Council to ensure all current requirements are being met.	ICT work programme to be presented to Corporate Management Team (CMT) for approval. Attendance at Directorate Management Teams (DMT) to commence to ensure priorities and requirements are captured.	30/6/10	Rachel Murphy-Cooper
1.3 A*	Continue with recovery work from incidents and stabilisation efforts especially those around power and disk failure.	Immediate disk failure stabilisation has been achieved with the change to standard SAN configuration and daily metrics monitoring and reporting. Power resilience is in place for the Bedford SAN that failed. Further power resilience will be very costly to implement. The telephony infrastructure at Priory House cannot have backup generation facilities as this is not permitted under the planning regulations for the building. An uninterruptable power supply (UPS) of 35 minutes that enables a controlled shut down of servers if the power fails exists. There is only one supplier of electricity to the building. The SAN infrastructure at Dunstable only has a UPS of 35 minutes that enables a controlled shut down of servers if power fails. Back up generators for the whole building could be provided but with Priory House not having the same capability it is not seen as cost effective to provide this capability for Dunstable. The risk of future prolonged power outages is very low and is not likely to cause extended ICT outages. The power risk will only be significantly reduced if the infrastructure at all our locations is moved into a highly resilient environment as recommended in the HM Government ICT Strategy. This national strategy is proposing the creation of a limited number of public sector highly resilient data centres accessed over networks. This is referred to as the Government Cloud (G-Cloud). This will take time to establish. The business case for a G-Cloud infrastructure move will be created by the end of December.	31/12/10	Paul Arthur

1.4	Specify a full technical review of SAN and other infrastructure.	Supplier has reviewed SAN configuration and standard configuration has been implemented. SAN firmware upgraded at both sites. Monitoring of metrics is occurring on a daily basis.	Completed 30/4/10	Paul Arthur
1.5	Develop systems to encourage culture of challenge and debate within the ICT service.	As the new Assistant Director of Customer and Systems I have arranged to visit all team meetings and hold drop in sessions on a one to one basis to ensure the management team culture develops to become open and fully consultative. Issues log will be kept of all concerns raised at team meetings. Staff have also received communications on how to raise concerns.	30/6/10	Clive Jones
1.6	Develop a communications management plan for staff at all levels to be led by team leaders.	Team meetings will be held monthly and Team Talk will be on each agenda to ensure the opportunity to hold discussions on key topics is available to all staff. Issues log will be kept of all concerns raised at team meetings. These regular communications activities are being put into place to ensure regular and consistent staff engagement.	30/6/10	Clive Jones
2. Management of ICT				
2.1	Develop business case and plans for delivery of asset and configuration management systems.	Asset and configuration management business case was developed for Touchpaper and the appropriate system modules to enable this to happen have been procured out of transition funding. For implementation schedule see 6.2.	Complete 28/2/10	Rachel Murphy-Cooper
2.2	Initiate a project to review the use of ITIL with CBC	The review of ITIL use occurred and a supplier has been appointed to undertake training on ITIL processes for all of the ICT team which is planned.	Complete 30/4/10	Rachel Murphy-Cooper
2.3	Initiate measures to build capacity of the current ICT team to include short term provision of contract resource.	With the current available resources in ICT a work programme will be agreed by CMT to ensure priorities are correct and resources are focussed on those priorities. This will enable a budget review to be undertaken and financial resource requirements established. The business will then have to decide how it wishes to proceed with resourcing any new requirements.	30/6/10	Clive Jones
2.4	Seek liaison with business on SLAs (Service Level Agreements) around ICT provision. Seek alternative models to fund team.	ICT team will attend DMT's to capture business requirements. Work programme will be agreed by CMT to ensure priorities are correct and resources are focussed on those priorities. This will enable a budget review to be undertaken and financial resource requirements established.	30/6/10	Clive Jones
2.5	Instigate a review of IT technical support activities in place now.	Data Centre technician has been appointed who now monitors infrastructure matrices and produces daily reports. Automated monitoring tools still need to be implemented and are scheduled to be delivered in July.	31/7/10	Paul Arthur
3. Assurance and Governance of ICT				
3.1	Initiate a project to develop processes around testing and change control.	Change control process and testing was put in place at the end of January. Processes were approved by CMT.	Complete 31/1/10	Paul Arthur

3.2	Engage with Internal Audit to understand the role they can play in providing assurance to ICT.	Internal audit review schedule will be developed with Internal Audit team and audits will commence. The schedule of audits will be reviewed by the Audit Committee.	30/6/09	Rachel Murphy-Cooper
4. Disaster Recovery				
4.1	Document lessons learned from the recent ICT outages, to be included in Disaster Recovery plans.	A workshop was held and the resulting actions have been fed into the stabilisation project activities.	30/6/10	Paul Arthur
5. Incident Management				
5.1	Work with supplier to establish the root cause of the SAN failures.	The cause of the outages is as a result of the combination of two disk failures over a period of time not being detected as a result of the alerting mechanism being off line and this occurred possibly as a result of vibration caused by faulty air conditioning units in the Bedford location. The vibration and monitoring arrangements have now been rectified. Not having any off site disk replication added to the length of time it took to recover from the outage.	Complete 12/5/10	Paul Arthur
5.2	Gain an independent view of the supplier recommendations.	Workshop being held with independent suppliers on the 8th June that will identify an appropriate partner to commission to undertake the review.	30/6/10	Paul Arthur
Medium term actions - by the end of October				
6. ICT Infrastructure Design and Implementation				
6.1	Translate all Business Impact Assessments (BIA) into IT requirements for resilience in ICT	Recommendation accepted. The BIAs that determine the business requirements for recovery will be reviewed and translated into a revised resilience strategy that will be accepted by CMT.	31/10/10	Paul Arthur
6.2	Implement short term solutions for addressing disk failure issues	Supplier has carried out SAN configuration changes and firmware upgrades to address the disk failures.	31/5/10	Paul Arthur
6.3	Carry out SAN infrastructure review.	Review will be performed and findings issued in a report. Workshop is scheduled for the 8th June.	31/7/10	Paul Arthur
6.4	Implement the communications plan	ICT team meetings will be attended by the Assistant Director to ensure effective communication is occurring and the communications plan is effective.	30/10/10	Clive Jones
6.5	Consider the introduction of and ICT staff survey	An ICT staff survey will be conducted in December to ascertain staff views on communication and the ability to contribute to decision making and challenge. This survey will enable service management to assess impact of the communication plan objectives.	30/12/10	Clive Jones
7. Management of ICT				
7.1	Develop requirements for delivery of asset and configuration management systems and start	Service Assurance team are managing the project. Requirements are defined and the Configuration of the Touchpaper system has started.	Complete 30/4/10	Paul Arthur

	implementation.			
7.2	Develop Project Initiation Document (PID) and roll out plan for ITIL.	PID for roll out of ITIL best practice will be developed.	31/10/10	Rachel Murphy-Cooper
7.3	Analyse the options for increasing the size of the ICT team. Assess the feasibility of outsourcing ICT provision and the scope of such an outsource project.	Future ICT strategy will be developed to enable the appropriate ICT team organisation to be put in place to support the strategy. Therefore a new ICT organisational structure will be established by November.	31/10/10	Clive Jones
8. Disaster Recovery				
8.1	Develop Disaster Recovery plans in line with BIAs developed by the business.	Disaster recovery plans for our existing infrastructure will be created and agreed by CMT.	31/10/10	Paul Arthur
8.2	Implement disaster recover measures.	Some mitigation has occurred as part of the stabilisation project. Disaster recovery measures will be in place fully once the infrastructure has moved into the G-Cloud which will take time to complete.	31/3/11	Paul Arthur
9. Incident Management				
9.1	Implement measures resulting from the supplier analysis.	Measures identified and were implemented immediately.	Complete 31/3/10	Paul Arthur
Year end actions – by the end of December				
10. ICT Infrastructure Design and Implementation				
10.1	Make amendments to ICT in line with requirements for requirements capture and stabilisation.	Resilience strategy document will be created and ICT programme approved with engagement processes in place.	31/12/10	Clive Jones
10.2	Make amendments to ICT for improved power resilience.	Will only be possible to complete this recommendation fully if the move of the infrastructure into the G-Cloud is approved. This will be presented as part of the ICT strategy and if approved the entire SAN and server infrastructure should migrate into the G-Cloud by September 2011 subject to appropriate G-Cloud locations being established in line with the HM Government ICT Strategy for data centres.	30/9/11	Paul Arthur
10.3	Carry out actions resulting from SAN and infrastructure review.	All actions in the SAN and infrastructure review report will be implemented.	31/12/10	Paul Arthur
11. Management of ICT				
11.1	Complete delivery and start to populate asset and configuration management databases.	The configuration of the Touchpaper system will be complete by the end of July, but the discovery of assets on the network to populate the database will require a single CBC network to be in place and this will not be completed until December. The three key locations of Priory House,	31/12/10	Paul Arthur

		Technology House and Dunstable will be covered from the end of July. This covers the majority of our asset base.		
11.2	ITIL process implemented	Best practices will be implemented as soon as all of the ICT team have received training.	31/3/11	Clive Jones
11.3	ICT Team resourcing supports business need.	Organisation changes made to ICT team to support ICT strategy and business need	31/12/10	Clive Jones
12. Disaster Recovery				
12.1	Carry out a full DR test.	This will not be possible to complete until the infrastructure has moved into the G-Cloud but a partial test will occur before this later this year.	31/9/11	Paul Arthur

*A The move of infrastructure into a Government data centre is dependent on the ICT Strategy being approved and the data centre locations being established.

*B ITIL training is dependent on the new roles of the organisation being defined.

*C Time is being given to establish a changed culture in the organisation before surveying staff.

*D The portfolio holder asked if retrospective testing of all existing infrastructure had been considered. This was not part of the Deloitte recommendation and the cost of retrospectively testing all existing infrastructure would be very high and would not provide good value for money, as the anticipated issues found are assumed to be inconsequential.

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