Gloucester City Council

Meeting: **Cabinet**	**Date:** **28 January 2015**
Subject:	**Proposed IT Capital Infrastructure Upgrade**
Report Of:	**Cabinet Member for Performance & Resources**
Wards Affected:	**All**
Key Decision: **No**	**Budget/Policy Framework:** **No**
Contact Officer:	**Sadie Neal, Head of Business Improvement**
	Email: sadie.neal@gloucester.gov.uk **Tel: 396326**
Appendices:	**None**

FOR GENERAL RELEASE

1.0   Purpose of Report

1.1   To advise Cabinet on the current condition of the Council's IT infrastructure and improve security with current and future state and to provide alternatives to infrastructure which is fit for purpose and meets regulatory requirements.

1.2   To advise Cabinet of the need to invest capital expenditure in order to upgrade the Council's current hardware to Windows 7.

1.3   To advise Cabinet on the cost implications of providing a PSN (public service network) compliant webmail solution.

2.0   Recommendations

2.1   Cabinet is asked to **RESOLVE** that:

(1)   The Council's servers be relocated to a purpose built offsite data centre in order to improve, performance and regulatory compliance concerns that exist whilst the infrastructure remain in its current location.

(2)   Members access email via a managed device and webmail remain in an offline state.

(3)   Subject to approval of the budget, that the Council be upgraded to Windows 7.

3.0 Background and Key Issues

3.1 Of the 55 physical servers owned by the Council, 49 have reached their expected end of life. In some cases these servers ceased to be sold by their manufacturer in 2007 and ceased to be supported by the manufacturer in 2011. The majority of the servers are between 5 and 7 years old, with the network switches which network the floors and building together, also being 5 to 7 years old.

3.2 The age of the equipment will lead to increased failures of physical components, reduced performance of systems (speed and reliability of performance), and increased likelihood of failure to recover from major unplanned outages. This poses an operational risk and a performance and efficiency concern.

3.3 Industry standard would be to refresh this hardware every 3 – 5 years due to the above concerns relating to age and degradation.

3.4 The City Council is working to improve our Disaster Recovery (DR) option. If the computer room in Kimberley Warehouse or the HKP complex itself were to become unavailable due to a catastrophic failure, there would be a delay in providing ICT to the authority. All email, back office, and front office systems would be need to be replicated in another site.

3.5 The data is currently replicated from HKP (Herbert, Kimberley and Philpotts) warehouse to the North warehouse as part of the backup regime. However, there are no facilities elsewhere that would be able to use that data in the event of HKP being unavailable.

3.6 HKP is the main network hub for the authority with the satellite locations such as museums and TIC, crematorium being 'spokes' from this hub. Losing that would mean that no servers or computers would be able to talk to other locations.

3.7 The physical location of the Computer Room in Kimberley Warehouse, above the kitchen of a commercial premise and in a building that has previously flooded increases the likelihood of a DR event occurring. Furthermore the current location does not allow the mitigation of infrastructural resilience that would be found in other facilities, e.g. physically separate mains power from two sources, physically separate communications links into and out in order to isolate any points of failure. This creates a significant operational risk to the organisation.

3.8 These factors have contributed significantly to the work required to be completed to satisfy the terms of the Code of Connection to the Public Services Network ("PSN compliance"). This work is required to ensure that the authority can remain connected to the PSN for key services such as Revenue and Benefits and Electoral Services. There is a Regulatory Compliance requirement to ensure that these factors are overcome in order for the Council to conduct its business.

3.9 There is no room for growth in the existing infrastructure to keep up with expanding computer requirements from new software, initiatives or upgraded versions of software. For instance, the most recent version of UNI-form used by Planning, Building Control and Environmental Health is not supported on the Windows XP version used by the Council. This will have an impact on the performance of those systems.

3.10 Windows XP is the primary Operating System used within the authority. Microsoft ceased all normal support for this operating system in April 2014. This means that only critical security patches are being released and new software is increasingly not going to be supported on this version. Furthermore, performance of the desktop machines used by the majority of the officers within the Council has reduced as a result.

3.11 Outlook Web Access ('webmail') was taken out of service in July 2014 due to security concerns. The existing manner of deploying Outlook Web Access was insecure and not compliant with the PSN Code of Connection requirements. Infrastructure changes are needed to provide webmail in a secure and compliant way. This is currently being provided through managed devices, which achieves value for money and PSN compliance (public service network).

3.12 Civica undertook a survey with all members with regards to their IT requirements and those results have identified some queries in relation to the removal of Outlook Webmail services and the ability for members to conduct their day to day business. The two concerns were the ability to access emails via mobile phone and the ability to print from their iPads. These concerns have been considered and are being dealt with through the procurement of an app that will enable printing and issuing all members with Council owned devices, that can be managed and comply with PSN.

4.0 Alternative Options Considered

4.1 With regards to the data centre, three options are to be considered: do nothing, address regulatory compliance only and migrate the computer room from HKP to a managed data centre.

4.1.1 Do nothing:

This option would be to retain the existing computer room and equipment within the HKP warehouse, maintain that under Civica management and accept the Operational and Performance and Efficiency risks. This would require the Council to accept that there could be outages, that there will be unforeseen complexities to upgrades, maintenance and as such will further compound the issue around design and change control. This is not considered to be a viable option for the Council to conduct its business.

4.1.2 Address regulatory compliance only:

This option would retain the existing computer room but undertake the necessary works to complete PSN compliance required to remove the Regulatory Compliance risk of disconnection from the PSN. This option will not address any of the operational risks outlined in terms of the risks associated with the current location. This is estimated to cost £120k in capital expenditure and £10k revenue and will not fully address Operational Risk or Performance and Efficiency concerns. The risks associated with only meeting compliance outweigh the costs.

4.1.3 Migrate the computer room from HKP to a managed data centre:

This option will include undertaking **all** works to achieve PSN compliance but within a serviced purpose built environment. This would achieve all the PSN regulatory compliance issues. This option would be to commission Civica to undertake the following:

- Address all regulatory requirements detailed in 4.1.2
- Design of a suitable infrastructure in a purpose built hosting facility in a fully managed data centre with a further suitable disaster recovery facility.
- The DR site to have a target of returning services to full operation within 48 hours
- Consolidating the existing physical servers from 55 to 6 primary servers on a fully virtualised platform, significantly reducing power consumption whilst increasing computing power
- Move to Windows Server 2012 as the default server operating system taking advantage of greater memory and CPU (central processing unit) power that this server version allows, leading to improved performance
- Investment in high-speed dedicated network links to the data centre facilities with fail-back lines available in case of failure
- The server hardware would be expected to be maintainable life of a minimum of 5 years due to the nature of the facilities
- Procurement of resilient hardware and network links for both facilities
- Removal of single points of failure
- Migrate the existing computing estate with no downtime during the core service hours
- Decommission the existing computing estate and undertake secure and environmentally friendly disposal of these assets

It is estimated that this will require £200k capital and £50k revenue.

4.2   For the upgrade to the desktop infrastructure, two options are proposed:

4.2.1   Do nothing:

This option would be to maintain the desktop estate at Windows XP (although this is no longer supported) and undertake no hardware refresh of these devices. Unless further extended support can be procured this will not be compliant with PSN Code of Connection, and will not support further upgrades of UNI-form (software system currently used by planning & environmental health) required by the business areas. This option is not considered viable as the Council will not be able to run the latest versions or releases of software and will impede day to day operations

4.2.2   Replace hardware older than 5 years and upgrade to Windows 7 and Office 2010:

Council users would be allocated either a desktop or a laptop based upon requirements. If their computing device is older than 5 years it would be refreshed with a new device, which would be running Windows 7 and have a minimum of 4 GB of memory available.
Where devices are less than 5 years old, it will be upgraded to have 4 GB of memory and upgraded to Windows 7. This will lead to compliance, improved performance of the computing assets and productivity of Council employees.
To undertake a full refresh is estimated to cost £140k capital, although this may be spread over multiple years depending upon the age profile of the estate.

4.3   For Outlook Web Access, two options are proposed:

4.3.1   Do nothing:

        Maintain Outlook Web Access (webmail) in an offline state and provide email access through Outlook on managed devices, or through mail clients on managed tablets or mobile devices. This will allow users to receive emails whilst away from the office, and remain compliant with no investment cost.

4.3.2   Create a Compliant Webmail Infrastructure:
        The Public Service Network Authority (PSNA) have recommended that a web mail infrastructure is required for the Council to have a compliant webmail service. Civica would procure the hardware and implement according to that infrastructure. This would allow Outlook Web Access to be returned to service in a secure and compliant manner. The expected cost for providing this solution is c£60k capital expenditure and £10k recurring.

4.3.3   It is recommended that the do nothing option is taken and that mail to those users that previously enjoyed webmail access is delivered through a different manner. This option offers value for money and will allow this budget to deliver the core ICT requirements to the Council.

5.0   Reasons for Recommendations

5.1   No alternative recommendations were identified other than those detailed in 4.0 Alternative Options Considered.

6.0   Future Work and Conclusions

6.1   Following approval of the recommendations detailed in this report, Civica will undertake a design phase to redesign the infrastructure in a coherent and documented plan. A significant proportion of this work has already been undertaken by Civica in order to be able to inform this report and to remedy the issues experienced during the early months of the contract. This is likely to be completed by February 2015.

6.2   Once full designs are completed, Civica will begin a period of procurement on behalf of the City Council for the replacement infrastructure, a suitable Data Centre and a further DR site. This would be completed in April 2015.

6.3   After a suitable Data Centre is identified work will commence to build the required infrastructure and a phase of testing will take place during May 2015.

6.4   The migration of existing data and decommissioning of existing infrastructure will be undertaken in June/ July. Once live and tested an initial migration will take place to the DR site. A test to the DR site will then follow. It is proposed the project will be fully complete by July 2015.

7.0   Financial Implications

7.1   The financial implications of the recommended options are as follows:

- To migrate a managed Data Centre £200k capital expenditure and £50k revenue expenditure.
- Upgrade existing hardware to enable Windows 7 compliance £140k capital expenditure

7.2   The financial implications to provide a PSNA compliant webmail service is £60k capital expenditure plus £10k revenue expenditure, this option is not currently recommended.

7.3   All capital and revenue implications have been included in the revised Money Plan 2015-20 to be presented to Council for approval in February 2015.

(Financial Services have been consulted in the preparation of this report)

8.0   Legal Implications

8.1   Failure to achieve compliance with the code of connection for the PSN may lead to disconnection. This will impact on the Council's ability to:

- Access shared service from central government and therefore ability to undertake collection of Revenues (£104million pa) and payment of Benefits (£53million pa). This will impact the ongoing relationship with Civica as we have an obligation to keep this accreditation.
- Trade services over the PSN with other connected bodies, making engaging in shared or traded services with other authorities increasingly difficult and expensive

8.2   The contract for the managed IT service provided by Civica sets out various responsibilities of each party, including responsibility for achieving and maintaining accreditation for PSN access. Failure on the Council's part to adequately invest in its IT infrastructure could have an adverse on the Council's ongoing relationship with Civica under this contract and prevent the performance of obligations under the contract.

8.3   The Council also has obligations the Data Protection Act to ensure that any personal information within the Council's data is kept secure. This involves taking appropriate technical and organisational measures against unauthorised or unlawful processing of personal data and against accidental loss or destruction of, or damage to, personal data. Having robust IT infrastructure in place will help the Council to ensure that such appropriate measures are being taken.

(Legal Services have been consulted in the preparation of this report)

9.0   Risk & Opportunity Management Implications

9.1   The Council faces a significant risk of not having a robust DR site whilst operating on end of life infrastructure.

9.2   The risks of not undertaking this work have been outlined throughout this report. There are further risks if the programme of works is not undertaken in a timely fashion as the Council continues to run services on end of life infrastructure.

9.3   There are positive opportunity implications in moving to a purpose built facility. This ensures the Council will not have to invest in changes to the existing building in order to comply either with current best practice or future regulations.

9.4   The move to a data centre provides the Council with flexibility in the future when any existing partnerships contracts relating to IT come to an end. The provision of a well maintained, serviced and documented infrastructure will enable the Council to engage with potential partners in a favourable position.

10.0   People Impact Assessment (PIA):

10.1   The PIA Screening Stage was completed and did not identify any potential or actual negative impact, therefore a full PIA was not required.

11.0   Other Corporate Implications

Community Safety

11.1   None

Sustainability

11.2   There will be positive impact on the Council's day to day operations.

Staffing & Trade Union

11.3   None

Background Documents: None