Executive

ICT Service Provision Strategy

7 December 2009

Report of Head of Customer Service and Information Services

PURPOSE OF REPORT

This report seeks Member approval for a major strategic project to improve the resilience of the Council's computer systems, and to progress the means of identifying options for the medium and long term delivery of ICT services.

This report is Public

Recommendations

The Executive is recommended:

(1)   To approve the project to complete the virtualisation and thin client projects and related staffing changes using the £125,000 already approved for ICT investment, but released by reducing the 2009/2010 ICT capital programme.

(2)   To approve a supplementary estimate of up to £150,000 for the purposes of (1) above.

(3)   To request that a Member and Officer review group is established to review the options available to the Council for the future delivery of strategic ICT services.

(4)   Approve the proposal for interim arrangements for ICT service delivery pending the findings of the review group, at an estimated cost of £50,000 to be met from the ICT reserve.

Executive Summary

Introduction

1.1   The delivery of IT technology for the Council is driven by organisation need. In recent years the Council has invested in technology to provide a sound platform for service delivery now and in the future – most recently with a £150,000 investment in a new network for the Council. Much has been achieved including the recent citing of our use of technology in relation to customer service delivery by the Audit Commission as an example of notable practice.

1.2   The Council experienced a server incident in February 2009 which, following. subsequent investigation, has revealed inadequate resilience in our current

arrangements and promoted a review of:

- the way we procure and organise our servers; they are not configured to modern ICT market best practice

- the resilience in our staffing; the team cannot be expert in all the wide range of technologies now in general use

- our ability to continue to meet market standards; external requirements in the shape of "Government Connect" – a set of stringent processes and criteria local government IT provision must comply with in order to continue to deliver national services such as benefits administration. We have complied with the current requirements but the next version is already published and brings further demands. ICT service delivery is increasingly governed by external forces such as this, the EU Services Directive and others.

1.3   This report concerns how we plan for the future and ensure our IT service delivery is fit for purpose. Technology has great capacity to deliver efficiencies for the Council as a consequence of how it is procured and delivered and as a consequence of its deployment in service delivery.

Proposals

1.4   First we are proposing bringing our infrastructure, desktop and staffing arrangements up to a modern industry standard. This is a significant piece of work and we will need external support to deliver it.

1.5   Optimising the ICT infrastructure and bringing current arrangements into line with modern ICT industry best practice puts the Council in a position to take advantage of market and technological opportunities.

1.6   It is therefore a good time to look at the future direction. A value for Money Review is scheduled for ICT. However, we recommend that the Improvement Team resource instead sets up and facilitates a Member and Officer Review Group tasked with surveying the options for ICT service delivery and driving efficiencies through technology in the future.

Conclusion

1.7   Significant improvement has been made in the Council's ICT backup, recovery and business continuity as a result of the virtualisation of the data centre at Thorpe Lane Depot. These proposals consolidate those benefits and put the Council in a situation where it can take advantage of market and technological opportunities.

1.8   The centrality of technology to the delivery of all the Council's services means it is of paramount importance that the service is flexible and responsive to service changes, is able to take advantage of new technologies as they come to the fore, is resilient in all aspects, and proves beneficial.

Background Information

The ICT service

2.1 ICT Operations comprises the infrastructure that supports the Council's applications and software, and the provision and support of "desktop" equipment used by Members and staff. The infrastructure comprises the network, data storage, retrieval and backup. Maintenance of the big databases that lie behind systems such as i-world (benefits administration) and UNIform (planning, environmental etc) is also part of this team. The desktop element covers the helpdesk services, upkeep and support of the PC environment – Microsoft Office Suite and other PC programmes – and telephony. It also is responsible for checking backups and other daily maintenance.

2.2 The delivery of IT technology for the Council is driven by organisation need, historically on a service by service basis. In recent years the Council has invested in technology to provide a sound corporate platform for service delivery now and in the future. Much has been achieved including the recent citing of our use of technology in relation to customer service delivery by the Audit Commission as an example of notable practice.

Current issues

2.3 The Council experienced a server incident in February 2009. The incident and subsequent investigation has revealed inadequate resilience in our current arrangements and promoted a review of:

- the way we procure and organise our servers; they are procured and configured for specific service requirements so all are slightly different. In addition they are all standalone which results in an infrastructure with poor resilience

- our ability to continue to meet market standards; external requirements in the shape of "Government Connect" – a set of stringent processes and criteria with which local government IT provision must comply in order to continue to deliver national services such as benefits administration. We have complied with the current requirements but the next version is already published and brings further demands.

- the ability of our relatively small team to be expert in the wide range of technologies, systems and market requirements; they cannot operate effectively as experts in everything without a significant increase in team size.

2.4 **Infrastructure resilience.** The ICT strategy to this point has been to purchase new servers to run software on as the need arises (for instance, when a service requires new software, or where the server is faulty). This is known as 'point replacement' and as a consequence, each is a potential point of failure.

2.5 There are around 92 servers delivering applications and services, of which 38 are delivering business services. Of these, 14 are more than five years old or more and a further six are between four and five years old. At over four years

old the probability of a hardware failure is high.

2.6 Continuing the current approach of "point" replacements will simply perpetuate this cycle, add nothing in terms of resilience, and allow pockets of very aged hardware to build up. Continuing as we are means retaining each server as a potential single point of failure, and committing to capital investment on renewing servers year on year.

2.7 **Market Standards.** Increasingly, the ICT infrastructure, how it is monitored, controlled and kept secure will be driven by outside forces. Our current arrangements make it very difficult for us to meet these standards - particularly the Government Connect protocol. The demands of these external forces mean our team is always playing catch-up in trying to stay on top of every new thing.

2.8 **In-house capability.** The ICT Operations Team is already moving towards an industry-standard organisation (known as ITIL) which differentiates staff as Tier one (basic first fix), Tier two (more in depth technical knowledge and expertise), and Tier three (expert external support provider). But the absence of a consistent knowledge base (a consequence of a "point" replacement strategy) hampers this approach being properly implemented.

Where we need to be

2.9 **Fitness for purpose.** To retain its excellent standard the Council needs an ICT service that is resilient in all ways, with high availability against published standards.

2.10 **Flexibility**. The service needs to be able to respond quickly to new opportunities and deploy new technology to gain efficiencies with the Council having confidence in the capacity for that new technology to be supported and maintained.

2.11 **Lower cost.** Significant investment in the infrastructure and applications in recent years is beginning to pay off: the requirement for capital investment in infrastructure in 2010/11 is half what it was in 2008/09. However, there are still significant efficiencies to be gained from both how we deliver ICT into the Council and how technology is deployed to drive efficient working across the organisation.

How we get there: the proposals in detail

Stage one: get our infrastructure in good, industry standard order

2.12 Industry best practice to resolve the infrastructure issues and put the Council in a robust position now, in the medium and long term, is to "virtualise" the infrastructure.

2.13 Virtualisation is a widely-adopted technology which enables the amount of hardware needed to be reduced by using software tools that will run multiple applications and multiple operating systems on the same machine. This is a good thing because:

(i) an individual server is rarely used above 10% of its capacity by the single application that runs, but that capacity isn't available to be used elsewhere; a virtualised pool of servers can balance workload and

provide greater resilience in the event of a failure

    (ii)   if we keep adding servers for every new application, the costs in terms of floorspace, cooling and power consumption also rise

    (iii)   An individual server can fail at any time, taking with it the application that runs on it.

    (iv)   We have already virtualised the disaster recovery element of the Council's key systems but the full benefit will not be achieved until the production environment is also virtualised, allowing for a fully capable disaster recovery solution.

    (v)   Reducing the number of servers from over 90 to just 4 will see a reduction in power consumption of around 90% which translates into a saving of around £4,000 per year in electricity.

2.14   The final piece in the implementation of a coherent, modern ICT infrastructure is the completion of our "thin client" deployment.

2.15   Thin client is a new version of what in the 1970s was known as "dumb terminals". Rather than a PC with its operating system and programmes, a thin client has no moving parts, holds no computer programmes or applications. From the user's perspective it is just like a PC, having a mouse, keyboard and screen, but the programmes are fetched from a central data centre – which could be anywhere. Thin clients are cheaper, quieter and more reliable than PCs.

2.16   Key benefits of thin client are

    (1)   Uses much less power. Replacing 250 PCs, which use over 100w each, with 250 thin clients, which use 4w each, will see a reduction of power usage of approximately 200,000 kw/hours per year, which equates to approximately £20,000.

    (2)   New software and software maintenance is centralised reducing the need for staff to visit every PC

    (3)   All files are stored centrally so backups and disaster recovery is hugely improved

    (4)   Thin clients are easy and cheap to deploy in the case of disaster recovery

2.17   The benefits of thin client are currently being accrued in Customer Service - and are the subject of an Audit Commission commendation for "notable practice".

2.18   Implementing this technical strategy of virtualisation with thin clients resolves both the extant high level of risk to service continuity and enables the Council to look at a number of different options for service delivery in the medium and long term.

Stage two: Development of a longer term strategy to realise the efficiencies

2.19   Technology can be a powerful driver and facilitator of efficiency, cost reduction and transformation. These benefits are not always readily visible if

they are not planned for specifically at the outset and their realisation clearly accounted for at the end.

2.20 We need therefore to develop a clear strategy for ICT that takes a whole Council view rather than a service by service view, and that allows us to consider market opportunities and future service delivery options. Given the central importance to all the Council's service delivery we propose a Member/Officer review group, facilitated by an external technology expert, to look at all the options available and determine the overall direction we should take with our future ICT provision.

2.21 The group will focus on how our ICT service is delivered, the market opportunities which exist and what we want to take advantage of. Once our infrastructure is in good order, we can explore the options available. Key to this review is the consideration of what we want the ICT infrastructure to deliver for the Council in terms of the wide range of potential benefits, and how best to ensure we have access to the range of expertise needed to realise those benefits.

2.22 Those areas of consideration that will influence decisions on how to provide the infrastructure include

(1) **Working smarter.** Home, remote and mobile working; process automation, doing and storing things once and using them many times; procurement, payments and income collection.

(2) **Maximising our assets.** Provision of ICT services to third parties using our buildings, and to partner organisations. Collaboration and joint working.

(3) **Data security and compliance**. External requirements such as the Payment Card Industry compliance, and "Government Connect" drive ICT infrastructure provision, and require the Council to comply with very stringent conditions that all new ICT services must meet. When the rules change we have to be ready and able to respond, as the sanctions are significant.

(4) **Innovation**. Not just new ideas, but ways to improve established practice through better service design, improved processes or controls, strategic partnerships etc.

Managing the service during the completion of the work: interim arrangements

2.23 The project to deliver the virtualised data centre, associated storage and backup, and the roll-out of the thin clients will be led and delivered by an external provider, following recommendations from KPMG, who provided an independent assessment of progress against the original incident, for the Accounts Audit and Risk Committee.

2.24 While the work will be done by a third party, it needs a very strong lead from the Council's side and we know that we are weak in project management. In addition, the small in house team is fully engaged in day to day service delivery, and while the main core of the work will be done by suppliers, there will be much necessary follow-up that can only be done by our own team.

2.25 We are proposing therefore that further external support is procured to deliver

the work set out in this report. The requirement is for a technical project manager for a minimum of three months, able to contribute to the work as well as lead it from CDC's side. The role would be to lead the virtualisation and thin client projects for CDC, and support the implementation of the ITIL way of working.

2.26   Both the ICT Operations Manager and Client Support Manager posts are vacant and are currently filled by interims pending completion of our move to an ITIL recognised structure, and a medium-term strategy for the delivery of ICT services. Consequently the recommendation is that we recruit a technical operations manager on a one year contract to deliver the findings of the review group from April 2010.

2.27   The likely cost of this, plus the external consultancy to facilitate the member/officer review group is £50,000 to be funded from the ICT Reserve. The cost of the short-contract operations manager will largely be met from existing salary budgets, supported by the reserve.

Key Issues for Consideration/Reasons for Decision and Options

3.1   Virtualisation will significantly reduce the current high level of risk arising from individual Council computer systems run on individual physical servers, the failure of any one of which could severely compromise service continuity. The move to thin client is already planned, benefits proven, and the first half of the necessary hardware procured.

3.2   Virtualisation of the whole ICT infrastructure will open up options and benefits in respect of disaster recovery, business continuity, service provision and support currently not available to the Council. There is insufficient capacity within the existing team to deliver this without external support.

3.3   The implications of our ICT Service Delivery Strategy are sufficiently far-reaching to require Member involvement, and sufficiently technical to require external expertise and facilitation.

The following options have been identified. The approach in the recommendations is believed to be the best way forward

Option One   Continue to make point replacements to the Council's ICT infrastructure. This does nothing to mitigate the current risk to the Council's "gold" systems and other applications residing on hardware older than four years, nor does it address the piecemeal structure of the infrastructure, driven as it is by individual service need not strategic Council direction. We must still replace the 20 currently over four years old at a cost of at least £60,000. This cost will occur next year, and the next, in a never ending cycle.

Option Two   Transfer out the entire risk by inviting tenders for suppliers to resolve the current problems then deliver the service. The risk of this approach is that potential suppliers may

maximise the scale – and concomitant cost to put right – of the problems prior to taking on the management of the service. It is unlikely to deliver value for money.

Option Three   Do the necessary work to bring our infrastructure and ICT service management into line with contemporary best practice, thereby maximising the options for service delivery. This will allow the council to review its medium/long-term service delivery options and develop an ICT strategy that meets the organisation's needs now and into the future.

Consultations

Chris Dickens, PWC (Internal Audit)   The initial server failure in February 2009 highlighted some serious control issues within the IT environment. Subsequent reviews by internal audit and then by KPMG highlighted the lack of technical experience in-house as a contributory factor and it is important therefore to ensure that the proposals here recognise the need for specialist input.

It is expected that the proposals put forward will lead to improvements in the internal control environment. Internal audit will engage with the Officer/Member review Group to ensure that internal controls are considered throughout this exercise and to provide assurance that the Council's IT infrastructure is sound and that its data and information is secure.

Comments checked by Chris Dickens, Chief Internal Auditor 07720 427215

Implications

Financial: If the Council does not decide to virtualise its remaining physical ICT infrastructure, it will require funding to replace individual servers anyway. Reducing the risk of a break in service from any of the systems currently delivered on servers compromised by age will require investment of around £60,000 per year every year.

Already this year, seven individual servers have had to be procured for individual services which have to upgrade their systems. At a cost of around £3,000 each this has cost approximately £21,000. Spend of this nature will not be required in a virtualised environment – services will buy an amount of capacity instead.

At its meeting in November the Executive approved a reduced ICT capital programme for 2009/10, with savings of £125,000 released from the originally agreed programme. Without detailed planning, proposals from two potential suppliers for the virtualisation project and thin client implementation are around £150,000, but as

	equipment prices are always falling we expect to pay less once the work is actually scoped. This would require a supplementary capital estimate of £150,000.
	The proposal for interim management will be funded from the ICT reserve. This reserve has already been used in response to the work relating to putting matters right since the original incident and £112,000 remains and can be used to fund the £50,000.
	Comments checked by Karen Curtin, Head of Finance 01295 221551
Legal:	A waiver of the Council's Contract Rules of Procedure in respect of this work is justified on the grounds of expert knowledge of the Council's existing physical ICT infrastructure and makes it difficult for any other supplier to be able to provide the same service in the timescale.
	The recent proposals of the Information Commissioner to increase penalties for breaches of data security to £500,000 make it even more imperative that our systems are as secure as possible.
	Comments checked by Liz Howlett, Head of Legal and Democratic Services 01295 221686
Risk Management:	The current risk of significant impact on service continuity is high and the aged nature of parts of the ICT infrastructure makes likelihood also high. Virtualisation of the physical ICT infrastructure significantly reduces the risk of physical breakdown and concomitant breach of service.
	The risk of not completing the work in good time and to a suitable standard without external support is high.
	Comments checked by Rosemary Watts, Risk Management and Insurance Officer 01295 221566

Wards Affected

All

Corporate Plan Themes

An accessible and value for money Council

Executive Portfolio

Councillor Nicholas Turner
Portfolio Holder for Customer Service and ICT

Document Information

Appendix No	Title
	None
Background Papers	
None	
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