

# North Somerset Council

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## REPORT TO THE COMMUNITY AND CORPORATE ORGANISATION POLICY & SCRUTINY PANEL

**DATE OF MEETING: TUESDAY 1ST NOVEMBER 2016**

**SUBJECT OF REPORT: ICT TRANSFORMATION PROGRAMME**

**TOWN OR PARISH: ALL**

**OFFICER/MEMBER PRESENTING: MIKE RIGGALL, CORPORATE SERVICES**

**KEY DECISION: NO**

### RECOMMENDATIONS

That the panel notes the imminent completion of the council's ICT Transformation Programme, takes the opportunity to challenge officers in respect of difficulties encountered during the programme and glean some confidence from the ongoing work that will see further improvement in performance and reliability of systems going forwards.

#### 1. SUMMARY OF REPORT

The purpose of this report is to summarise the activities of the ICT Transformation Programme ahead of the closure of the programme now that the scheduled activities have been completed. The report acknowledges the level of disruption experienced by the council as a result of the programme.

This report is not a formal project closure document; this will be generated as part of the project closure process and will be available for presentation to the scrutiny panel early in January 2017.

#### 2. POLICY

The council's dependency on technology to deliver its front line services and business transformation activities ensured that the ICT Transformation Programme was directly associated with all of the aims and priorities shown in the Corporate Plan.

#### 3. DETAILS

##### 3.1 Brief Summary of the Transformation Programme

Planning for the replacement of the council's ICT infrastructure commenced in autumn 2013. Five key drivers for change influenced the programme:

1. Support for business transformation. The council is wholly dependent upon its ICT systems to deliver its services. It is essential for its systems and technology to

- support the business transformation that must take place if the council is to meet its budget reduction targets through the implementation of more efficient working processes and channels of service delivery. The council could not achieve the level of business transformation necessary without updating its ICT infrastructure;
2. The council's accommodation strategy is based on a policy of flexible working whereby the majority of officers do not work from a designated desk. The council's ICT infrastructure at the time however was originally designed on the basis of one person, one desk, one computer;
  3. The original IT architecture was based on products for which the supplier had advised that support was to be removed. The specific products in question were Microsoft's Windows Server 2003 operating system, Windows XP desktop operating system and the Office 2003 suite of applications (Word, Excel, Access and Outlook).
  4. The majority of the server hardware at the time was more than five years old and under-specified for the role it was performing. In addition, of the council's 1200 desktop PCs in use, 88% were more than five years old and in need of replacement.
  5. Historically the council has not taken a whole life approach to its investment in ICT and refresh programmes have been managed through the capital bidding process rather than being built into the medium and long term financial plans. As a result, the council had not made provision for the replacement of the majority of its server estate, a programme of work that was prohibitively expensive.

The combination of these factors led to the decision that a wholesale change in approach to ICT was necessary to support the council in its transition to becoming a truly digital authority. The ICT Transformation Programme set out to:

- Realise the vision of the Office Accommodation Programme and enable flexibility within the council's working environment;
- Remove the constraints that prevented services transforming to more efficient and productive working models;
- Reduce support costs for cloud-based infrastructure when compared to the local infrastructure that existed at the time;
- Replace server hardware that had reached the end of its operational life without the need to commit large capital sums of money;
- Transfer responsibility for end of life server replacement to Agilisys;
- Enhance resilience against major incidents such as the loss of a data centre;
- Remove the Windows and Office products in the organisation for which Microsoft dropped support in 2014 and for which extended support through Cabinet Office contract provisions ended in 2015, and
- Replace an end user estate for which 88% of devices were five years old or older and beyond an operational service life

### **3.2 Delivering the Programme**

Support for the council's accommodation strategy was achieved by replacing ageing desktop PCs with virtual desktops running on powerful servers in two new remote data centres which are accessed through terminals that have a much longer lifespan than a desktop PC, and are less expensive to purchase and support. Because the virtual desktop is actually running on a server in the data centre, it appears identical,

irrespective of the device used to access it. An officer can therefore work at any desk in the organisation, or at home, and have access to a transferrable, personalised desktop.

Virtually every item of end user hardware was replaced; this included over 1200 desktop PCs and 650 laptops. The process of co-ordinating the complex exercise of hardware replacement was co-ordinated through the change management element of the programme.

Preparatory work in the data centres commenced in the summer of 2014 and the effects of ICT Transformation were largely unnoticed by the organisation until the arrival of the first new virtual desktops in January 2015.

Deployment of the virtual desktops and new end user hardware was scheduled to last for seven months however, difficulties experienced throughout this period led to two deployment freezes as technical fault finding took place. The desktop deployment phase of the programme did not complete until December 2015.

The ICT Transformation Programme did not attempt to deliver a “Bring Your Own Device” solution. A fundamental security design principle established that internal council systems could only be accessed from council-managed hardware, with the only exception being for members who could access web mail through Outlook Web Access (OWA).

The virtual desktop comprised a “Gold Build” of standard applications available to all officers, including the latest version of Microsoft Office, badged under the marketing label Office 365. Applications which were specific to individual services were either overlaid onto the Gold Build using a technique called *packaging*, or were delivered through the council’s existing investment in Citrix technology.

At the conclusion of the programme, the number of different applications in use across the council has reduced from over 2000 to just over 200.

At the same time as the desktop PCs and laptops were being changed, the council’s ageing estate of over 350 servers was substantially replaced by new virtual servers running in the two remote data centres. Some infrastructure could not be migrated to the new data centres owing either to the complexity of the system itself, such as the contact centre CRM system, or because projects were already in flight to upgrade or replace those systems. A small amount of server infrastructure therefore remains at Town Hall and Castlewood and is likely to do so for the immediate future.

The final task of ICT Transformation took place in September 2016 with the migration of all of the council’s e-mail from a mail system located in Town Hall and Castlewood, to a mail system located in data centres hosted by Microsoft.

### **3.3 Service Disruption**

The process outlined in the preceding section describes an extensive change to every element of the ICT infrastructure in the organisation. Some problems were anticipated from the outset and considered likely to be disruptive to service teams across the council. The programme’s risk management plan attempted to mitigate likely problems using a variety of controls however these were ultimately constrained by budget and time pressures.

From the outset the new systems performed poorly, particularly in the first eight months of operation. Typical symptoms experienced by officers included:

- Variable and excessive latency in response times to key presses and mouse clicks; sometimes whole sentences could be typed on the keyboard before any words appeared on the screen;
- Apparent freezing of screens necessitating a lengthy reboot process which was often followed by an apparent loss of work;
- Applications crashing at seemingly random intervals;
- Applications failing to load correctly at all;
- Windows desktops randomly dropping out, particularly when moving laptops around the buildings;
- E-mails taking excessive amounts of time to open;
- Differences in appointment calendars when viewed on different types of device;
- Outlook freezing for long periods when scrolling up and down lists of e-mails or when switching between calendar and e-mail views
- Certain types of hardware freezing completely for 9 seconds every two minutes when working on the wireless network;

Many other effects were experienced by teams across the council. For some officers the disruption was minimal, yet for others the effects were severely disruptive.

In addition to this list of ongoing problems, the council also suffered a number of “one-off” incidents which served to disrupt completely ICT operations simultaneously across large parts of the council. These included:

- A major failure within the network infrastructure of Virgin Media, the result of which was to leave the council without a data connection to either of its two remote data centres. In one instance the council was unable to run any of its ICT systems for a period of three hours;
- Hardware failures of critical components within the data centres;
- System configuration errors which, in conjunction with a corresponding failure of key components, caused unnecessary failures of an entire data centre;
- Network routing issues which left the council unable to access its virtual desktops

Whilst these failures were unrelated to the ongoing issues described previously, and in some cases were not under the control of the council or Agilisys, the nuances of this were understandably lost on the workforce which only experienced yet more disruption to ICT services.

A number of other issues affected the workforce and further eroded confidence in ICT systems even though these were not directly related to ICT Transformation and in some cases had exhibited problems before the transformation programme commenced. One such good example is the planning web site which has historically suffered from a failure in integration between two computer systems, the result of which prevents planning information being viewed on the web site. The fact that the cause of this issue is not related to ICT Transformation is not of any interest to the general public and the council workforce alike.

### **3.4 Recovery Process**

The recovery process has been running in parallel with the deployment phases of the programme in an attempt to identify configuration errors, resolve problems and fine-tune the systems to improve performance. The majority of this work has been delivered through 'business as usual' activities or targeted remediation projects, and some through contractual options exercised by the council under the support services contract.

The sheer scale of the changes made to the infrastructure has made it difficult to identify and resolve problems in a timescale acceptable to the council. The finite resources available has made it necessary to prioritise activities and this naturally means that those officers affected by issues that have been classed as a lower priority, feel increasingly frustrated. In an attempt to improve progress, Agilisys has significantly increased the level of resources now supporting the new systems, the ongoing cost of which has not been passed on to the council.

During the recovery process Agilisys engaged the services of a company which specialises in identifying the root cause of ICT systems that do not perform well. This resulted in a number of recommendations relating to changes in configuration as well as identifying an underlying fault in the systems that manage disk storage. The original design of the ICT architecture has however been validated and the recovery plan has therefore been based on tuning the configuring of the systems to improve performance rather than changing the underlying design.

The organisation is undoubtedly weary of the frustrations experienced over the past two years and confidence in ICT is low. There are positive signs however that improvements are now beginning to take effect.

### **3.5 Forward Plan**

Whilst the ICT Transformation Programme is on the verge of being closed, this does not imply that the work to improve performance and resolve problems is finished. An extensive plan of activity has been agreed in discussion with CMT which includes the following initiatives:

- Desktop version 6.0 is currently in deployment. Testing shows that this delivers significant improvements to users of the adult social care systems, AIS and Information@Work, the planning system, M3, and a number of smaller applications such as Adobe Pro;
- An upgrade to infrastructure in the data centre will result in the disappearance of the "red screen of doom". This upgrade is being carried out by Agilisys' technical partner, Colt and is expected to be deployed in February;
- Recent testing shows that changes to the configuration of one of the two types of laptop computer in use significantly improves its reliability and performance. Devices are currently being swapped out;
- A tool to monitor the performance of virtual desktops, either at an individual or an organisational level, is currently being explored by the council. This provides visibility of how well the various component parts of the IT systems are performing and offers a qualitative assessment of the perception of IT as experienced by the individual user;

- Access will shortly be provided to a Corporate OneDrive resource. This is a Microsoft cloud storage facility which offers a means to overcome the security restrictions that prevent mobile devices being connected to laptop and desktop equipment and download photographs that have been taken on the mobile device to the network. Testing has been completed successfully and deployment is currently being planned;
- The Corporate One Drive will also offer members a means to store and retrieve information in the long term and will allow this information to be accessible from members' iPads;
- A system to unlock locked user accounts automatically has recently been deployed across the entire estate. This provides the ability to unlock accounts without the need to contact the service desk and is especially helpful during evenings and at weekends;
- The wireless network at the Town Hall will shortly be reconfigured to improve performance and reliability as the wireless access points are not operating in the most efficient manner;

In addition to these projects that are directly related to ICT Transformation, a number of other initiatives will improve the experience of ICT for both the workforce and in some cases the public:

- A review is currently being undertaken of the adult social care information management system, AIS. This will result either in the replacement of the system entirely, or in its complete reconfiguration so that it better supports the business processes of the service and becomes easier to use;
- A new planning system will be implemented by the end of July. This will provide a single system that incorporates the functionality required by the back office, as well as an online module that displays planning applications on the web site. This will remove the issues in the current system that results in planning documents regularly failing to be available on the web site;
- A new meeting room booking system will shortly be introduced that integrates directly with Outlook calendars. Booking meetings and meeting rooms will therefore be able to be completed in a single task;

### **3.6 Lessons Learnt**

The key lessons to be learnt from the ICT Transformation Programme include:

- The initial testing phase of the technology prior to deployment was inadequate. Given that the infrastructure was purpose built for North Somerset and not in use in other local authority accounts in the same form, a minimum of three months' formal testing with teams in the council should have been conducted.
- The formal change programme did not support the programme all the way through the deployment process. The resources used would have had a valuable role to play in supporting council teams during periods of disruption. The problem was exacerbated when a number of key change agents transferred to Agilisys in February 2015 when the Business Services function was incorporated into the Support Services Contract. The change agent activities were not in scope of the work transferred to Agilisys and therefore the role was lost to the council.
- The programme failed to react sufficiently quickly to the noise being generated by the council that indicated the presence of significant problems with the

systems. Full and formal problem management processes were not put into effect until October 2015;

- The communications plan was inadequate in keeping the organisation informed as to the status of current problems and failed to manage expectations about what could be expected from the new systems;
- Insufficient resources were available to support normal business as usual activity, identify and resolve faults on the new systems, and deliver a long list of outstanding projects;
- The council under-estimated the lead time required to initiate and complete such a large transformation programme. Had design work commenced a year earlier there would have been less inclination to push ahead with a project that was obviously in difficulty on account of being forced to meet the deadlines created by the removal of support for key products by the supplier;
- In hindsight the council should have curtailed development activity outside of the ICT Transformation Programme. Trying to deliver over 150 projects whilst simultaneously changing the core infrastructure created significant risks which could not be mitigated;

In spite of the disruption to services experienced by the council, the level of change delivered by Agilisys in such a short space of time should be acknowledged. The continued reconfiguration and tuning of systems will see significant performance improvements over coming weeks and months and trust in ICT will gradually recover.

It is appropriate at the conclusion of a project to review the original aims of the project at the outset:

Realise the vision of the Office Accommodation Programme and enable flexibility within the council's working environment	Achieved. The systems now support flexible working and officers can have full access to software applications and data from any location
Remove the constraints that prevented services transforming to more efficient and productive working models	Not yet achieved. Further progress is required in areas such as mobile working
Reduce support costs for cloud-based infrastructure when compared to the local infrastructure that existed at the time	Not achieved. Support costs for the systems have remained consistent with pre-transformation levels.
Replace server hardware that had reached the end of its operational life without the need to commit large capital sums of money	Achieved. The council obtains its server estate on a utility model basis whereby it pays an ongoing sum for the levels of storage and computing power it uses
Transfer responsibility for end of life server replacement to Agilisys	Achieved. The utility model ensures that Agilisys always keeps the server hardware up to date.
Enhance resilience against major incidents such as the loss of a data centre	Partly achieved. The council is far more resilient to disasters affecting its own major buildings however further resilience testing is required to establish the robustness of service continuity plans.

<p>Remove the Windows and Office products in the organisation for which Microsoft dropped support in 2014 and for which extended support through Cabinet Office contract provisions ended in 2015</p>	<p>Achieved. Similar product retirements in the future will be much easier to manage now that the majority of Windows desktops are delivered virtually. The next such retirement will be the Windows 7 operating system which Microsoft has announced an end of support date of 2020.</p>
<p>Replace an end user estate for which 88% of devices were five years old or older and beyond an operational service life</p>	<p>Achieved. It is to be noted however that an aim of the project was not to implement a refresh model for desktop equipment and laptops. The refresh period for the equipment has been significantly increased however.</p>

#### **4. CONSULTATION**

The state of ICT in the organisation is monitored by CMT and formal reports are required every two months.

ICT feedback groups have now been established to gather perception data across the council.

Operational issues affecting directorate services are managed and escalated through the established governance mechanisms of the support services contract.

#### **5. FINANCIAL IMPLICATIONS**

The financial implications of the ICT Transformation Programme were laid out in the report to Council in February 2014 and again to this scrutiny panel in the same period.

#### **6. RISK MANAGEMENT**

The programme's risk management strategy was outlined in the report to this scrutiny panel in January 2014.

#### **7. EQUALITY IMPLICATIONS**

The council has implemented a dedicated support service for officers who have indicated that they have a disability and require assistive technology to support their daily activities.

Other equality implications were presented in the report to this scrutiny panel in January 2014.

#### **8. CORPORATE IMPLICATIONS**

The corporate implications of the ICT Transformation Programme were laid out in the report to Council in February 2014.



## **9. OPTIONS CONSIDERED**

The original options considered were presented to Council in February 2014. In spite of the difficulties faced during the delivery of the programme, officers feel that the correct option was pursued.

### **AUTHOR**

Mike Riggall, Client ICT Manager, Corporate Services

### **BACKGROUND PAPERS**

Report to Council – 18<sup>th</sup> February 2014

Report to Corporate Organisation Policy and Scrutiny Panel – 21<sup>st</sup> January 2014