Nottinghamshire County Council

ICT OPERATIONAL PERFORMANCE QUARTER 1 2021-22

Technical Debt

The Council has a significant level of Technical Debt which has built up over a number of years and has been exacerbated through the Covid pandemic as we have moved to enable the council to operate with a mainly home-based workforce. The consequence of this is that activity that would have been addressed through the normal activity was paused while the urgent activity necessary to enable the council to operate was undertaken. There are also some legacy applications which are reaching the end of their natural life and all of this has contributed to that build up of Technical Debt. The Debt falls into a number of categories: -

1. Traditionally, the term is used to define the cost of taking an easier delivery path to meet a delivery date. This could involve putting manual interventions in place or, deploying sub-optimal coding or systems which, are difficult to maintain or, enhance.

2. However, there is also technical debt that is associated with ageing and systems that are reaching the end of their natural life which will not be supported by suppliers beyond a specified date. Those systems require upgrades or replacement, in order to retain the functionality and prevent critical service outages. An example of this would be Microsoft and the move to Office 365 as the previous versions were running out of extended support.

3. The third element of technical debt relates to upgrades that need to take place on software and infrastructure to keep them in support, and secure, so that the council meets its obligations in relation to cyber essentials. Critically it keeps the council's and it's citizens data safe, and ensures we have access to systems that support services that we provide to our citizens. An example of this would be the need to upgrade from Android 8 on mobile phones to keep them updated and secure.

4. Additionally, there is the intellectual property (IP) debt that accrues over time when documentation is not kept current and members of the workforce leave. This leaves the organisation with products that are difficult to support due to the time require to understand how the product or code functions. The move from UNIX to LINUX which the Mosiac social care system runs on took significantly longer than anticipated due to key members of staff leaving with years of knowledge.

The description above does not cover systems which, due to age plus, changes in processes and technological advancement, are no longer fit for purpose. If the underpinning technology is still capable of supporting those systems then they are life expired, basically the systems are old. The

replacement / upgrade will be driven by the business areas to more modern offerings that will support new and modern ways of working which should improve how we interact with our users.

One other area that is termed Technical Debt relates to systems that have been procured over time that have similar functionality to one or more other systems. This is extremely common over time in large organisations and leads to a significant amount of duplication. It is not always possible to rationalise down to one common system however, it should be practical to manage the number of duplicates down to reduce the associate costs of supporting multiple systems. An example of this would be the number of user facing portals that appear to be carrying out quite similar functions.

Currently the Council has more than 700 applications across its estate, (5.4 applications per Tech member of staff) based on the size of organisation this appears to be typically double what would normally be expected. The consequence of this is that we have increased costs in supporting duplicate products included in those costs are the staff time occupied in maintaining them, which detracts from the council's ability to change and improve.

An ICT Strategy is under development which among several outcomes will produce options to address the Technical Debt referred to above. By its very nature this will span a number of years due to the amount of Technical Debt the council has, the cost of addressing that debt and the limits in capacity that exist to undertake that work alongside Business as Usual and other priority work for the council.

One area where we can see how this debt has been addressed is related to the Desktop software offer. The provision of the office productivity toolset on the desktop has moved the Council to a Software as a Service (SaaS) model provided by Microsoft. This environment is called Office 365 (O365), and the software is run from a virtual environment that synchronises with your laptop, tablet, PC or, phone.

The software is maintained by Microsoft and regular updates and patches applied automatically. This has removed the burden of maintaining an increasingly complex software environment and allowed the deployment of Teams functionality in an accelerated fashion to support the council through Covid working. It is unlikely that virtual meeting software could have been deployed without this type of infrastructure. It also helps to address aspects of Cyber Essentials that creates an increasing volume of work, to keep data secure, without necessarily adding to business functionality.

The ICT Strategy will look to work with departments to move more of our critical applications to this SaaS model and also to consolidate the applications we have onto those platforms so reducing the overall number of business applications on the estate and the associated overhead in keeping them current and performant.

Where there is not a SaaS offering the approach will be to move systems into the Council's virtual environment (Cloud) which is also provided by Microsoft (Azure). This move will mean the operating systems and infrastructure will be kept up to date and remove that element of Technical Debt that currently sits on the ICT estate.

This move of more applications to the Cloud will need to be undertaken in a planned manner as the costs will move from a model where, "peaks" of capital funding are sought every four years to address legacy equipment, to a model where the revenue costs increase to undertake that refresh

on an on-going basis. Moving to a subscription model e.g. moving from CDs to Spotify. This will require further papers to Finance Committee once the full implications of these costs are identified following the work which will be outlined in the ICT Strategy.