

Appendix 1 Reasons for recommendation – detailed description

- 1.1. ICT is no longer just back office automation; it has become a critical service. If it is unavailable, the Councils cannot deliver services to our service users. ICT Services has the capability of pro-actively contributing to service redesign, which is needed to address the challenges facing the Council. ICT has a pivotal role to play in improving efficiency, reducing costs across both Councils and supporting both as they move away from direct service provision into more sophisticated commissioning models and shared solutions.
- 1.2. ICT Services continues the process of standardisation and simplification based on the premise of a common technical architecture across both Councils, designed to enable local delivery suited to local needs. We understand that delivery will continue to grow through partnerships and service provider organisations in the public, private and third sectors and with this investment programme enabling greater interoperability to underpin these new models for our residents.
- 1.3. Demand for public services from our populace and their expectations of levels of service are ever increasing. Citizens, residents and businesses expect the same levels of access and availability that they receive online from large private sector organisations. Residents expect to be able to access their services from anywhere they can get onto the internet and in a manner that suits them. This investment programme places a strong emphasis on providing choice in the way people access services whilst encouraging them to use the most efficient digital channels.
- 1.4. A key principle of this programme has been to identify least cost infrastructure solutions that provide the foundation for the systems used by both internal service providers and citizens. Minimising the cost of this aspect of technology provision will allow priority to be given to the business systems and applications where most service benefit is derived. Achieving this objective will require all systems owners to support and maintain the standards applicable for the common infrastructure components.
- 1.5. Information security is a critical focal point, given the amount of information both Councils hold and the potential damages to individual and businesses should this be inappropriately released. Great emphasis has been placed on protecting our systems against threats and maintaining constant vigilance to protect against any new threat. Internal investment in training and education for our users, to raise awareness of security risks and to promote good data security practice wherever staff handle information runs in tandem with this investment programme across both Councils.
- 1.6. In addition to supporting the Councils in their mission to deliver high quality services to the residents and people of Cheshire, it is underpinned by the ICT Services Business Plan.

- 1.7. The term 'cloud service' has been used in technology environments for many years. It is an alternative business model for the delivery of ICT services. It has been proposed by both Councils that rather than buy or own equipment and associated services these are rented on an as required basis from providers with massive capacity.
- 1.8. Until adopted and offered at scale by companies such as Amazon, Google, IBM and Microsoft; early doors ICT press indicated that the economic case for 'cloud' solutions was relatively weak and did not offer a good return on investment for any council, when previously assessed. In part this was due to government security standards which restricted how much of our systems infrastructure could be put in the cloud. All the while extensive 'on premise' solutions have not been maintained in parallel, assets have been sweated (as directed by both Councils) and performance indicators could not be realised. This position has changed as the major cloud providers above now offer data tethering with geography, for example, Europe has signed Safe Harbour Agreements and EU Model Clauses acceptable to the UK Government. Other benefits of adopting cloud services are cited as:
- Software that is provisioned as Software as a Service is maintained at the latest version as part of the package: new features are automatically available, and there is no lag whilst ICT prepares the upgrade then implements it,
 - Speed (better to say Agility and Flexibility): new services can be brought online quickly and scaled as needed. The speed of cloud provision is often identified as the single most important reason to move to a cloud service model. Included here is the capacity to scale up and down as necessary. Extra capacity can be used at intense periods and then turned off when not in use.
 - Fail Fast, Succeed Faster: try something, get fast feedback and then rapidly inspect and adapt or kill it fast before more money is spent
 - Collaboration: as data and service are not locked inside a data centre it is easier to share these with partners.
 - Integration: cloud services have integration designed in at the start and most vendors expect customers to blend solutions from different places and have setup solutions to integrate across vendor boundaries.
 - Cost: Councils will only pay for what they use, and it runs on a revenue not capital basis. The ability to turn things off when not needed and hence not pay for them can give rise to some savings, but this needs to be balanced with a more intense management of things like the starters, leavers and movers' processes within both Councils and the business hours of service(s) required. In the context of transformation, this also avoids tie in to long term contracts.
 - Security: the major cloud vendors have spent heavily on security and have achieved high levels of certification with UK and US governments, the scale of the operations means that services can afford to implement excellent security at a low unit cost.

- Resilience: Cloud helps you plan and manage enterprise wide resilience, aiding speedy recovery and mitigating the impact of disasters.
- 1.9. With the previous security obstacles resolved, the transformation of our current ICT assets to cloud based solutions, the infrastructure investment programme will pursue a reduced cost of ownership. The programme will dovetail and support the internal digital programmes, cloud first shared and COT procurements, decommissioning of duplicate systems, information assurance and data management programmes.
 - 1.10. Standardisation will allow both Councils to access cheaper “cloud” services for our core infrastructure requirements and negate the need for future major investment in physical technology assets instead moving to a pay as you go consumption basis. Cloud based services will increasingly be the mechanism of choice for technology services and ICT Services is keen to use these where appropriate. Other Councils, such as Shropshire, Kent and Somerset have also adopted similar strategies. ICT will move basic utility type services away from in-house sourced systems to commodity cloud services. An example would be our email system, this is currently provisioned as a service hosted and run in-house. However, for the great bulk of our email, an external service such as Microsoft Office 365 (O365) would provide a cheaper and more functional service.
 - 1.11. The policy of ICT Services, in agreement with both retained Clients, is that as current services or applications come to a natural upgrade or procurement milestone and where hardware becomes or has become obsolete (and performance is suffering), then they would be to move these to compliant public cloud based services. This therefore means a move to Software as a Service (SaaS) for commodity type requirements such as email, and Infrastructure as a Service (IaaS) where no SaaS offering is available or does not meet our requirements. The strategic aim of ICT Services will therefore move away from the ownership and support of hardware and software to procuring services as and when new facilities are requested.
 - 1.12. The delivery of a strategic investment programme will address the need to provide a flexible, utility based costing model and remove the dependency on ageing infrastructure through cloud-based solutions that are managed by a strategic technology provider/s. It will also prevent threats to customer information either from ageing technology or cyberattack. The programme puts forward proposals for transforming the technology:
 - Phase 1: Within 3-6 months enable ICT Services to become a Cloud ready organisation with a 2020 vision, supporting both Councils with Microsoft Office 365 in the Cloud and migration of file servers. Internet resilience is a key consideration and will need to be introduced within this phase.
 - Phase 2: An aggressive 3-24 month application transfer roadmap moving on premise to the Cloud reducing in house data centre provision by 80% (initial assessments indicate approx. 922 servers identified as suitable and 174 servers requiring further analysis)

whilst improving disaster recovery, resilience and back up capabilities and providing an agile DevOps environment

- 1.13. The “do nothing option” or continue with existing processes, sweating assets and leave the ICT support arrangements and the technology landscape as-is in its current form with firefighting piecemeal capital investment was considered. Shared Services Joint Committee, Joint Officer Board and both ICT retained client teams are aware of previous benchmarking exercises undertaken within ICT shared services since 2009 and the inherited challenges for ICT Services going forward. Gartner were asked to benchmark Cheshire shared services IT Service against organisations with environments of a similar size and complexity, and reported in October 2011 that hardware was retained longer than the peer group average and that the age of some of the hardware was cause for concern and was likely to result in higher than normal support costs. A subsequent Gartner IT overview benchmark, prepared in November 2013, highlighted several key areas for consideration a) Total IT business as usual (BAU) costs, at £8.9m, were 53% lower than a similar workload peer group (this figure has not increased since despite growth in technology use and investment in digital services) and b) BAU costs were also £4m (32%) lower than the lowest cost quartile. As this was significantly lower than Gartner expected, they recommended that ICT shared services should review the level of spend and resourcing, and re-assess the maturity of IT processes and re-measure on a regular basis. This is also supported by the joint ICT Services monthly contractual performance reports (2016-17) which indicate continued failure to meet indicators. The do-nothing option was therefore rejected as non-compliant and not meeting the strategies and policies of either Council within the full business case.
- 1.14. A fully on premise hosting (traditional non-cloud) option including maintenance of essential services and compliance was also considered. By 2017-18 80% of ICT assets will be older than 5 years and will be non-compliant with both Councils asset policies. To re-procure the hardware assets and replace obsolete hardware would cost approximately £16m (i.e. 80% of £20m) plus the additional resource costs to procure and implement. This option was therefore rejected in the full business case as unaffordable for both Councils and not in support of internal digital programmes, cloud first benefits, information assurance and data management programmes.
- 1.15. As ICT Services, current technology is non-compliant and the cost of refreshment next year is unaffordable; a more pragmatic option to migrate all infrastructure to IAAS i.e. move all systems and services from on premise servers to cloud based services along with all associated applications was considered in the full business case. The benefit of this approach would be that it moves business applications onto a modern, stable infrastructure and reduces ICT Services resource time and effort with respect to hosting, and incident management where non-compliant or redundant equipment is the cause of performance issues. However, following a review of these assets, and on the feedback received from both Hewlett Packard and Microsoft, it is unlikely that more than 80% of services could be moved to the Cloud as they are non-compliant with Cloud provider

operating system/s and database version policies therefore a hybrid option had to be considered. The option to move all infrastructure to the Cloud along with associated applications was therefore rejected as applications are non-compliant for Cloud platforms, therefore this is unachievable.

- 1.16. Hybrid, a combination of the traditional and cloud approaches, was considered in more detail within the business case. Two hybrid options (50:50 and 80:20 Cloud: in house provision) were examined in more detail with the key driver for option selection being return on investment (ROI) and the nature of the applications that used by each Council. Each of these applications has dependencies and compliance with a range of Operating Systems (OS) and potentially of other elements such as databases. The choice of these packages and their state in relation to OS versions and service patches forces ICT Services to maintain a diverse hosting and database environment. The significance of these multiple OS and Db versions is that standard cloud and managed platforms generally support OS and DB versions within an N-1 policy. Based on the current standard OS, it is estimated that 20% of existing Council applications could not be migrated to the cloud. Given the specific nature of both Council's services it is likely that there will be a continuing reliance on COTS packages from niche suppliers who have historically lagged behind in maintaining OS and service patch currency, thus forcing the Council to maintain an in house or on premises hosting capability with more flexibility than public and managed cloud providers will generally maintain.
- 1.17. ICT shared services has not invested in internal skills and development to support new technologies and is reliant on individual contractors recruited on a project by project basis to supplement the permanent resource base and provide specialist skills. Contractors are not a constant resource or a coherent body of knowledge. New incumbents require time to understand the ICT shared services environment and have not worked with other contractors and staff members. The urgent need to invest in both technology and in house skills is apparent. Both Councils require aggressive implementation of cloud services. The risks of undertaking the required transformation within 24 months with individual contractors are high. In house staff need new skills and a comprehensive training and development programme. It is therefore proposed that we look to the market for a strategic Cloud migration partner to support the implementation of this investment programme.
- 1.18. The detailed business case makes a strategic recommendation is to engage a Cloud migration partner (Microsoft) to support ICT Services in the implementation of an aspirational and transformational hybrid (80% cloud and 20% in house) solution.