WALES AUDIT OFFICE
SWYDDFA ARCHWILIO CYMRU

Use of technology to support improvement and efficiency in local government

I have prepared and published this report in accordance with the Public Audit (Wales) Act 2004.

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Summary

1   These are challenging times for councils in Wales. In a climate of decreasing public funds they are having to:

   a   cut staffing costs and increase productivity;

   b   deliver shared services;

   c   join up services across sectors;

   d   improve stakeholder engagement; and

   e   respond to and deliver changes arising from legislation for example the Welfare Reform Act 2012.

   This means that Councils have to look for innovative ways to deliver more for less.

2   Effective use of technology is a key enabler for transforming the delivery of public services, improving outcomes for citizens and delivering efficiency savings. Technology can support different ways of working, delivering services and engaging with citizens, enabling authorities to deliver more for less. Well established uses of technology to improve Council services or make savings include:

   a   providing different, cheaper access channels to interact with citizens such as web and telephony based technology;

   b   enabling flexible, mobile and remote working arrangements;

   c   rationalising printers to achieve savings in the order of 25 per cent; and

   d   consolidating electronic storage to provide a simple, cost-effective way to meet the growing requirements for data sharing, and availability of data and information.

3   The way in which technology is delivered and managed has a direct impact on the efficiency, effectiveness and quality of work undertaken across an organisation and affects almost every worker. Arrangements for making strategic ICT decisions and the adoption and enforcement of related policies and procedures are referred to in this report as ICT governance. Poor ICT governance can lead to the use of inappropriate systems, and systems being unavailable, which can impact upon service efficiency, quality and continuity.

4   The Welsh Government claims that its ICT Strategy for the *Public Sector in Wales,* published in 2011, will enable it to 'robustly and safely ensure that new ICT systems support the move to online public services and that they meet the needs of the citizens of Wales'.

5   This strategy seeks to provide a roadmap for updating ICT architecture and infrastructure into a more common arrangement, based on a whole Wales approach, in order to deliver Welsh Government policy objectives in relation to:

   a   improving public service delivery;

   b   improving access to public services;

   c   increasing the efficiency of public services; and

d   the promotion and facilitation of the use of Welsh throughout the public service.

6   While this report focuses on how councils in Wales are making use of ICT to support service delivery and improvement, the Welsh Government's strategic approach provides the framework for their activity, particularly in relation to developing common arrangements across local government and the Welsh public service more widely. Inevitably, the interplay between the all Wales strategic framework and local arrangements forms a key part of our analysis. However, we do not, in this report, evaluate the effectiveness of the implementation of the Welsh Government's ICT Strategy for the Public Sector in Wales.

7   As part of our annual assessments across Local Government in Wales we identified that many local authorities were grappling with ensuring technology was used effectively to support service transformation and achieve efficiency savings. As a result we undertook reviews of the use of technology at all 22 Welsh Councils. This report brings together the findings of these reviews and summarises the position across Wales, highlighting areas of good practice and barriers to improvement.

8   Our reviews sought to answer the question; "Are councils' arrangements for developing, using and supporting technology likely to support continuous improvement?" We undertook these reviews within the strategic context of the Welsh Government's aim of developing common approaches to ICT.

9   We concluded that: **Improved strategic planning, stronger leadership and more robust challenge and scrutiny is needed if technology is to support greater business transformation and more efficient delivery of public services.** Our conclusion is based on the following findings:

a   strategic planning and local leadership are not yet sufficiently supporting the use of technology to enable business transformation and more efficient public services;

b   local ICT delivery arrangements are not fully exploiting the potential of technology; and

c   there is insufficient scrutiny and evaluation of the costs and impacts of councils' ICT plans and arrangements.

Recommendations

Councils should:

1   Develop more common ICT approaches that support the delivery of the ICT Strategy for the Public Sector in Wales across local government and the wider public service wherever appropriate.

2   Centralise devolved service technology development funds within individual councils to:

    a   reduce the opportunistic approach to funding ICT; and

    b   focus resources to maximise the potential gains.

In the longer term, councils should extend this approach to fund ICT development regionally and nationally where appropriate to further maximise potential gains.

3   Establish ICT workforce plans linked to local, regional and national technology support and development requirements, identifying both key skills and capacity needs.

4   Learn from experience by reviewing completed technology related projects against business cases, and work collaboratively to establish standard proven business solutions, that can be reused.

5   Review, evaluate and report on the effectiveness and return on investment arising from technology projects against the original objectives.

6   Implement robust arrangements to effectively scrutinise and challenge technology projects and service provision at local, regional and national level.

Whilst we have not undertaken specific fieldwork at the Welsh Government, we undertook our local work in the context of the ICT Strategy for the Public Sector in Wales. It is our view that the Welsh Government should engage more closely with councils in developing delivery plans and overcoming the barriers that are hindering the development of common ICT approaches.

Part 1 - Strategic planning and local leadership are not yet sufficiently supporting the use of technology to enable business transformation and more efficient public services

Councils have developed local ICT strategies and plans that generally support improvement but which do not link to clearly defined regional and national plans, or promote common approaches that could lead to better collaboration

1.1 It is important that councils ensure that their ICT plans link closely to their plans for improving the well-being of local people. ICT plans should support the needs and goals of the organisation, rather than be driven by available technology. ICT should be an enabler that supports new ways of working, rather than determining them.

1.2 Public sector service delivery models are changing with an emphasis on joining up to achieve improved national and regional outcomes. ICT plans and delivery arrangements need to take account of these changes if they are to effectively support shared service delivery models. However, before technology solutions can successfully support the delivery of shared public sector services, both across and within councils, there is a need to establish common standards, policies, procedures and working practices across public service organisations.

1.3 Historically, local and national change programmes have implemented technology solutions without addressing other aspects of change, and as a result have not always achieved the intended outcome. For example, the Welsh Government funded Draig project to develop and implement a single social services system across eight welsh local authorities, did not first establish common working practices, policies and procedures. The result was that a single common system was impossible to implement, as each system required local customisation and developments, and eventually the supplier gave notice to withdraw support. To be successful, any change programme must focus on business need and the challenges of implementation must be fully addressed, and the impact of change and associated risks be realistically estimated, before implementing any technology solution.

The Welsh Government and councils need to ensure that all technology plans support the delivery of agreed outcomes and priorities, and are supported by sound business cases

1.4 In July 2011, the Welsh Government and local government agreed a number of commitments, as set out in the Simpson Compact, to develop collaborative approaches to support change and broader organisational development across the Welsh public service. A key commitment for ICT services required local government, with the support of Welsh Government, to implement the ICT Strategy for the Public Sector in Wales, beginning with collaborative procurement frameworks for ICT hardware and shared ICT Infrastructure.

1.5 We found widespread uncertainty about the links between local, regional and national plans for ICT, and their respective priorities. Frequently councils' ICT strategies referred to the Welsh Government's ICT Strategy for the Public Sector in Wales but did not set out how they would align with it or support the delivery of its outcomes. Many heads of ICT told us that they did not understand how they are bound by the authority of the Welsh Government's ICT Strategy for the Public Sector in Wales and which technologies would be delivered at a regional or local level.

1.6 We also found that senior managers responsible for local ICT governance and strategy, whilst aware of the Welsh Government's ICT Strategy for the Public Sector in Wales, were often unclear about the future direction for delivering ICT across Wales. Particularly there was confusion about whether Welsh Government would mandate systems nationally or whether the approach would be to encourage local voluntary collaboration. The lack of a well-established delivery plan setting out how, and when, the Welsh Government's ICT Strategy will be delivered contributes to the lack of clarity at a local level. This uncertainty hinders local decision-making and delivery of the ICT Strategy for the Public Sector in Wales.

1.7 Figures 1 and 2 and Case Study 1 summarise our findings in respect of the barriers to effective strategic ICT planning, and illustrate the characteristics of good strategic planning.

Figure 1 - Barriers to effective strategic ICT planning

- Conflicts between the interests and priorities of the Welsh Government and local government.
- Local government bodies fear losing control.
- Ineffective communication between stakeholders.
- Lack of detail about future service and national delivery plans and arrangements.
- Senior managers delegate ownership of technology.
- Poor relationships and lack of engagement between the ICT service and service areas.
- ICT services viewed as 'controlling' and preventing innovation.

Figure 2 - Characteristics of good strategic ICT planning

- Clear corporate priorities and strategic direction that technology can underpin and support.
- ICT strategy is current, outlining three to four year strategic plans that are reviewed and revised annually to reflect changing circumstances.
- ICT strategy underpins the delivery of corporate business needs and priorities as well as national, regional and local priorities and plans.
- ICT strategy is owned and endorsed by the Corporate Management Team.
- ICT strategy is developed and agreed through constructive engagement with all stakeholders.
- There is transparent open communication.
- There are sound arrangements to determine business need, identify changing circumstances and report progress.

ICT workforce plans are not based upon an evaluation of the skills and capacity needed to develop technology

1.8   The Welsh Government's ICT Strategy for the Public Sector in Wales states "People and their skills are the key element of delivery of an ICT infrastructure that meets the requirements of users, customers and stakeholders." We found that ICT services face budget pressures on both staffing levels and non-staff costs, at the same time as they are being required to support increased use of technology by other services in order to cut their costs. Councils' ICT Services may not have sufficient capacity or skills to develop planned new technology while continuing to support and maintain the existing infrastructure and services to users.

1.9   We found that many councils are not effectively managing the growth in demand for technology. Only two of the 22 councils had increased revenue funding for their ICT services in order to support greater transformation and efficiency savings. However, as reported in the Auditor General's 2011 *Picture of Public Services* report, the approach taken by most to achieving efficiency savings has so far been based on top slicing revenue budgets and freezing vacant posts rather than on an evaluation of the skills and resources needed to support and develop improvement plans. In some councils, ICT skills and capacity issues are affecting the quality of ICT service provision because increased use and dependency on technology across the council has not been matched with additional, skilled resources to develop and support the technology. In others, there is no capacity to develop technology to improve council services.

1.10   Figure 3 summarises our findings in relation to the barriers to effective ICT workforce planning; and Figure 4 sets out the characteristics of good ICT workforce planning.

Figure 3 - Barriers to effective ICT work force planning

- The technical capacity and capabilities required to support the delivery of improvements is not identified as part of planning for improvement, or considered in business case evaluation.
- Technology development and investment is opportunistic, dependent on service under-spend, capital bids or external funding, with no links to ICT work plans, skills and capacity.
- ICT service capacity and capability are not aligned with the Council's priorities and service plans.
- There is a salami slice approach to staff reductions in ICT, as in other areas.
- Recruitment and staff retention difficulties in key ICT skill areas are not understood corporately and are not addressed.

Figure 4 - Characteristics of good ICT work force planning

- Key ICT skills are identified in workforce plans and aligned with aspirations for improvement.
- There are integrated strategies for ensuring adequate ICT capacity and capability to support delivery.
- Strategies and plans are in place to address recruitment and retention difficulties.
- Technology skills are developed as part of cultural change and modernisation programmes.

ICT Governance arrangements are generally weak and not well linked locally, regionally and nationally

1.11 ICT related decisions have a direct impact on the efficiency, effectiveness and quality of the work undertaken across public services. Poor ICT governance can lead to the use of inappropriate systems and systems being unavailable which impacts on the efficiency, quality and continuity of public services. Good ICT governance arrangements are essential to ensure effective investment decisions and the realisation of benefits.

1.12 The ICT Strategy for the Public Sector in Wales states that "Chief Information Officers (CIOs) and their Departments and Services will implement the strategy (Wales National ICT Strategy) and provide transformed ICT, that supports and enables the public sector to meet its core aim of improving the lives of the citizens in both the national languages of Wales. Overall strategic leadership and performance management will be the responsibility of the Welsh Assembly Government Chief Information Officer." In practice, while national and regional ICT arrangements are developing across some localities, it is unclear how the decisions are to be taken in the context of the ICT Strategy for the Public Sector in Wales, and whether they are supported by a robust business case. Some decisions are being taken based upon what already exists at a local level, seeking to retain and enhance current arrangements, rather than replace what already exists with a national solution.

1.13 Changing the way people access council services (known as channel shift) is a key part of modernising and improving the way councils deliver services. But channel shift depends on exploiting technology more effectively. Senior managers and political leaders therefore need to understand the contribution that technology deployment must make to transforming local public services, and demonstrate a real commitment to making change happen.

1.14 In a few councils, we found that strong local ICT governance by senior managers was driving and supporting wholesale local transformation. Where senior managers engaged and understood technology opportunities and risks, councils were more advanced at using technology to deliver transformation and realise efficiencies.

1.15 In most councils the arrangements for ICT governance are weak. We found that senior managers frequently delegated responsibility for technology to the Head of ICT. In these councils the corporate direction was less clear, and technology plans tended to operate in isolation at the level of individual services. Decision making and prioritisation was, typically, driven by the availability of service level funding. This resulted in a more fragmented and slower approach to using technology which delayed progressing business transformation and the delivery of efficiencies.

1.16 Figure 5 summarises our findings in relation to the barriers to effective Strategic ICT Leadership and Figure 6 and Case Study 2 illustrate the characteristics of good Strategic ICT Leadership.

Figure 5 - Barriers to effective Strategic ICT leadership

- Senior Management lack understanding of the need to develop technology in order to improve business performance and lack the commitment to do so.
- The complexity and interdependency of many areas of best practice often results in none being adopted or performed effectively.
- ICT governance and leadership arrangements are weak, lack clear accountability and may be devolved to service areas.
- Decision-making and prioritisation is ad-hoc and informal, with poor planning.
- Policies and standards are not corporately owned and staff perceive them as being owned and controlled by the ICT Service. This can lead to poor relationships between the ICT service and service areas.

Figure 6 - Characteristics of effective strategic ICT leadership

- Members and senior managers understand the technology environment in which the Council operates and its strategic direction.
- The cabinet, or relevant committee, and senior management exercise collective responsibility for corporate technology.
- All members of the senior management team accept individual and collective responsibility for the stewardship of the Council's use of ICT resources and technology.
- Decision-making arrangements for technology developments are based upon open transparent evaluation endorsed by senior managers.
- Processes and plans are clearly linked to the achievement of corporate outcomes and improvement priorities.
- ICT risks are managed and embedded in project and risk management arrangements with responsibility and accountability allocated to a senior officer.
- Standards and policies are agreed, documented and owned by senior managers and not by the ICT service.

Case Study 2 - Good Strategic ICT leadership – Newport City Council

During 2011, the Council developed its Information and Technology Strategy to support delivery of improvement objectives over the period 2011-2014. The strategy is a key document used to ensure that investments in technology are in line with agreed principles and the Council's priorities for the next three years. It provides a sound basis for identifying and agreeing technology priorities and recognises that investment in technology and effective information management are integral to service transformation. The strategy is key to underpinning the Council's transformation agenda.

In 2010, to ensure that technology closely aligns with the Council's priorities, the Corporate Directors took over strategic governance for technology and Information. They have a good understanding of the Council's strategic direction, business need and constraints, and provide constructive challenge to technology proposals. Corporate Directors approve all major technology development proposals and decide priorities, thereby clearly demonstrating corporate ownership.

The Council understands and evaluates risks arising from large information and technology projects and undertakes effective risk assessment of its own projects and those planned in collaboration with others.

An operational IT governance arrangement remains within Communication and Information Services, which undertakes annual service planning and refers capacity and delivery constraints to Corporate Directors for consideration.

Technology resources are centralised, staff and desktop ICT equipment form an important part of the centralisation and rationalisation of all Council ICT; a key component of the strategy.

The portfolio member responsible for technology and information has a good understanding of the issues and risks (eg, security requirements) and can respond effectively on behalf of the service when challenged.

The Council formally manages major projects using Prince 2 based project management methodology and considers any exceptions under formal project management arrangements via a specific project board/project sponsor.

The strategy is integral to the Council's transformation agenda.

Councils' approaches to funding technology developments are not always aligned with strategic priorities nor do they always support transformation

1.17 With the public sector facing significant and continued budget cuts, technology can offer a solution to reducing costs and improving efficiency across a whole council. Therefore, technology development is an area of considerable investment for local government. Robust and transparent decision making is essential to ensure that funds and staff resources are targeted at priority areas and return on investment is maximised. We found that the approach to funding technology development across councils in Wales was mainly through devolved service budgets. ICT developments and initiatives are determined by the availability of funds within service budgets and aligned with service rather than corporate priorities. Fragmenting development funds across a council in this way inhibits transformation and most councils are considering moving towards a more centralised approach. Some have established technology 'invest to save' or 'transformation' funds, which are positively supporting the innovative use of technology. Councils that have established a corporate transformation programme and funding, comprising of a number of projects to deliver specific outcomes, with technology development treated as an integral part of the project rather than a separate project were the most effective.

1.18 There is often an opportunistic approach to funding ICT initiatives, taking advantage of external funding opportunities and Welsh Government grants wherever possible. Whilst additional funds are helpful, this approach diverts limited skilled resources to meet funding requirements; affects the delivery timescales of other projects and delays the realisation of benefits and savings.

1.19 All technology based projects and initiatives need to have accurate financial plans that cover capital costs, on-going revenue costs and the technical skills required for both development and on-going support. These resource requirements need to be considered alongside other, sometimes conflicting, demands for skilled resources. The impact of technology changes and developments on current delivery arrangements, infrastructure capacity and performance, staff training and additional technical support overheads, all need to be fully identified at the planning stage to inform corporate decisions and priorities. We found that only a minority of councils were working towards this level of planning.

1.20 Figure 7 summarises our findings on the barriers to effectively funding technology development. Figure 8 and Case Study 3 illustrate the characteristics of good ICT funding arrangements.

Figure 7 - Barriers to effectively funding technology development

- There is a devolved service based approach to funding technology development.
- Efficiency gains are not measured and captured.
- There is a reliance on capital bids for funds to renew the infrastructure.
- There are ineffective corporate programme and project management arrangements.

Figure 8 - Characteristics of good technology development funding arrangements

- Technology funding decisions are made corporately after careful consideration of a comprehensive business case that clearly identifies:
  - anticipated business benefits and efficiency savings;
  - capital and on-going revenue costs;
  - staff resource implications for developments and on-going support;
  - infrastructure implications; and
  - risks.
- A corporate technology development fund is used to fund all developments with commitment that efficiencies replenish funds.
- Effective corporate programme and project management arrangements are rigorously applied.

Case Study 3 - Good technology development funding arrangements – City and County of Swansea Council

The Council effectively manages the growth in demand for technology. It has a sound and disciplined basis for identifying and agreeing its technology development priorities.

The Council's ICT provision is outsourced and a detailed delivery plan forms a key part of the contract. This has helped the Council to formalise its approach to approving and prioritising technology development.

New initiatives and projects are approved within service areas by the Directorate Management Teams, following discussion and scoping involving ICT Business Support and the external provider. This approval identifies budget and project resources and is documented in a project brief.

If the project is significant, and has met the set criteria, the proposal is referred to the Information Management Board (IMB), which provides challenge and ensures alignment with the Council's business needs. The IMB debates proposals and takes a consensus on approval and prioritisation.

Resources are aligned with technology projects and priorities through a disciplined approach managed through the IMB and the ICT Operational Group. The IMB is the corporate body charged with providing governance and for guiding investment and development. The IMB provides corporate governance in terms of delivering the ICT Strategy to support achievement of the Council's strategic aims, business direction and return on investment.

Technology collaboration and partnership arrangements are evolving but most focus on short term opportunities

1.21 Current models of ICT service delivery are unsustainable, given the unprecedented pressures on public finances and ever-increasing demands for local public services. At the same time, Welsh public sector services need to have sufficient technology capacity to support public sector reform and deliver better value for money through more effective ICT solutions.

1.22 Collaboration in all service areas has an impact upon ICT services. The impact and implications for ICT, arising from collaboration, need to be identified and considered in the development of business cases.

1.23 Joint arrangements for delivering ICT services are starting to evolve. Caerphilly County Borough Council has recently put in place a server hosting arrangement with Newport City Council, see Case Study 4, Example 2. But generally shared service arrangements are not yet well established, and lack clear strategic direction. An exception is the partnership of Torfaen County Borough Council, Monmouthshire County Council and Gwent Police through the Shared Resource Centre, see Case Study 4, Example 1.

1.24 It is too early to determine whether the Shared Resource Service (SRS) can effectively manage the growth in demand for technology across member organisations without it affecting the quality of service provision.

1.25 Six councils in North Wales, led by Wrexham County Borough Council, have recently come together to introduce standard desk-top ICT in North Wales, through a contract process

under the Value Wales Framework. This should reduce procurement and support costs and will help these councils meet the Welsh Government's call for a more shared approach to ICT.

1.26 Arrangements to share information electronically with other public services and central government so that services to the public are more joined up are starting to evolve, the "Tell Us Once" Programme is an example of collaboration between councils and different government services to provide a service to citizens who have suffered bereavement. A single contact made whilst registering a death allows the many different central and local government services to be notified.

1.27 Figure 9 summarises our findings in relation to the barriers to effective collaboration and Figure 10 sets out the characteristics of effective collaboration arrangements. Case Study 4 describes a number of collaborative ventures.

Figure 9 - Barriers to effective collaboration

- There is a focus on preserving internal local delivery arrangements and only tokenistic consideration of collaborative or partnership opportunities and options.
- There is a focus on delivering small-scale improvements.
- There is little or no evaluation of expected outcomes and measures of effectiveness.

Figure 10 - Characteristics of effective collaboration arrangements

- There is a clear vision defined for (local, regional and national) public services delivery and accountability.
- Service, council, regional and national outcomes are clearly defined.
- The Council focuses on defining relationships between public services and citizens.
- The Council has a culture of embracing formal and informal partnership working.
- Technology standards are clearly defined, open and reusable.
- Senior managers are focused on data and information handling (personal and public) and information assurance.

Case Study 4 - Example 1 – The Shared Resource Service (SRS)

The SRS (also known as the Shared Resource Centre or the Blaenavon Data Centre) is a collaboration between Torfaen CBC, Monmouthshire CC and Gwent Police to deliver shared ICT services. The SRS brings together a range of services from different organisations into one state-of-the-art facility. The centre is unique within Wales and supports the strategic development of the Welsh Government's ICT Strategy. The SRS provides an integrated ICT Service to Torfaen CBC, Monmouthshire CBC and Gwent Police underpinned by service level agreements. It also provides an ICT Hosting Service to the National Health Service Wales Informatics Service (NWIS). The SRS provides member organisations with technology based advice and guidance. There are plans to make arrangements more unified by means of either a Joint Committee or Public Sector Company.

The ICT infrastructures are now provided and supported by the SRS with data centre costs being recharged on the basis of rack space used. The SRS intention is to use the efficiency gains from greater collaboration, sharing servers and applications to be reinvested in technology.

The SRS staff are no longer aligned with individual organisations' support. Monmouthshire CC ICT staff transferred to Torfaen CBC via TUPE on 1 April 2011 having first gone through a restructure managed by the Monmouthshire CC Transformation Team to align staff with the SRS team structure. Torfaen CBC staff are undergoing a similar restructure. This has resulted in a reduction in overall staff numbers.

The provision is new and the benefits and savings are emerging as the centre matures.

The SRS ICT Service Improvement Plan, which covers three organisations, clearly links to the Wales ICT strategy although links to the individual member's plans are less clear.

At the time of our review the ICT governance arrangements between the SRS and members arrangements were still developing and maturing and were not yet fully established or universally understood.

To date there has been an investment of public money in excess of £2.5 million in the SRS. The largest investment has come from the Welsh Government in the form of a £1.8 million grant with the balance arising from the constituent authorities.

Case Study 4 - Example 2 – Caerphilly County Borough Council Data Centre Hosting for Newport City Council

Caerphilly County Borough Council now provides a data centre hosting service to Newport City Council.

Newport's Integrated HR Payroll system (MidlandHR iTrent) is now located in Caerphilly County Borough Council's data centre established as part of the new Council Headquarters opened in April 2008.

Both Councils have experience of implementing, configuring and using the same product. The successful implementation of a new version of the system was achieved through close working relationships and the sharing of knowledge and lessons learnt by utilising the skills and expertise of ICT and HR staff from both councils. Both Councils anticipate that further opportunities for collaboration and standardisation of working practices will occur in the future.

Case Study 4 - Example 3 – The Vale of Glamorgan and Bridgend Councils' Internal Audit Services collaboration

The Vale of Glamorgan and Bridgend Councils have collaborated on Internal Audit services, which have an inevitable impact on ICT delivery arrangements: staff from each organisation had to be able to gain secure access to both councils' systems from either location.

The decision makers did not initially identify technical issues; however, once brought to the attention of the Heads of ICT, the issue was addressed.

Whilst there were issues relating to technical developments, resources overheads and infrastructure, authorised staff are now able to gain access to both councils' systems from either location and the technical solution is in place for any further collaboration between the two councils.

Case Study 4 - Example 4 – Sharing Address Information

Councils are responsible for maintaining a database of address information for their geographical area. A strict set of rules ensures the accuracy and consistency of the address information. Each council uploads its local address information into a national database. Welsh councils recently concluded a national project to improve the quality of all Welsh address information. This has several benefits:

• Integrating local address databases with council systems that hold address information, such as revenue and benefits, has increased revenue collection of Council Tax / Non Domestic Rates.

• Savings have been achieved by terminating contracts for other commercially available address sets.

• The increased accuracy provides opportunities for cross-organisation collaboration and work is on-going with emergency services to share address information to ensure that the correct address is located in an emergency.

Part 2 - Local ICT delivery arrangements are not fully exploiting the potential of technology to support improvement

To become more resilient, secure and cost effective, most councils have established centralised ICT infrastructures which conform to recognised standards

2.1 Following a number of well publicised information security incidents, such as HMRC's loss of the entire child benefit database in October 2007, the Local Government Association, the Welsh Local Government Association and the UK government developed public sector standards for 'Handling Personal Data and Managing Information Risks'. These standards were intended to rebuild public confidence and ensure the efficient, effective and safe conduct of public business. The standards, along with other information sharing standards, such as the Government Connect Secure Extranet code of connection, require ICT infrastructures to be secure and robust. There are significant advantages in terms of security, cost and efficiency if ICT infrastructures are centralised, simplified and standardised. Such an approach reduces the risk and impact of system failure, sabotage and unauthorised access by applying common centralised technology controls and solutions.

2.2 The Welsh Government's *ICT Strategy for Public Services in Wales* states that its aim is to develop a "Welsh Government cloud infrastructure that enables public bodies to host their ICT systems from a secure, resilient and cost effective service environment, where IT related capabilities are provided 'as a service' to external customers using internet technologies." Plans to underpin this vision and achieve efficiency savings are not yet well developed.

2.3 The Government Connect Secure Extranet is a secure wide area network (WAN) that allows public-sector organisations to interact and share data privately and securely with central government departments, such as the National Health Service and criminal justice bodies including the Police Service. The Government Connect Secure Extranet requires compliance with security standards and was the driver for many councils to develop their ICT infrastructure and improve security arrangements. All Welsh councils are now Government Connect Secure Extranet compliant, however potential benefits will not be fully realised until all of the public sector is compliant with this standard. The Public Sector Broadband Aggregation (PSBA) network, first commissioned in 2007, now provides a single technology platform managed by a single organisation, so that communications costs are lowered across Wales. Individual councils no longer need to procure and purchase WAN services. Instead, every organisation can use the same network

infrastructure. Through local aggregation of needs, different parts of the public sector can use this network infrastructure to further drive down costs. However, not all Welsh councils found it cost effective to migrate their networks to the PSBA, and two have retained their own networks.

2.4 Using virtualisation technology to migrate many physical servers to a single physical server has many advantages. It maximises investment in processing power, reduces hardware maintenance, power and cooling costs, reduces the data centre footprint and has many other technical advantages which support business continuity and increase service availability. We found that server virtualisation is well advanced across Welsh councils and the benefits are being fully realised in all but a few councils.

2.5 In recent years, approximately 20 per cent of councils have created new data centres, others have invested in data centre technology, and server virtualisation has freed up space and capacity for collaborative arrangements. An example is the reciprocal business continuity arrangements between Bridgend County Borough Council and Rhonda Cynon Taf County Borough Council.

2.6 Use of standardised hardware and software (desktop technology) by a council provides a predictable environment, reducing maintenance and support overheads. It minimises downtime because of the speed at which another standard desktop can be deployed to replace out of service units. We found standard desktop builds in place in most councils with many looking to virtual desktop environments in the future, (where the desktop becomes a dumb terminal or display device with desktop processing undertaken

on a server located centrally). Maintaining the currency of desktop office software is a problem many councils are grappling with. Some have Microsoft Enterprise Agreements, which enable them to migrate to the latest version of Microsoft desktop software for an annual fee.

2.7 A few councils have terminated their Microsoft Enterprise Agreements as a contribution to efficiency savings but now face significant capital costs when they need to upgrade desktop software.

2.8 Not having long term, sustainable, corporate arrangements to ensure a current and standard version of desktop office software is maintained across the Council will cause compatibility issues and additional support overheads.

2.9 Figure 11 summarises our findings in relation to the barriers to implementing a centralised ICT infrastructure compliant with agreed standards. Figure 12 and Case Study 5 illustrate out the characteristics of an effective centralised infrastructure.

Figure 11 - Barriers to implementing a centralised, compliant ICT infrastructure with agreed standards

- There are no formal infrastructure standards.
- ICT strategy does not underpin service improvement.
- Devolved ICT infrastructure/different technology solutions are implemented.
- There are no change management arrangements for ICT developments.
- Weak governance arrangements are in place for managing the infrastructure.
- There is a reactive approach to ICT infrastructure requirements and business objectives.
- Future infrastructure requirements are unknown.

Figure 12 - Characteristics of a compliant, centralised, simplified ICT infrastructure

- ICT infrastructure strategy and technology standards are documented.
- Centralised standardised infrastructure is integrated across the Council and aligned with national plans and strategies.
- Service orientated ICT architecture roadmaps are defined with basic principles that map to the business drivers and ICT strategy.
- Infrastructure plans are aligned with future business requirements and objectives, and include capacity plans, technology refresh and sustainability requirements linked to Medium Term Financial Plans.
- Robust governance arrangements are in place with clarity around procedures, policies and decision making.

Case Study 5 - A council that has a compliant, centralised, simplified infrastructure - Bridgend County Borough Council

The Council's ICT Strategy is underpinned with a technical framework which outlines the Council's technology standards.

The Council adopted a standardising approach to technology many years ago, servers have been virtualised and central storage is well established.

The Council leases all desktops and uses a standardised desktop build with a three-year rolling programme. This will change in 2012 to a four-year programme.

One method of remote access, secure VPN, is used for staff and suppliers.

The Council has agreed to migrate to the PSBA network for the same revenue cost as the existing provision with no capital costs.

ICT Security is managed through the Security Forum.

Technology availability is a key measure within the Council's Outcome Agreement which shows the commitment to an 'always available' service.

Technology policies and standards are endorsed by the Corporate Management Board, to underpin the ICT strategy and maximise current investment eg, Microsoft Enterprise Agreement.

The Council regularly reviews, updates, and revises ICT policies and standards.

An automated policy management system makes policies more visible and enforceable, by raising the standard of individual accountability and conduct.

Arrangements to ensure that technology remains secure and up to date in the future are at risk because medium and long term funding has not been identified

2.10 Today most services are dependent on technology to function and staff expect the infrastructure and systems to be available and work effectively all the time. To achieve this, technology needs to be maintained, updated and replaced at regular intervals to ensure that it remains secure and up to date.

2.11 We found that the majority of councils are now dependent upon bidding for capital funds to renew and refresh ICT infrastructures. The current economic climate means that capital funds, historically earmarked to refresh, renew and replace technology, are reducing or are no longer available. Bids for capital funding to renew and replace technology can be complex. The tangible benefits and associated risks of investment can be difficult for non-technical people to understand and evaluate against other competing bids. In some Welsh councils, these factors have led to the infrastructure becoming out of date, supplier support not being available, with increased maintenance and support overheads.

2.12 The traditional approach of recharging technology overheads to the different service cost centres within a council to justify the expense of ICT creates additional tasks and increased complexity, which can erode efficiencies. We found that some councils top sliced indicative technology overheads from service budgets, while others have a trading account approach, recharging for specific ICT services. One council has established holding accounts and gives services the option of multi-year upfront payments, or an annualised revenue cost.

2.13 Desktop technology is today an essential component of almost every aspect of work, and its unavailability or poor performance has a detrimental impact on productivity. Treating the desktop as a corporate commodity, adopting a standard lifespan for all desktop technology enables structured replacement programmes to be defined and bulk purchases planned, achieving economies of scale and ensuring a consistent standard of provision across a council. Desktop procurement should be based upon need and linked to the economic life of the desktop. This will help ensure that ICT support overheads are minimised and replacement schedules effectively managed removing the need to prepare, challenge and approve business cases for replacing desktop technology on an individual basis.

2.14 We found that the majority of councils have, or are moving to a corporate approach to funding and replacing desktops. In councils where responsibility for desktop technology provision and replacement lies with service areas, technology development and investment is usually dependent upon service under spend, capital bids or external funding. We typically found that in these cases:

a services use surplus funds at the end of year to purchase desk top hardware rather than procure hardware linked to business need;

b some services replace hardware that has not come to the end of its life;

c   some services are forced to use hardware beyond that considered economical because of budget constraints, introducing additional ICT support costs and overheads as well as a lack of productivity; and

d   hardware replacement frequently has no links to ICT service work plans and capacity.

2.15   Figure 13 summarises our findings in relation to the barriers to effectively funding the maintenance and refresh of technology. Figure 14 and Case Study 6 illustrate out the characteristics of good funding arrangements.

Figure 13 - Barriers to effectively funding the maintenance and refresh of technology

- Reducing capital funds.
- Welsh Government technology development funding opportunities are taken without consideration of on-going support and maintenance costs.
- There is a fear of losing control, and resistance to a centralised development budget for ICT.
- Technology bids are not effectively appraised by members alongside bids which are easier to understand.
- There is a lack of adequate planning, resulting in inaccurate financial plans covering both, capital and on-going revenue costs.
- There are no formal planned ICT infrastructure refresh or renewal programmes.
- There is a 'sweat the assets' approach – without taking action to mitigate increased associated risk, or taking into account the support overheads and total costs.

Figure 14 - Characteristics of good funding arrangements to maintain and refresh of technology

- A technology refresh programme outlines plans to update ICT equipment and systems ensuring that the Council's ICT infrastructure is current, supported, and aligned with the medium term financial plan.
- Desktop technology is a corporate commodity with a clearly defined renewal and refresh programme linked to the medium term financial plan.
- Technology development is linked to corporate governance arrangements to evaluate, approve and determine priorities.
- Technology based projects and initiatives have complete and accurate financial plans as part of the project business case used to inform decision-making. They cover the following:
  - capital costs;
  - on-going revenue consequential costs;
  - development staff resource overheads;
  - additional technical support staff resource overheads;
  - impact of proposed changes in terms of infrastructure capacity and performance; and
  - staff training.
- A corporate approach to funding ICT initiatives and developments with all proposed investments in technology is evaluated by a governing body.
- ICT related decisions are based on clear objectives, intended benefits and savings, and available technical resource capacity to ensure that funds are used where impact is greatest.
- A central fund funds all technology developments with a commitment that efficiencies replenish that fund. Proposals are evaluated and prioritised against:
  - the potential efficiency saving;
  - the likely benefits;
  - the timescale for implementation;
  - the likely outcome, impact of the change and how it supports priority outcomes; and
  - how complex the possible solution is, whether, there is capacity to deliver and how culturally acceptable the solution is it likely to be.

ICT staff resource numbers vary significantly across Wales and shortage of key technical skills prevents available technology from being fully exploited and impacts on the quality of ICT service

2.16 We found that the total number of ICT staff varies significantly across Welsh councils, ranging from approximately 25 to 130 staff. The ICT services comprise staff with different specialist skills. Recruiting and retaining suitably skilled technical staff in some areas such as network and database administration is a significant and common problem, accentuated by the impact of job evaluation and continued budget cuts.

2.17 In most councils, central ICT staff undertake both a development and support role, frequently transferring between tasks, which is not effective use of skilled resources. We found that only two councils had split staff resources so that ICT staff focused on either, development (ie, supporting the delivery of technology projects) or providing user support, (ie, undertaking routine maintenance and housekeeping tasks). Where the roles had been separated, this approach provided consistent project support and expertise, ensuring that the quality of ICT service provision was maintained.

2.18 In addition to the Shared Resource Centre development, described in Case Study 4, other councils are starting to come together to address skilled resource difficulties. For example, Bridgend, Swansea and the Vale of Glamorgan have memorandums of understanding in place to support working together on technology issues. Joint arrangements are being established to create

an Information Management and Technology resource that can support both Powys County Council and Powys Teaching Health Board, to address on going issues and maximise the effectiveness of ICT services. A shared Head of ICT Service was appointed in June 2010 by Powys Teaching Health Board and Powys County Council as part of a Welsh Government supported initiative to integrate health and social care provision and support services.

2.19 A number of nationally provided health services have come together to form a single service known as the NWIS. The NWIS is the national level ICT resource supporting Welsh Government's ICT Strategy for the Public Sector in Wales programme delivery. Powys County Council is looking to share the NWIS e-mail service which currently provides e-mail services to the Health service across Wales.

Local ICT policies, procedures and standards that support improvement and collaboration are well developed but need to link to the developing national strategic approach

2.20 The standards that underpin the ICT Strategy for the Public Sector in Wales, state: "Through setting the right standards we ensure that each element of the strategy can interoperate with each other, and through defining a consistent architecture we ensure that the strategy is implemented in a way that can be reused and deployed across the whole of the Welsh public sector." To enable interoperability within and across councils and the public sector more widely, a common, corporate

technology platform and systems is required. However, achieving this is difficult because of the range and complexity of existing local technology platforms.

2.21 We found that the Government Connect Secure Extranet code of compliance had done much to enforce good practice and had provided many councils with the opportunity to enforce infrastructure standards. Weak, non-compliant, under-funded infrastructures, out-of-date equipment, management issues such as users being able to make IT decisions and changes locally, and no ICT security role within the Council, have all, in the main, been addressed. A few councils are accredited to recognised international standards such as ISA27001 or ITIL and some use the standards as a framework.

2.22 We found that councils' policies clearly outline how technology is to be deployed and used within the council and in the main; these policies are regularly reviewed and updated.

2.23 To support future developments and the reform of public services envisaged in the Welsh Government's *One Wales* policies, national procedures and standards are required to provide greater clarity, accountability and responsibility and a programme for action at national level.

Opportunities to transform the way council services are delivered, reduce costs and improve efficiency are not being fully exploited

2.24 The public sector is facing continuing budget cuts and demands to deliver more with far less. Technology offers opportunities to transform the way councils work and can significantly reduce costs and improve efficiency across whole organisations. Key, well established technologies that should be exploited include:

a providing different, cheaper ways (access channels) to interact with citizens such as web and telephony based technology;

b having flexible, mobile and remote working arrangements;

c rationalising printers to achieve cost savings;

d consolidating storage, providing a simple, cost-effective way to meet growing requirements for data sharing, high performance, and high availability of data and information;

e optimising and standardising business processes and applications management, consolidating and maintaining only essential applications to further reduce costs; and

f reducing energy consumption and eliminating the need to travel.

2.25 Our reviews evaluated each council's progress at exploiting each of these technologies and their progress in establishing an appropriate infrastructure to support them.

Developing technology to provide better choice for how people interact with public bodies is slow and lacks strategic direction

2.26 There must be a range of options available to citizens as they seek to interact with councils. Not providing a choice of access channels intensifies digital exclusion, a society of 'haves' (internet at home) and 'have-nots'. However, as the public become increasingly familiar with transacting online as part of everyday life, they expect to be able to access and transact with public services anywhere, anytime, from any device. Digital delivery will be the way the majority of local public service interactions take place in the future, delivering cheaper faster services that are more accessible. Advantages include resolving enquiries more quickly with fewer contacts per enquiry; reducing avoidable phone calls or visits; and shifting enquiries from high cost channels to a lower cost channel. The reduction in phone and face-to-face contacts will reduce cost, particularly where enquiries are resolved on first contact. The Society of ICT Managers quotes typical costs as:

a Face-to-face £7.40

b Telephone £2.90

c Web £0.32

2.27 We found that only a few councils had developed a channel access strategy which sets out how they will increase the ways in which all citizens are able to engage and interact with it. The majority of councils were in the process of developing channel access plans and strategy. A few did not feel that it was necessary and had no plans to do so. Only a few councils had established responsibility and accountability for managing the different access channels in order to secure improvement.

2.28 Whilst most, but not all councils have Customer Relationship Management systems, back office systems are typically not yet fully integrated or providing robust performance information.

2.29 A standard ID and real time authentication solution, capable of verifying a citizen's personal identity in real-time, irrespective of the channel or device used, is essential to improved electronic services. Advantages include reducing the risk of fraud and revenue loss, and supporting legislative and regulatory compliance. Blaenau Gwent County Borough Council, with Welsh Government support, attempted to develop and implement their Citizen Account solution, but this approach has not progressed into a national standard.

2.30 All councils are developing greater online access and offer a choice of language, English or Welsh, but a few Council websites are not bilingual. Some offer other languages such as Polish.

2.31 Website accessibility varies, with only a few council websites achieving AAA compliance - the highest level of accessibility for people with disabilities a website can achieve. Some councils are developing their websites so that they can be accessed by a range of mobile devices such as Wii, iPhones and Android devices. This avoids the need to develop and maintain additional specific applications for these devices.

2.32 Social networking is being promoted by most councils to engage a wider range of users. Social media, e-petitions and other online applications can enhance local democracy and accountability and provide an access channel for a council to engage with a wider audience. One council is helping local communities gain ICT expertise by running social media surgeries.

2.33 Figure 15 summarises our findings in relation to the barriers to effective digital delivery. Figure 16 sets out the characteristics of effective digital delivery and Case Study 7 is a brief case study of an authority (Rhondda Cynon Taf CBC) demonstrating effective digital delivery.

Figure 15 - Barriers to digital delivery

- Lack of trust.
- Inadequate infrastructure and broadband coverage.
- Lack of capacity to develop applications.
- Cultural factors such as staff feeling that technology is a barrier between them and clients.

Figure 16 - Characteristics of effective digital delivery

- There is corporate commitment across the whole council, both at senior manager level and at a political level.
- A Customer Access Strategy outlines plans for each access channel and for reducing avoidable contact.
- The Council actively promotes awareness of customer access channels.
- There is an integrated approach to the management of all channels of service delivery.
- Plans identify which services should focus on self-service.
- Efficiency saving assessments are undertaken against the impact of access channel changes.
- The Council promotes digital inclusion; through improved accessibility and works with others to offer Wi-Fi connectivity.
- There is a standard interface between the CRM system and back offices systems, used for all access channels.
- Data is regularly collected, reviewed analysed and used to support understanding of current channel volumes and changes resulting from the application of the customer access strategy.

The use of technology to support flexible ways of working varies and potential benefits are not being maximised

2.34 The changes in organisational culture that flexible and mobile working requires, whilst significant, are no longer viewed as barriers. Technology supports a range of mobile and flexible working arrangements which make the work force more agile and empowers and enables staff to work at home, on site, or in customers' homes, thus reducing accommodation overheads and costs.

2.35 We found that there was very little corporate drive across Welsh councils to introduce mobile technology (with the exception of Monmouthshire County Council). The majority of initiatives were driven by individual service areas. Limited HR policies were in place for mobile flexible and home working, although some are being developed. We found that arrangements to support mobile and home working need to change and frequently this is not always taken into consideration as part of project planning.

2.36 **A mobile worker** - supported effectively by technology is able to work more efficiently and effectively providing access to information and being able to record information wherever a worker is located. This reduces unproductive travel time, delivers improved services to the customer, reducing costs and delivery times.

2.37 **Hot desk working arrangements** - reduce accommodation costs and enable staff to work seamlessly from any council location. We found that where hot desking arrangements existed it was usually because of a new building or relocation. Only Monmouthshire County Council had achieved a corporate approach to hot desking and mobile working delivered through its agile working strategy providing all staff with laptops.

2.38 **Home working** - Not many full time equivalent council staff are designated home workers, those that were are typically revenue, housing benefit, council tax or environmental control staff. There were many ad hoc arrangements in place. Most were not supported by HR policies although in some cases these are being developed. Home working had reduced absence from work because of sickness and increased productivity.

2.39 Figure 17 summarises our findings in relation to the barriers to exploiting mobile working effectively. Figure 18 sets out the characteristics of effectively exploiting technology to support mobile working and Case Studies 8, 9 and 10 provide case studies illustrating the use of technology to support flexible ways of working.

Figure 17 - Barriers to exploiting mobile working technology

- Lack of trust – stemming from how staff are managed, appraised, monitored.
- Inadequate infrastructure and broadband coverage.
- Lack of capacity to develop applications.
- Cultural factors such as staff feeling that technology is a barrier between them and clients.

Figure 18 - Characteristics of effectively exploiting technology to support mobile working

- Strong corporate leadership and drive to achieve internal efficiencies through using technology to support flexible, home and mobile working and rationalisation of accommodation.
- An agreed understanding of which services should exploit mobile technology and why.
- There is a set of agreed priorities linked to plans for implementing standard mobile working technology solutions.
- Managers are re-skilled to manage long-distance team building and communication over multiple media so they are able to address the fundamental issues of trust in a remote management situation.
- There is a range of standard secure mobile technology solutions to meet different business requirements compatible with the ICT infrastructure. A blend of mobile and video technologies is used to minimise the day-to-day running costs of any given team.
- Mobile technology is supported by robust information management and governance arrangements, with a clear education process for staff.
- There is adequate and sustainable infrastructure, performance and capacity.
- Efficiency gains and benefit realisation are monitored and realised.
- Support for mobile workers is fully integrated into service level agreements and capacity planning.
- HR policies that support the use of mobile and remote working technology are in place.

Case Study 8 – Council effectively using mobile technology - Monmouthshire County Council

Monmouthshire County Council's Agile Working Strategy is linked to the Council's Accommodation and HR strategies.

There has been significant capital investment in the infrastructure performance and capacity to support mobile working.

All of the Council offices are wireless enabled.

All staff have a laptop and soft phone using voice over IP technology, unified communication and video conferencing.

The Council has implemented a ratio of two people to one desk and introduced flexibility in how employees are empowered and enabled to work, at home, on site, or in customers' homes.

Tangible and intangible benefits have been delivered – increased accessibility leading to increased productivity.

Case Study 9 – The Vale of Glamorgan County Borough Council's mobile social workers

Digital pen technology is being developed with Social Services staff using digital pens, 'smart pens', which save social workers two hours a day typing up their notes. Social workers have adopted digital pen technology because it does not feel different to previous ways of working or involve having to learn to use new technology. The pens enable clients to sign documents, reducing the time required to print and post documents to the client. Bluetooth and GPS connectivity provide silent alarm facilities for lone social workers.

Case Study 10 – Caerphilly County Borough Council mobile environmental services

Caerphilly County Borough Council is focusing on mobilising environmental services, for example fleet management and vehicle repair; housing repairs job allocation, bulky waste system, and health and safety inspections.

Technology to rationalise printing, reduce costs and improve print is not being fully exploited

2.40 Print costs can be high and individual printer preferences push up print costs. Rationalising the number of printers can achieve significant savings (in the order of 25 per cent). In addition improved quality of print, faster printing, better reliability, reduced carbon emissions and demand for space all support the case for rationalising the number printers.

2.41 We found that only a few councils had rationalised their printers. Most are either planning printer rationalisation in the near future or are in the process of rationalising printers. Of those that had, not all had taken the final step and removed existing individual desktop printers, only a few were maximising the potential benefits. Centralised printing makes people think before printing, but the implementation always meets resistance. Some had addressed concerns about confidentiality by using 'follow-me' printing where the user swipes their security card to initiate print at any network printer. Printer rationalisation was the most advanced where the initiative had strong corporate support. Publicity about saving paper was an essential component and a few could quantify the savings achieved.

2.42 Figure 19 summarises our findings in relation to the barriers to printer rationalisation. Figure 20 sets out the characteristics of effectively rationalisation of printers and Case Study 11 provides an example of an authority (Caerphilly County Borough Council) securing efficiencies through its print strategy.

Figure 19 - Barriers to printer rationalisation

- Lack of a strategic approach, supported by strong corporate ICT governance.
- Staff resistance to printer rationalisation.
- Councils are unable to realise savings by removing desktop printers.
- There are unsubstantiated claims that there is a need for confidentiality and resilience.

Figure 20 - Characteristics of effective printer rationalisation

- Printing strategy is documented. Current and future printing business requirements and objectives are understood and planned.
- Printers are rationalised across all of the Council and multi-function print solutions are introduced replacing large numbers of costly laser and desktop printers.
- Multi-function print requires staff to log on (using access cards) and records prints carried out against a user. The printer includes functionality to auto delete prints if, for instance, a member of staff does not go to collect a print within a specified time.
- Printing is recharged based on number of pages printed.
- Quotas can restrict large documents from being printed locally forcing the use of cheaper alternative such as reprographic services.
- Printing is defaulted to monochrome and duplex.
- Robust corporate governance arrangements are in place to overcome inevitable staff resistance.
- Efficiency gains and benefit realisation is planned and baseline information available and monitored.

Centralised storage technology is well established or planned but the full benefits are not always realised

2.43 Councils have to store critical data in ways that not only protect it, but also ensure its availability to users when and where they need it. Business continuity and disaster recovery, security, and long-term archiving are the main storage concerns.

2.44 Storage consolidation technology centralises data among multiple servers to:

a simplify the storage infrastructure;

b facilitate data backup and archiving for everyone within an organisation;

c minimise the time required to access and store data;

d provide centralised efficient storage management;

e optimises storage resource use; and

f reduce operating costs.

2.45 The benefits are a simple, cost-effective way to meet growing requirements for data sharing, high performance, and high availability.

2.46 We found that nearly all Welsh councils were using centralised storage technology. Many had been using this for more than five years and a few are taking advantage of tiered storage (the assignment of different categories based on levels of protection needed, performance requirements, frequency of use of data to different types of storage media in order to reduce total storage cost). The full benefits of the technology were not always

being realised, because staff continued to store data locally on desk top devices; a silo approach to information remained or central storage devices were not located far enough apart to provide sufficient robust business continuity. One council is in the process of moving to a centralised storage approach, others have not virtualised all of their storage, with some of it still stored on traditional local file and print servers located across the network.

2.47 Figure 21 summarises our findings in relation to the barriers to centralising storage. Figure 22 sets out the characteristics of effective centralised storage and Case Study 12 provides an example of good practice.

Figure 21 - Barriers to Centralising Storage

- There is no centralised storage architecture, different technology solutions are implemented to address specific storage problems.
- Network bandwidth capacity is an issue.
- There are no formal or informal storage strategy and policies.
- ICT governance arrangements to drive and enforce change is weak.
- Storage is unstructured, there are separate silos and a reactive approach to storage requirements and business objectives.
- Current and future information storage requirements are unknown.

Figure 22 - Characteristics of effective centralised storage

- There are centralised, virtualised tiered storage solutions integrated across the Council and linked to frequency of access. There is fast fibre access for corporate and front office data and second tier slower and cheaper storage for archive storage such as e-mail.
- There is collaboration between data centres to provide real time replication to improve resilience and reduce redundancy and costs, providing improved business continuity and instantaneous back-up functionality.
- Strong governance arrangements are in place to help ensure compliance with policy.
- Technology is used to store all data and information, all application based data, and file and print services.
- There is a clear understanding of the current information storage requirements. Future requirements are understood and aligned with corporate policies and business objectives.
- There is a documented storage strategy, and plans include capacity planning, technology refresh and sustainability.
- Efficiency gains and benefit realisation are planned and baseline information is available.

> **Case Study 12 – Effective centralised storage - Powys County Council**
>
> Powys County Council uses central shared storage technology to achieve efficiency savings.
>
> The Council has consolidated storage as part of its server rationalisation project to Networked Attached Storage and Storage Attached Network (SAN) devices.
>
> The SANs are used to store all the Council's information and data.
>
> Group policies are used to enforce the use of central storage with the exception of laptops.

Plans to achieve efficiency savings by rationalising applications, and optimising business process are not well developed

2.48 Conforming to the information principle 'a single version of the truth' ensures a consistent, shareable and accurate single version of data across a council. The approach seeks to eliminate duplicate data entries and error prone manual processes. It is designed to collect and centrally collate information from separate databases and spread sheets, and provide fast access to accurate, current management information.

2.49 Councils have considerable funds tied up in applications systems. Managing the portfolio of applications is an important aspect of ICT governance. Frequently governance arrangements focus on prioritising new developments rather than maintaining applications that are essential to reduce costs and maximising their use, while decommissioning other systems (not something that can be done quickly or cheaply as the migration process is usually costly).

2.50 The Welsh Government's ICT Strategy aims to create a Wales Application Store, enabling the sharing and reuse of common business applications, services and components across the public sector with organisations migrating from their existing systems and contractual arrangements when feasible.

2.51 We found that no council is formally and robustly reviewing and rationalising its application portfolio. However, a range of associated activities are taking place across Wales:

    a many are undertaking authority-wide systems' functionality audits to assess the potential for rationalisation and optimisation of usage;

    b a few are actively working towards 'a single version of the truth' principle by reducing the number of Microsoft Access databases and spread sheets in use by consolidating them into existing applications, some do not allow Access database developments;

    c most are reviewing maintenance contracts and some are looking to work with other councils to procure licenses and support arrangements;

d a few are optimising systems through Business Process Reengineering or improvement teams;

e all are integrating systems with their land and property gazetteer; and

f Monmouthshire County Council is working with Torfaen County Borough Council and Gwent Police to move to common applications, with the objective of reducing support overheads and license costs.

2.52 A few councils have invested in Enterprise Resource Planning systems to integrate all management information across the council. These systems facilitate the flow of information between all business functions inside a council and manage the connections to outside stakeholders. These complex and demanding projects require significant commitments of money, time, and human resources from departments across a council. But in return, they provide increased efficiency and effectiveness of processes and integrate and streamline information. Welsh Enterprise Resource Planning implementation projects are at different stages, some are now realising the benefits and efficiencies.

2.53 Most councils are either implementing, or planning to implement, employee portals to improve access to personal information, streamline internal business processes and replace manual, paper-based working practices. Plans include:

a manager and employee self-service, such as on-line expenses, overtime claims, leave requests and absence recording;

b e-payslips; and

c learning and development records.

2.54 Figure 23 summarises our findings in relation to the barriers to rationalising applications and Figure 24 sets out the characteristics of effective application rationalisation.

Figure 23 - Barriers to rationalising applications

- There is a lack of, or weak ICT governance arrangements.
- There is no register of applications and processes that are in use.
- The complexity and interdependency of so many areas prevents issues from being addressed.
- A plethora of in-house developed solutions, databases and spread sheets are used to manage the business.
- There is no cycle of application review, or application reviews take place on an ad hoc basis.
- The Council knows that it has duplicate applications and processes in use but has no plans to address this.
- There is service resistance.
- There is no application decommissioning strategy.

Figure 24 - Characteristics of effective rationalisation of applications

- The Council knows what applications and processes are used and has a plan to consolidate and optimise applications and processes.

- An annual application review process is linked to ICT Service planning arrangements.

- An application decommissioning strategy is in place.

- Business process re-engineering teams work with service areas and the ICT service to improve business processes by using technology to fundamentally rethink how services are delivered.

- Service areas collate and submit information relating to application costs, systems utilisation and business risks to senior managers providing a solid foundation of data so that they can make decisions and take ownership of consequences.

- In order to improve customer service and cut costs the Council has established a solid foundation of data about the application inventory (costs, utilisation and risks).

- Scalable, agile solutions are applied, based upon components which can be brought together in different ways to build common applications at lower cost.

- There are integrated applications which ensure information is stored once but used many times. For example all systems that contain an address are integrated with the Council's land and property gazetteer.

- Resilience is achieved through using shared services and applications.

- Strong well-established ICT Governance arrangements focus on prioritising new developments and allow consideration of consolidating existing applications.

Part 3 - There is insufficient scrutiny and evaluation of the costs and impacts of councils' ICT plans and arrangements

There is little evidence of robust and effective scrutiny and challenge of councils' use of technology

3.1 We found very little evidence of effective scrutiny and challenge of councils' use of technology. In a few councils, members take an active role through strategic governance groups or transformation boards. Typically, members do not formally endorse ICT strategies and scrutiny agendas have not included technology-based issues.

3.2 In most councils, portfolio holders and scrutiny leads for ICT do not regularly meet with the Head of ICT to gain insight into significant technology issues and opportunities. We found that some members with portfolio responsibilities for technology had little awareness of technology developments and issues.

3.3 One council had established a members' ICT working group, with quarterly meetings to which all members were invited to attend. However, meetings tended to focus on member ICT-related issues rather than strategic opportunities and issues, and attendance was poor.

3.4 Some councils learn from monitoring, reviewing and evaluation project delivery, post project reviews as part of the project management framework but many do not make effective use of this learning.

3.5 Arrangements to independently scrutinise and challenge national ICT projects and plans need to be better developed. Timely effective challenge and scrutiny by a body with appropriate awareness of technology developments and issues can provide valuable information on the potential returns on investment from technology.

3.6 There are currently no formal arrangements to review, evaluate and report on the effectiveness and return on investment arising from national technology projects. Lessons could be learnt from monitoring, reviewing and evaluation project delivery through post project reviews as part of the project management framework.

3.7 Figure 25 summarises our findings in relation to the barriers to robust and effective scrutiny and challenge. Figure 26 sets out the characteristics of robust and effective scrutiny and challenge.

Figure 25 - Barriers to robust and effective scrutiny and challenge of a council's use of technology

- Lack of understanding and interest in technology.
- Lack of openness within the ICT Service.

Figure 26 - Characteristics of robust and effective scrutiny and challenge of a council's use of technology
• The leadership fosters an environment where there is good understanding and routine challenge of technology performance, and a culture of transparency about technology issues.
• Service managers, equipped with the necessary skills, are encouraged to analyse, raise queries and contribute to ICT strategies and plans.
• Members and the corporate management team provide constructive scrutiny and challenge to ICT plans and arrangements to ensure they remain robust and fit-for-purpose. They also scrutinise and challenge technology performance effectively, holding officers to account. They promote best practice and address areas of weakness.
• The Council's audit committee considers external and internal reports and relevant inspectorate reports, and feeds up significant issues to the cabinet or relevant committee. The Council incorporates action plans relating to these reports into its performance management system, and can demonstrate it implements and monitors the plans as appropriate.
• There is a balanced programme of scrutiny including: customer access statistics; plans to introduce channel shift; and proposed efficiency savings achieved through technology.
• The Council considers ICT skill requirements and ensures regular training is delivered to meet these needs and a corporate development programme promotes ICT skills.
• The portfolio holder for ICT regularly meets the Head of ICT and has a good understanding of ICT issues and plans.
• The Council undertakes customer satisfaction surveys such as SOCITM benchmarking.

Arrangements to assess the impact of technology and return on investment are not well established

3.8 It is important to have a way of measuring and evaluating the efficiency of an investment, or to compare the efficiency of a number of different investment proposals. If an initiative does not have a positive return on investment or if there are other opportunities with a higher return, then the investment should not be undertaken. The actual benefits and savings measured against those projected at the business case evaluation stage is a measure of the effectiveness of a project and can support learning from experience.

3.9 We found that councils cannot demonstrate the impact of technology or robustly demonstrate return on investment. Few councils have undertaken robust evaluations of benefits, costs and efficiencies and formally reported these. Typically very basic channel access information is recorded. The volumes of use as a percentage of the total transactions and associated costs across each customer access channel are unknown. Only a few are effectively reviewing and monitoring different channel use and assessing the impact and cost savings. Most have opted to use indicative costs set out by SOCITM, the association for ICT and related professionals in the public and third sectors.

3.10 The most relevant measures of technology performance are availability and customer satisfaction. We found that, despite these being key performance indicators, only a few councils included the availability of technology and customer satisfaction performance information in their local performance data.

Councils have been good at sharing experiences arising from technology projects but are not good at demonstrating how the learning is used

3.11 Sharing experiences promotes awareness of opportunities and risks, and identifies approaches that have been tried and tested thus reducing the potential for errors and failure.

3.12 In the past at least 20 welsh councils have subscribed to Society of IT Managers (SOCITM) benchmarking services, using the analysis to compare their performance within Wales and the UK. However, they no longer plan to continue this service because of the cost.

3.13 Councils are generally good at sharing experience to promote improvement through SOCITM meetings, questionnaires to other authorities, and by working with others in the public sector and the private sector. However, there is less evidence that they are effective in applying the learning from these shared experiences. In addition, whilst forming part of many councils' stated project methodologies, post project evaluations are not routinely undertaken to promote learning.