

Managing IT infrastructure modernisation for trade unions

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Introduction

Major changes are taking place to the IT landscape for companies and organisations. The rise of cloud business solutions and the increasing use of Software as a Service (SaaS) has changed many of the fundamentals of IT infrastructure.

New and more efficient approaches are now available that offer greater scope for collaboration, better resilience, lower cost and improved productivity. The requirement for significant investment on internal server hardware and management has ended, and key applications can increasingly be accessed via an internet browser rather than necessarily needing to install dedicated software on a machine specified for the task.

Most unions have already started on this journey to some degree over recent years. Those who have started earlier or taken more steps often found it easier to adapt rapidly during the COVID-19 pandemic. A modernised IT infrastructure allows for much better flexible working, which not only helps during a lockdown, but also allows easier adaption to the new world of hybrid home and office working.

This report looks at how and why unions may want to modernise aspects of their IT infrastructure, and covers issues such as migration, security, data protection and productivity which will make up different parts of this journey.

The rise of the cloud and Software as a Service (SaaS)

What is cloud computing?

Cloud computing is the delivery of on-demand computing services - such as storage, servers and applications – through the internet. You only pay for what need and can scale resources up and down quickly. This helps manage costs and allows for speed and efficiency.

Cloud services are typically:

- **Self-service** – The customer chooses how to provision them directly through an online interface.
- **Portable** - Accessible from a broad range of devices and networks.
- **Pooled** – Standardised resources are allocated dynamically by the provider between multiple clients.
- **Scalable** – Clients can rapidly expand or contract services according to need.
- **Paid by usage** – Costs depend on the volume of usage or number of users accessing the service.

What is Software as a Service (SaaS)?

Software as a Service, also known as SaaS, uses the Cloud to provide software via the internet. There is no need to install the software on your desktop computer.

Applications can be set-up quickly, typically with much lower upfront costs, while increasing accessibility and compatibility. A downside is that SaaS usually requires an internet connection to be used.

You're probably already familiar with SaaS services like Survey Monkey for conducting polls and surveys or Zoom for online meetings, but the range of software offered as a service has grown hugely in recent years.

SaaS applications for unions could include:

- Office and productivity software.
- Membership systems and CRM (Customer Relationship Management).
- Messaging and collaboration tools.
- Video meeting and telephony software.
- Finance and accounting software.

- Marketing and campaigning tools.
- Personnel management tools

What is Infrastructure as a Service (IaaS)?

Infrastructure as a Service (IaaS) is the provision of virtualised infrastructure resources such as storage, hosting and networking through the internet, typically with more direct control of things like Operating Systems for administrators.

And Platform as a Service (PaaS)?

You might also hear of Platform as a Service (PaaS). This is a cloud computing model aimed at software developers, allowing them to provision the hardware and software tools they need online, as they need them, in the development of a project.

What does the cloud mean for IT infrastructure?

Previously, unions needed to have an elaborate on-premise hardware and software set-up to provide their core business services such as email, file storage, databases and enterprise software. Moving to cloud business services changes these requirements. Unions can now run their core IT services with minimal internal IT infrastructure.

This offers a number of possible technical benefits:

- Removes the costs of purchasing and running servers.
- Frees up internal resources dedicated to managing server hardware and software.
- Offers greater resilience – much less downtime when things go wrong.
- Easier access to core business services out of the office.
- Systems can be acquired and scaled up and down quickly, allowing for peaks in usage and meaning unions don't need to hold redundant capacity in case of demand.

And what does it mean for the union?

Being built fundamentally around the concept of networked computing, the cloud can bring benefits on new ways of working for the union.

Flexibility.

Services which were previously only used by a few people may have many other uses around the union. Extending access to them can be as simple as making a new login, rather than needing software installed or special network access.

Integration.

Services designed around internet connections are easier to build to integrate with other

services. Linkages can be created, connecting tasks completed in one application to outcomes in another application. Many services offer an Application Programming Interface (API), a special code that lets different software packages exchange data.

Collaboration.

With all users connected to the service online, they can be easier to connect to each other through the service. Shared access, collaborative workflows and co-creation become more possible.

Portability.

The ability for a wider range of users to access software from a wider range of devices will be useful to unions in extending tools to reps at home, on mobile, or on devices the union can't install software onto.

Choosing your cloud

There are different types of IT Cloud services. Some big companies provide an entire suite of core business applications, while others offer specialist SaaS, IaaS and PaaS applications.

Cloud productivity

The two biggest providers of cloud business suites, sometimes called productivity or office suites, are Microsoft and Google.

Unions will be familiar with the different iterations of Microsoft Office. In the past, these have comprised core applications such as Word and Excel, which are installed on as many individual computers as you buy a licence for. These could interface with network resources to allow shared storage on drives connected to a union's network infrastructure.

Microsoft 365 updates the core Office applications and integrates them with a range of other networked software such as SharePoint, OneDrive, Forms and Teams. These tools can be accessed online, from a browser on any computer or phone. Different subscription levels provide access to more services as well as the traditional Office applications that can be installed on the union's individual computers, to provide deeper functionality. Building the network so fundamentally into the office tool suite allows new approaches to shared storage, collaboration, and integration between different functions.

The main alternative is Google Workspace, which provides core services such as email, spreadsheets, documents, and storage. Google's offering is more browser focused and offers a smaller range of applications, but it's cheaper and simpler to administrate.

Microsoft 365 is much more popular amongst UK unions making the switch to cloud productivity software. More traditional organisations tend to stick with Microsoft due to the familiarity of the applications and infrastructure. Google's offering has been popular amongst newer organisations, such as digital start-ups, though some large organisations like Citizens' Advice have switched this way instead.

Using cloud productivity suites reduces the need for traditional IT infrastructure. It is often combined with the use of IaaS, to minimise requirements for on-premise server hardware.

Private and public clouds

IaaS was initially primarily provided via datacentres hosted in a private cloud. This is where the customer organisation leases dedicated hardware from a provider, with access for a private network. It allows for strong security and performance but can mean less ready scalability.

An increasingly popular approach is the use of public cloud. This is a platform that rents use of a pool of standard virtual resources to multiple customers, running on shared infrastructure at the provider, and delivered over the public internet.

Advantages here are cost and scalability, but with potential compromises on reliability – another client breaking the shared infrastructure could knock on to many organisations. Two of the most popular public cloud offerings are Amazon’s Web Services (AWS) and Microsoft Azure.

Mix and match

Different organisations are using different blends of these IaaS elements. For example, some may not have adopted a cloud-based productivity suite yet but host their email and file servers within a private cloud.

Others have removed the need for most infrastructure through fully adopting Microsoft 365, hosting their few remaining virtual servers on a public cloud provider. For example, the HCSA have moved entirely to an IaaS environment and have removed the need for all internal IT infrastructure hardware. The only dedicated servers the HCSA use are for their CRM and website, and both of these are cloud hosted.

Adding SaaS and PaaS into this mix means less need to host software such as finance, HR or Membership systems on internal infrastructure. These services can simply be accessed from anywhere via a website or app, further reducing the demands on hosting within the IT infrastructure, and potentially increasing access to others around the union that could make use of its capabilities.

Migrating and modernising

For unions who decide to move to the cloud, there are some recommended common steps to the journey and several things to consider.

Assess the current situation

It's important initially to assess the current state of the union's IT infrastructure. Understanding the current set-up is critical for planning any migration.

You should ensure there are documents outlining the technical environment. Creating diagrams for current systems can also be a useful way to make sure you have a shared understanding between IT expert staff, specialist staff in other disciplines and the union's leadership of what is happening behind the scenes.

The TUC has created a [digital healthcheck](#) for unions, a simple tool that you can work through in around 20 minutes, to help establish where your union stands on digital maturity. This can help with the first stages of your assessment.

Plan the migration

Consider three fundamentals behind any move to the cloud:

- What's being migrated?
- Why is it being moved?
- How will this be done?

Creating a formal business case, with goals and measurable outcomes can provide clarity on the purpose and outcomes of a migration.

This will be a large project, with multiple steps involved. Plan a roadmap for modernising the union's IT infrastructure, identifying the order of any migration, how it will be done and any interdependencies that could influence how far and fast you can go.

For example, some applications may require a lot of work to migrate, and different blends of cloud services may need to be considered.

Choosing a strategy

There are three different strategies for cloud migrations. Some are quicker and easier but can come at the expense of long-term benefits. Efficiencies for the union later on may be unlocked by doing more work at the migration stage.

- **Lift and shift.** This is the fastest approach, involving moving an application or collection of data across into a cloud environment with minimal changes. This is fast and minimises disruption, training and support. But it often means missing out on some of the productivity or functionality benefits in the long term. Sticking to old structures and familiar ways of working with the tools can fail to take into account much more productive new approaches that could be made possible by the new infrastructure.
- **Move and improve.** This is the middle path, where some changes are made, or some new features added, but these are limited and don't go to the heart of the union's use of the tools. While sometimes a good option when a move is needed but resource is scarce, there is a danger that this approach can "fall between two stools" and result in missing out on the deeper potential benefits of the cloud further down the line.
- **Rip and replace.** The most difficult short-term option also provides the greatest scope for long term benefits. This involves rethinking how the union wants to operate the services they are provisioning. Rebuilding services, sometimes from scratch, takes considerably more time and more resources but can significantly improve efficiency by setting the union up better to adopt new ways of working.

An example could be a union migrating working files from a shared network drive, that has built up over many years and through many organisational changes, across to a Microsoft 365 cloud storage environment.

The quickest way would be to dump all the files and their existing structure into the user's OneDrive, with new SharePoint sites established for each team. This approach is quick and keeps familiarity for existing users but misses out on an opportunity to clean up existing data, for example deleting old files and ensuring data held meets Data Protection standards.

However, an even bigger problem is losing the benefits that an effective SharePoint environment is designed for. SharePoint should be set up to reflect the information architecture and document management needs of the union, changing the balance from users hoarding and duplicating files in their own private drives towards greater collaboration and transparency across the whole union.

A more thorough approach might look at structuring the union's new shared storage and collaboration groups around emerging functions, rather than simply replicating historical structures that may be fading in relevance, or in the worst cases only make sense to those who understand their history. Removing idiosyncrasies will make it less instantly familiar to existing staff, and increase the need for training and support, but will be more likely to set the union up for productivity gains in the future.

Another example would be a legacy union finance system. This could simply be moved into a private cloud virtual server to provide some cloud benefits, such as easier remote access and reduced on-premises technical costs. However, newer finance systems are offered in the SaaS model.

Migrating union finance systems from legacy software to a new cloud service can take a lot of work, but this is the approach that brings all the benefits of the cloud in opening up collaboration and integration across the union.

In reality, unions will need to choose a blend of these strategies. An understanding of the costs (time and money), priorities and long-term benefits is needed during the planning stage.

Challenges of cloud migrations

Costs

A cloud migration can offer considerable savings in the long term but determining costs can be a challenge, as they move from a one-off cost or fixed contract rate to a flexible rate dependent on usage.

Consider the likely new operating costs as well as the initial expenditure and widen the scope to include things like potential increases in bandwidth needs if more users will have access to the new systems. Examine the current investment cycle on the traditional infrastructure. For example, are the union's servers near end of life, or has a recent investment been made in brand new equipment?

Public cloud costs can be particularly difficult. When optimised effectively, public cloud provides clever tools that can really save money. But if mis-configured, then costs can soar.

Don't forget that moving to a cloud system can enable new ways of working in future phases of a strategy, and costs are based on wider usage. So a like-for-like replacement or functionality may look affordable, but once the union starts to make use of functions that previously weren't feasible, the costs will rise.

For example, a membership system may have been limited in the past in terms of the number of users who had rights to access it on the network. Once you change this to a cloud based system, you may want to allow new groups of users, such as branch reps, to use it directly. This could bring a huge productivity boost for the union but will have associated costs as usage increases.

Legacy software

Migrating legacy software to the cloud can be very difficult. Plan around this, as necessary. It may be more economic to 'rip and replace' at the right time.

People

Don't forget the impact on the union's staff and members. Users will need to be trained and change their ways of working to get the full benefits of the cloud.

As cloud services are fundamentally designed around working in a networked and collaborative way, the jump for regular users of the union's productivity suite is much greater than simply moving to a new version of a core application installed on individual computers.

Training is likely to be a longer-term need, supporting people and teams through understanding how to work in new ways.

The union's tech and information management leads will need support too. For example, some IT staff may be reluctant to change, for example after having developed strong skills managing internal servers over long careers.

Moving to the cloud reduces the need for some traditional core IT skills but demands new ones. For example, information management skills are much more important in a cloud environment.

Leadership

The union's senior management need to understand the strategy and be committed to a move to the cloud, so they can understand when and where their support will be needed. There will inevitably be bumps in the road as the union works through the process, but the focus for leadership should be on the long-term benefits this will unlock.

Security and risks

There are some common concerns around security and risks that unions need to consider when moving infrastructure to the cloud.

Security

Popular cloud services provide security as part of the service. For example, Microsoft invests heavily in both online and physical security for their cloud services like Microsoft 365 and Azure.

It's important to remember that most cloud providers, including smaller private cloud companies, will have a much greater investment in security than most unions could hope to achieve for in house infrastructure.

That said, many of the traditional security measures are still applicable, such as:

- Ensuring an effective firewall and antivirus is in place;
- Implementing necessary controls;
- Ensuring servers and software are regularly patched;
- Make sure data is encrypted when migrating.

Some cloud services will include things like antivirus and security patching as part of the service, while some IaaS setups will put the onus on the union's own technical staff. Ensure the responsibilities are clear in your own situation.

The main threats to a cloud environment are typically different, and centre around user access. For example, home working is much easier to support using the cloud, but hackers are increasingly targeting this by using phishing attacks and malicious emails to trick users into revealing their details and gain access to their accounts.

Ensure your union's users are trained in IT security, have effective passwords and ideally use Multi Factor Authentication when logging in. Also known as Two Factor Authentication (2FA), this uses a second device, such as a code sent to a pre-registered mobile phone, to verify the user is who they say they are and allow access.

Insider abuse and accidental use is an increasing risk that needs to be tackled with effective permission controls, data backups and monitoring.

Some cloud services also provide tools that can help the union control and wipe data stored on mobile devices. For example, Microsoft offers some advanced tools as part of their cloud offering, which let administrators delete all organisational data stored on users' machines, should those users leave the organisation.

Control

A big concern is often around visibility and control. The responsibility for much of the infrastructure moves from the union to the cloud providers.

There are measures that can help mitigate this:

- Use the monitoring solutions provided for services like IaaS to check patterns of usage;
- Configure and agree on alerts with the cloud provider, helping you avoid sudden surprises in billing;
- Ensure business continuity and backup is built into any services;
- Use third-party back-up solutions for cloud office tools such as Google Workplace or Microsoft 365;
- Negotiate contracts that include effective clauses around data, service and performance.

Constant change

Many unions have stretched their IT investments in the past by delaying upgrades to productivity suites or legacy software systems. This has been done to save cost and workload, but it has also kept systems very static over time.

Cloud services are constantly evolving, and because the union is now renting them rather than buying them, they get updated automatically – like it or not.

That can mean confusion and complications for supporting staff and activists who use the systems if key tools add new features or interfaces change from what people are used to seeing.

At its worst it could mean problems for integrations the union has set up between tools from different suppliers. When using the considerable power offered by APIs, the union also needs to consider how future changes might impact the organisation's work and have plans in place to fix problems that could arise.

Shadow IT

An increasing problem is the rise of Shadow IT, the use of cloud-based applications without the explicit approval or monitoring of the organisation.

This is a growing problem, and unions are at a higher risk than some organisations, due to our heavily devolved structures and the highly sensitive legal status of the personal details of union members.

The cloud has enabled employees and reps to set up their own accounts on free or cheap services like Dropbox, SurveyMonkey, Eventbrite or Google, and use these for work purposes. This has the benefit of allowing quick access to powerful tools, particularly for branches, who might otherwise have little access to software.

However, there is a major risk that union data is being stored in an unauthorised and potentially badly secured account. This is a significant Data Protection risk, and with the tougher GDPR rules now in force, could lead to a data breach. It could also compromise the union's ability to conduct a subject access request (where someone demands to see information held on them across all the union's systems), resulting in a large fine and damage to the union's reputation.

There's also a cost issue, especially for local union functions. If multiple branches or regions set up their own accounts on a service like Zoom or SurveyMonkey, the costs could easily exceed a centrally provisioned account, shared across the union.

This proliferation of systems will be an issue for all unions to address, regardless of whether they move their own core systems to the cloud or not.

Shadow IT can be tackled through the following measures:

- Have an approved list of cloud software. Offering training in approved tools can be a way to help communicate good practice in the union;
- Maintain an information and software asset register;
- Make it mandatory to carry out a data protection impact assessment (DPIA) when new users' data or sensitive personal data is involved in a project;
- Encourage the use of any tools on the main cloud office suite, which will often have alternatives that can meet the requirements. For example, when a union uses Microsoft 365, they control data sent through Microsoft Forms, making it a safer bet than using Google Forms.

The risks of not moving

It's also worth remembering the risks of not migrating to the cloud. For example, most unions can never hope to achieve the level of network security and monitoring available via IaaS.

Much of the productivity gains provided by new technology are based on cloud software and systems. Ways of working are changing through digital transformation, and much of this relies on using services like Microsoft 365. By not moving to the cloud, the union risks being left out of many of these new opportunities.

Internal technical expertise can be hard for unions to acquire and maintain. Using cloud services can reduce the reliance on scarce IT cover and support. This could also free up internal IT experts to take a more strategic view of how the union could use IT, rather than providing support services.

Adding in the increased resilience of cloud systems and lower risks of hacked servers, it's clear there can also be considerable risks around not migrating.

Data protection and activists

Moving to the cloud provides unions with additional challenges and opportunities with regards to Data Protection.

It provides an opportunity to clean up data before a migration and provide better oversight and monitoring of sensitive data. For example, Google Workplace and Microsoft 365 provide dedicated tools for data protection officers to carry out comprehensive searches in reaction to data protection requests. This can remove much of the need to email around the union requesting data related to specific data protection requests.

Challenges include ensuring adequate security, permissions and monitoring is in place, and as previously mentioned, the rise of Shadow IT.

For unions, there is also another significant implication, the use of the cloud for reps and activists.

One of the biggest challenges for unions after the introduction of the General Data Protection Regulation (GDPR) is the need for unions to have oversight whenever members' personal data is stored. This encompasses data stored not just by union staff, but by the union's volunteers, such as reps and branch officials.

This is an issue many unions are still tackling, but using the cloud offers a potential solution. Providing cloud storage and services controlled by the union to active members helps ensure that the union keeps oversight of the data.

A rep keeping files related to the personal cases of members on their own storage drive is a big red flag with regards to GDPR. If that rep were to leave the union, then the union would have no oversight or control of the personal sensitive data. If that data is stored on a union's cloud business suite, then any sensitive data can be retrieved and deleted by the union's administrators. When set-up correctly, the data can even be wiped remotely if needed from home or work computers a rep might have used to store the data.

Some unions are already using the approach to ensure compliance with data protection laws. For example, the National Education Union (NEU) have provided activists with Microsoft 365 accounts for conducting union business. Any sensitive union data must be stored in these accounts.

The cloud provides a cost-effective solution to address this major issue facing unions following the introduction of UK data protection regulations derived from the GDPR.

Increasing productivity

Economists have observed that historically there is a lag between the introduction of new technology and an associated productivity increase. In fact, there can even be a short-term decrease in productivity. This is known as the Productivity Paradox and is just as applicable to IT as it was to previous industrial innovations.

Often the most misunderstood aspect of IT infrastructure modernisation is that to unlock the major productivity gains requires a transformation of working practices. Simply replacing traditional IT systems with the cloud systems while not updating practices will bring minimal benefits.

For example, Microsoft 365 comes with the powerful and much improved online version of SharePoint. It's not a straight replacement for a networked file server, but rather a sophisticated document management system that can be a platform for cross-organisational collaborative working, automated workflows and even a union's intranet.

Moving from a simple, shared hierarchical folder-based network drive to a modern document management system is a paradigm shift that requires hard work. But the long-term benefit can be a tangible increase in productivity.

Careful strategies, training and guidance are required to ensure software is being used effectively. Using software for the sake of it can also result in lower productivity. For example, the group chat facility in Microsoft Teams can be a really useful tool in some job roles that require regular and timely collaboration, but increased chat notifications can equally prove very disruptive for jobs involving long periods of concentration.

Digital transformation techniques can be used to improve productivity. This is the process of integrating not just the technologies, but also changing the operations and culture of a union to improve services and meet the growing expectations of members and other stakeholders.

Accord have used their migration to Microsoft 365 as an opportunity to rework some of their processes. They've adapted their training to exploit new tools like Sway and have re-engineered process such as expenses and bursary scheme applications. Using Microsoft Forms and workflows means the entire process can now be managed online, saving time and effort and making oversight easier.

Unions will need to make a major effort, both initially and on an ongoing basis, to encourage innovation, experimentation (including embracing some inevitable failure) and to challenge and review the status quo. This is the key to exploiting the potential productivity gains from a modernised IT infrastructure.

Digital healthcheck

If your union is considering migrating to the cloud or has already started the process but want to evaluate the next steps, the TUC's digital healthcheck can help.

The TUC's digital healthcheck is a simple interactive Excel sheet that you can work through in around 20 minutes, to help establish where your union currently stands in terms of its digital maturity. This can help assess how effectively the union is utilising the cloud and identify next steps.

Benefits include:

- Clear summary view and detailed breakdown, to help you make strategic choices, decisions and investments;
- A benchmark you can retain, to track progress against in future;
- Guidance on possible techniques and technologies that your union may benefit from developing further;
- A means to generate debate and consensus within the union on holistic approaches to tackle the challenges of digital transformation.

To download the TUC's digital healthcheck for use in your own union visit

digital.tuc.org.uk/tuc-digital-healthcheck

There's no obligation to share the results of your union's work with the tool as all results are stored in the copy you download. But we'd encourage sharing with the TUC and other unions as a way to help build up better benchmarking across the movement.

This report was written by Simon Parry of infobo.com in collaboration with the TUC Digital Lab.

The Digital Lab project supports the TUC's affiliate unions to develop and share good practice in all aspects of digital transformation. You can find out more at digital.tuc.org.uk, and subscribe to regular email updates for news and events.



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