

# RESEARCH PAPER

## Augmented: Enabling outward-looking IT through AI and automation

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# Introduction

The application of technology to business problems has created some challenges such as infrastructure sprawl and increasingly complex hybrid and multi-cloud architecture. This is leading overworked IT teams to turn to automation to help them resolve these challenges and manage and optimise their cloud workloads.

Automation has quickly emerged as the most efficient and cost-effective way to manage everyday IT tasks. SaaS solutions are now able to offer rapidly deployed, simple to use cloud management platforms that don't stop at monitoring cloud environments and sending alerts, but use automation to actively gather relevant information, document settings and architecture, detect exploits, analyse risk, and implement actions such as patching. Activities which countless organisations have delayed due to complexity such as legacy application migration and integration, can now be largely automated.

This paper explores our research findings into how enterprises are using automation in the delivery of cloud services and includes opinions and experiences of AI and automation as it stands today, as well as plans for the next few years. We explore the key challenges around cloud management, such as cost, visibility, security, and scalability, and discuss how automation can play a central role in overcoming these hurdles and how automation can ultimately enable IT teams to better serve their core business by freeing up resources.

### Key findings include:

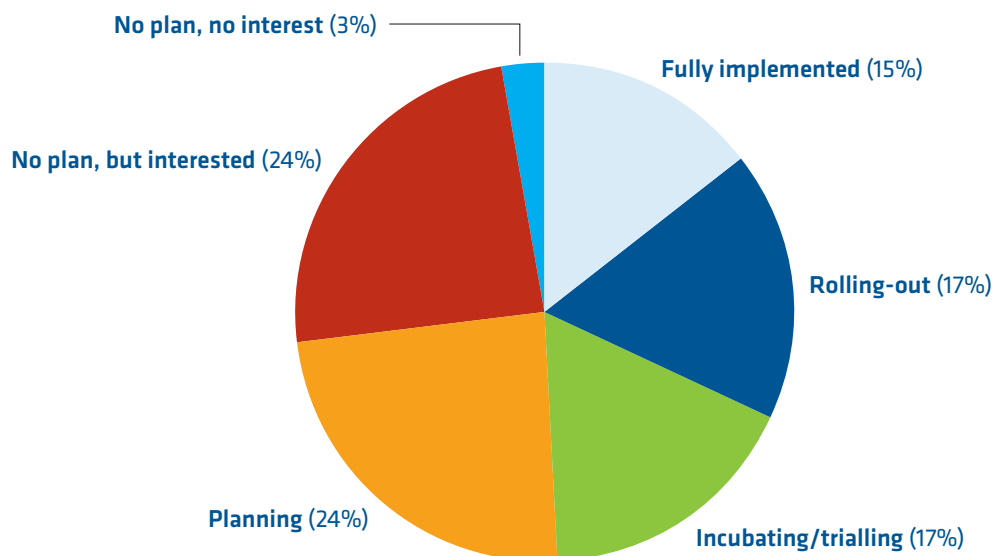
- 15 per cent have fully deployed an automated solution to manage their cloud environments. A further 17 per cent are presently doing so with a further 41% in the planning or trialling stages.
- The more basic but time-consuming tasks such as monitoring (55 per cent have automated this) and back-ups (54 per cent have automated) are most likely to be automated.
- Currently less automated tasks, such as upgrading, integration, troubleshooting and tuning, are likely to be the fastest areas of automation growth over the next two years
- COVID-19 has acted as a catalyst for automation for a majority of enterprises represented. 26 per cent say that it has increased their pace of automation and a further 22 per cent have expanded existing automation programs. 15 per cent were planning to introduce automation post pandemic.
- 67 per cent agreed either moderately or strongly that, *“an automated technology estate is vital to today’s data-enabled organisation.”*
- The most widely reported outcomes of automation were significant ROI, strong adaptation to pandemic operational conditions and an increase in the time available to IT teams.
- The facilitation of remote working, more efficient infrastructure management and improved security and compliance posture were the strongest motivators for those who had automated at least some aspect of their management.
- When asked to rank their current IT estate management processes on a scale of 1 to 10, the average rating given by our contributors to their organisations came in at 6.8.
- When asked to rank on the same scale the extent to which their organisation would value IT teams being able to spend less time on estate management and more time on driving and supporting core business initiatives and innovation, 58 per cent of those polled ranked their interest at 8 or higher.
- The most widely cited barriers to automation were cost, security and compliance and challenges finding the right skill sets.
- 64 per cent of contributors agreed to some extent that *“automation is now central to effective cloud infrastructure integration and management.”*

## Automation nation

The tools to manage increasingly complex hybrid cloud infrastructures have not evolved at the same pace as the infrastructures themselves. Observability and management in many enterprises is multi-layered and those layers frequently overlap. The lack of holistic visibility means that IT teams spend precious time that they should be dedicating to more strategic business activity, switching between different product and service management interfaces. The outcome is security risks and suboptimal service levels across applications which often span multiple environments.

This is why enterprises are increasingly turning to automation as a way to reduce manual work and gain a holistic view of their complex hybrid architectures. The interest in advanced automation of cloud management is near universal. Only three per cent of those taking part in our research stated that they had no interest in the subject at all. Beyond that the picture was unusually mixed, with broadly equal proportions of participants either having fully implemented such software, being mid roll out or still at the incubation stage. Approximately one quarter were still at the planning stage.

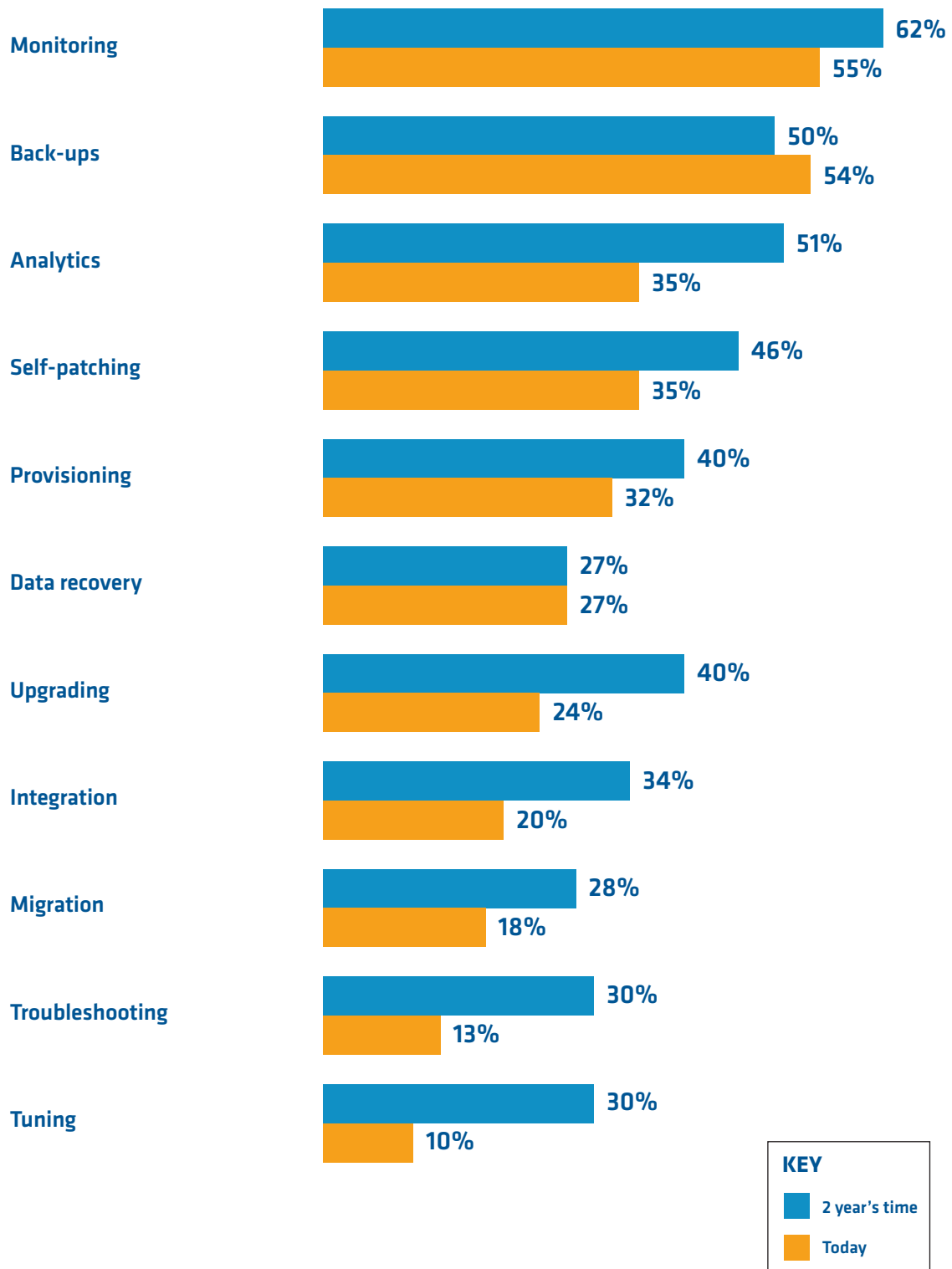
**Fig. 1 : To what extent has your organisation implemented advanced automation of cloud management?**



This finding makes it clear that only a minority of enterprises are deploying automation across the full spectrum of cloud management. In many cases automation is being deployed selectively, and as the diagram below shows us, the more tedious and time consuming a task is the more likely it is to be automated. However, our participants expected to broaden their use of automation over the next two years, taking in tasks such as upgrades, integration, trouble shooting and tuning.

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**Fig. 2 : Which of the following cloud management tasks are you using automation for today? Which do you expect to be automating within the next two years?**

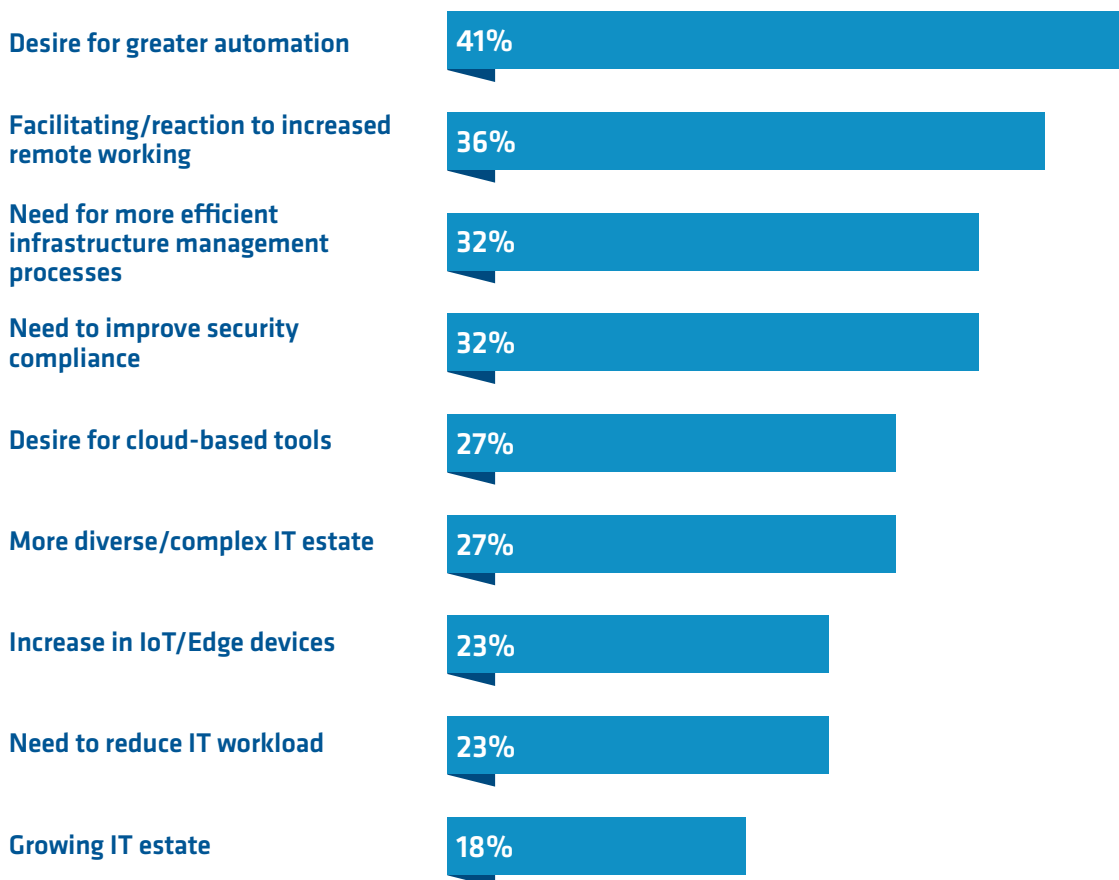


The COVID-19 pandemic has increased the profile of automation in many businesses. The subject of productivity is high up in the media agenda at present and likely to remain there as inflationary pressures are exerted by colossal energy price rises, among other factors. Automation has a potentially starring role to play in the UK becoming more productive, and those representing the organisations taking part in our research indicated that the pandemic had affected their view of automation. **Whilst 31 per cent were remaining on their current automotive trajectory, 26 per cent were accelerating their plans and 22 per cent were also expanding the scope of current projects. A further 15 per cent were planning to introduce automation post Covid.**

## What do enterprises want from automated estate management?

The effects of the pandemic can also be seen in responses to a question about the reasons enterprises are implementing automation in their estate management because beyond a general desire for greater automation, the second most widely cited motivation is the facilitation of remote working.

**Fig. 3 : [Those that have implemented] What were your main motivations for implementing advanced IT estate management capabilities?**



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Automation has a key role to play in the improvement of cloud security posture because it can resolve the problem of configuration drift in cloud access settings. Those representing organisations in our research are clearly well aware of the strong links between automation, security and compliance because 81 per cent of them agreed to at least some extent that, *“good, clearly defined governance is vital to day-to-day automation management.”*

However, previous research by *Computing* into this area showed that whilst many enterprises were well aware of their responsibilities under the shared responsibility model, the reality in many of the same organisations was a “set and forget” mindset to access settings. Security configuration reviews, along with security monitoring and patch application are time consuming – unless they’re automated.

Ranking jointly with the need to improve security posture was the need for greater efficiency of infrastructure management. Our research suggests strongly that there is plenty that enterprises can do to improve their efficiency. **When asked to rank their current IT estate management processes on a scale of 1 (extremely inefficient) to 10 (extremely efficient), the average rating came in at 6.8.** Bearing in mind that only 15 per cent had fully implemented automated estate management, this finding suggests that many of the organisations polled would welcome a greater degree of management and observability automation.

Furthermore, when asked the extent to which their organisation would value IT teams being able to spend less time on estate management and more time on driving and supporting core business initiatives and innovation, the average score out of 10 was 7.5. 58 per cent of those polled ranked their interest at 8 or higher.

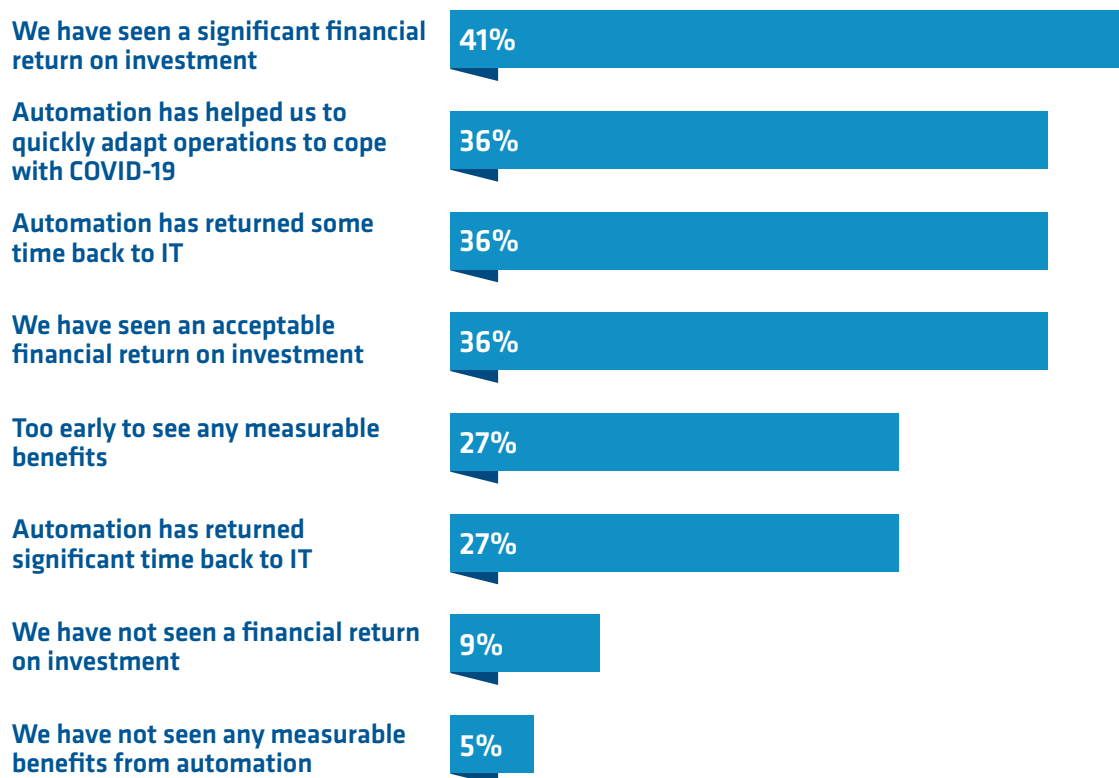
Finally, when asked the degree to which they agreed with the statement, *“an automated technology estate is vital to today’s data-enabled organisation,”* 67 per cent agreed either moderately or strongly, with a further 26 per cent remaining neutral.

## Real world automation

How easy is it for enterprises to turn these aspirations of better remote working, better security and more efficient estate management overall into reality? We asked those who had fully implemented advanced automated cloud management, what the outcomes from that investment had been. Overall, automation projects had proved to be successful, particularly in terms of return on investment with **41 per cent stating that they have seen a significant ROI and a further 36 per cent reporting an “acceptable” level of ROI.** That investment has also freed up some IT time. 36 per cent stated that “some” time had been returned and a further 27 per cent said that the time gained had been “significant.”



**Fig. 4 : [Those that have implemented] Which of the following outcomes have you experienced from implementing automation?**

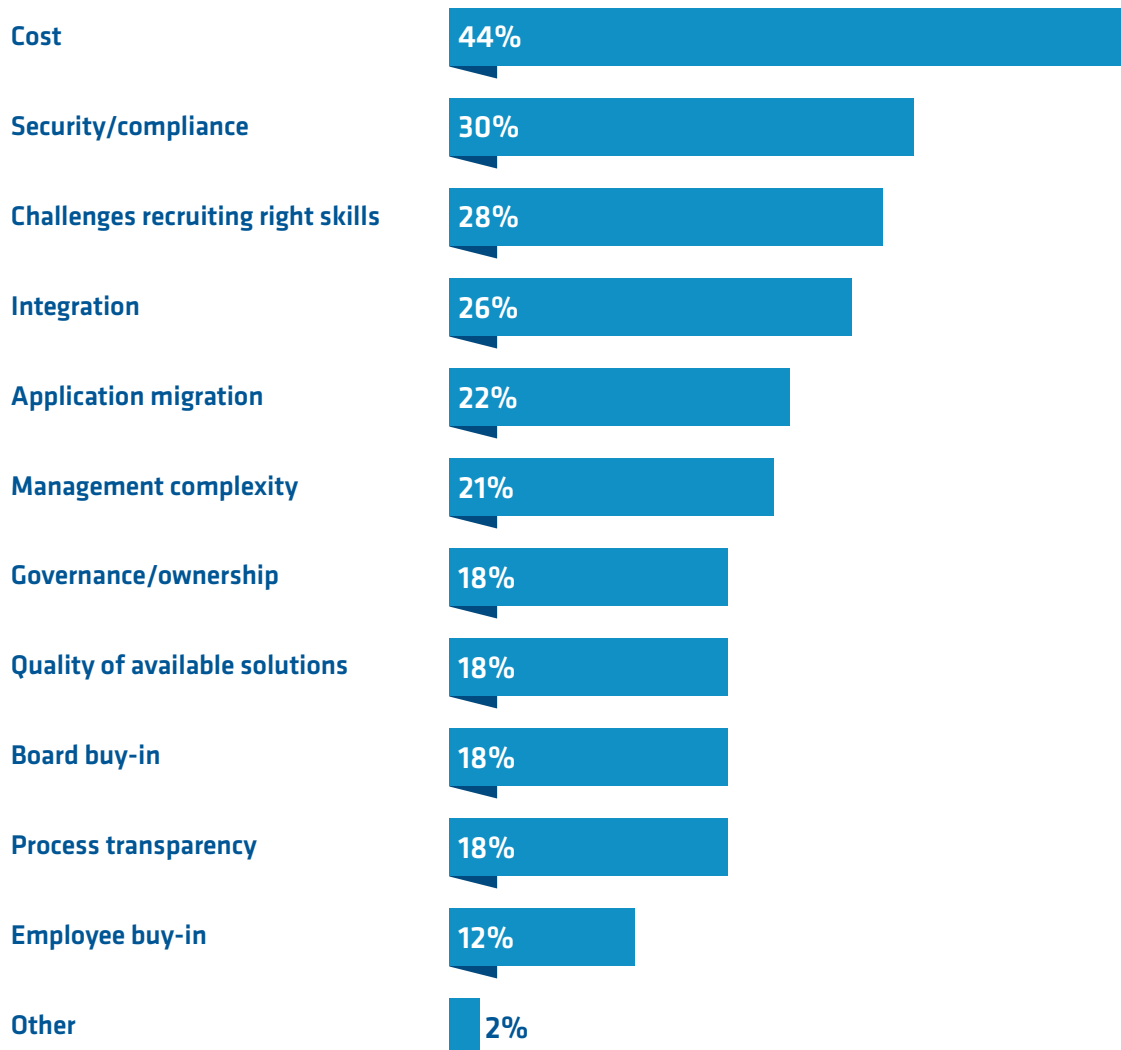


Whilst 27 per cent indicated that it was too soon for them to have seen quantifiable benefits, automation of cloud estate management is clearly paying off for the majority of those who have implemented it. Adding a further positive aspect to the finding above is that the same organisations on the whole found it relatively easy to integrate automation within their existing cloud infrastructures. 50 per cent stated that whilst there was a learning curve, overall, they found it fairly easy. A further 36 per cent stated that the integration process was very easy and intuitive.

Given the clear benefits which automating cloud management are conferring on those who have already implemented it, what's holding other organisations back? Figure 5 gives us some indication of the main issues. Almost always at the top of the table is cost. The enterprises which have been reluctant to invest in automation (or indeed other technology) have had a list of reasons not to do so over the last few years – Brexit uncertainty, the pandemic and now the increasingly likely scenario of an entrenched cost fuelled inflationary spiral. However, it's worth pointing out that, as **36 per cent of those polled said that automation helped them adapt operations to pandemic lockdown conditions**. Furthermore, it is also likely that the same organisations are currently coping better than some of their less automated competitors with the supply chain difficulties, spiralling energy costs and labour shortages that the UK is presently experiencing.

These findings, and the fact that the ROI being experienced by those who *have* made this investment, suggests a disconnect between perceived and actual benefits of automated estate management. It's ironic that in a world awash with “solutionism” – the belief that technology will essentially provide a fix for every problem that we encounter – the benefits of automated management might be being undersold.

**Fig. 5 : What are/were the main barriers to deploying advanced automation of cloud management at your organisation? [3 maximum]**



Irony can also be found in the second most widely encountered barrier – that of security and compliance. This is because the multiple SaaS applications that many enterprises subscribe to – which are often the responsibility of different departments and lines of business – create uncertainty over exactly who is responsible for securing those applications. Often applications are integrated, so data is moving across different applications, in and out of different departmental remits. A Zero Trust security model relies on not just dynamic validation of users and access, but the segmentation of different aspects of infrastructure to limit the extent of any breaches. This requires enterprises having no unnecessary links between applications, databases and cloud environments. However, manual management of complex infrastructure means that time poor cyber security teams are unlikely to discover those links. Automated processes are far more likely to do so.

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Other technical barriers included application migration and integration. Only 20 per cent of enterprises taking part were currently automating their migration processes and 18 per cent were automating integration. At this point the discussion of automation becomes frustratingly circular because 63 per cent of those polled also agreed, either moderately or strongly that, *“manageability is one of our biggest hurdles when it comes to cloud migration.”*

In contrast to being a barrier to management automation, Integration Platform-as-a-Service (iPaaS) can facilitate the secure migration and integration of SaaS and on-premises applications. iPaaS allows businesses to stop reinventing the wheel by using prebuilt adaptors and accelerators and utilising machine learning to map applications. Low code tools, whilst not removing the need for cloud native skills, do at least limit the extent of the slow progress caused by their shortages. A majority of the organisations that we surveyed can see the advantages of extending the scope of cloud management automation within their estates. **64 per cent of contributors agreed to some extent that “automation is now central to effective cloud infrastructure integration and management.”** Only 4 per cent disagreed with the same statement with the remainder being neutral.

## Conclusion

Enterprises are struggling with multiple aspects of the day-to-day management of complex hybrid and multi-cloud estates, and the ultimate outcome is frustrated end users as their productivity is affected, the running of unnecessary cyber security and compliance risks, and IT teams constantly running to catch up.

This is why enterprises are looking more and more to automated, integrated visibility of multiple environments and platforms. However, whilst many of those taking part on our research were interested in increasing the scope of automation in their hybrid cloud estate management, only 15 per cent had already fully implemented it. Almost half of the organisations represented in our research were either accelerating their plans to automate or broadening the scope of existing plans. Currently, monitoring, back-ups and analytics are most likely to be automated, although tasks such as integration and migration look set to become increasingly automated over the next two years.

Enterprises are seeking a number of outcomes through their move to advanced IT estate management capabilities. Other than a desire for greater use of automation in general, enterprises are seeking to further facilitate remote working, improve their security and compliance stance and make their infrastructure management more efficient. The average rating awarded for efficiency was less than 7 out of 10 which suggest a degree of discontent among those polled, particularly considered alongside the fact that more than two thirds agreed that, to data enabled organisations, an automated technology estate is vital.

The relatively small proportion of organisations which had already fully implemented automated cloud estate management were already observing positive outcomes. ROI was already being realised with 41 per cent stating that returns were significant and a further 36 per cent that they were acceptable. **Almost two thirds had gained IT time back, which allows for a greater strategic focus.** Even more positively, 86 per cent had found it fairly easy to integrate automation within their existing cloud infrastructures.

Where resistance to greater automation of management exists, it is partly due to cost. Whilst there is undoubtedly a cost involved, the ROI and gains in time due to the reduction in manual management tasks suggests that enterprises taking a longer-term view if the costs of automation would benefit, particularly if the costs of a potential security breach are factored into the calculation.

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Security and compliance are listed as one of the significant barriers to automation – yet, for those who had already migrated to such a platform, security and compliance were one of their biggest motivators. Those who had migrated to a better, more automated management platform had much better visibility of SaaS applications which are often difficult to track centrally. This means that enterprises are struggling to reconcile many of their SaaS applications with a Zero Trust security approach, which demands dynamic assessment of users, their behaviour and what they can access. The problem is that access settings often remain static, creating vulnerabilities. Automating mapping and discovery processes can identify these vulnerabilities and identify unnecessary links between different applications and environments.

Automation is helping enterprises to move beyond the challenges that hybrid infrastructures have created in terms of visibility, security, performance, migration and integration. 64 per cent of contributors agreed to some extent that automation is now central to effective cloud infrastructure integration and management. Perhaps the most important reason to consider either accelerating the automation of estate management, or widening the scope of existing projects, is the role that automation can play in planning. Automated application performance monitoring can provide insight into the experiences of enterprise or customer-facing applications, which can be combined with historical data and machine learning to predict future patterns of demand and performance. Challenges can be anticipated, and responses optimised.

Enterprises may face a challenging business environment in the next few years, but an advanced cloud estate management platform can contribute significantly to getting them in the best possible shape to do so.

## About the sponsor, Oracle

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