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Telecom Ops:

Driving efficiency and cost saving through network automation

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Introduction

Technological advancements in recent history have created both opportunities and challenges for the telecommunications sector. Operators have been making substantial investments to build, maintain, and upgrade the infrastructures that underpin digital communication and connectivity for everyone.

The decisions that Communication Service Providers (CSPs) make today define the innovations that are enabled tomorrow. Technologies such as 5G, Internet of Things (IoT), Artificial Intelligence (AI) and Machine Learning (ML), and automation are highly interconnected, both enabling one another and enhancing each other. Within that, automation of CSP networks is thought of as playing a key role in enabling service diversification, supporting the generation of the much-anticipated revenues, and delivering on the returns these technologies promise the industry.

Operational efficiency has been further pushed to the forefront as CSPs continue to grapple with increasing operational costs as a growing energy crisis continues to hike up energy prices. Adding to that are the general cost of labour and goods, which all prolong and drive-up inflation across many parts of the world. It is therefore imperative to better understand what areas of their networks CSPs identify as critical to their organisations to improve efficiencies and where they plan to focus their investment and innovation efforts in the year ahead.

As a result, in February 2023 Telecoms.com Intelligence conducted a survey in collaboration with Resolve to review the top tech trends that will define the next 12 months of the telecoms industry. It set out to discover what telecom giants are prioritising as they look ahead to the year. Further, the survey investigated what key business challenges are holding telecoms businesses back from innovation. It also delved into the role of automation investigating the most critical business areas, as well as barriers. Finally, the survey explored where telcos are in their journey towards implementing network automation.

Demographic background

In terms of participants' demographic, a quarter of respondents were made up of mid-level management, while a third were relatively evenly split between the engineering and developer community in telecoms, and marketing and sales. Corporate management teams made up just over one in ten respondents.

Regionally speaking, more than a third of our responses were generated by professionals based in Europe. This was followed by one fifth of participants based in North Americas, and another fifth in Asia Pacific. The Middle East and African regions made up another 18%. South America made up the smallest region in our survey with 5%.

Meanwhile, the majority of our survey respondents (58%) were made up of seasoned professionals with more than 20 years' experience in the industry. More than half of the professionals responding (51%) to the survey also worked for the operator community, including MNOs, Fixed line providers, and virtual network operators. Additionally, one in five respondents work for system integrators and consultancies who assume a number of roles in telecoms including stitching together the networks of our industry.

Combined, the demographic data suggests the survey results can be read with a high level of confidence. It can be assumed that the survey has been responded by experienced professionals, reflecting what is taking place in telecom operations today, capturing the expectations of many operators and their partners for tomorrow, while also incorporating views from across a wider range of regions.

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Head of Custom Content
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5G and network automation as top priority investment areas in 2023

With the demand for future generation services and devices expected to exceed $50 billion over the next five years, the survey opened up by investigating the views of the industry on their top two priority investment areas in 2023. Reaching a consensus with 47%, the industry representatives see 5G as the top priority investment area in this year.

This result is not surprising, while in many parts of the world initial 5G rollouts (mostly non-standalone (NSA) deployments) have been completed, the next phase of this technology includes 5G ubiquity. In that, the wider expansion of 5G coverage, as well as the deployment of 5G standalone (SA) core. This upgrade to the core network is expected to unleash key technical capabilities needed for CSPs to effectively monetise their networks.

The second investment area for the industry is said to be automating network operations and services (34%). This goes hand in hand with the idea of operational and cost efficiency and maximising returns on investment. There are already some operators who have embarked on this journey and one operator poses an interesting case study.
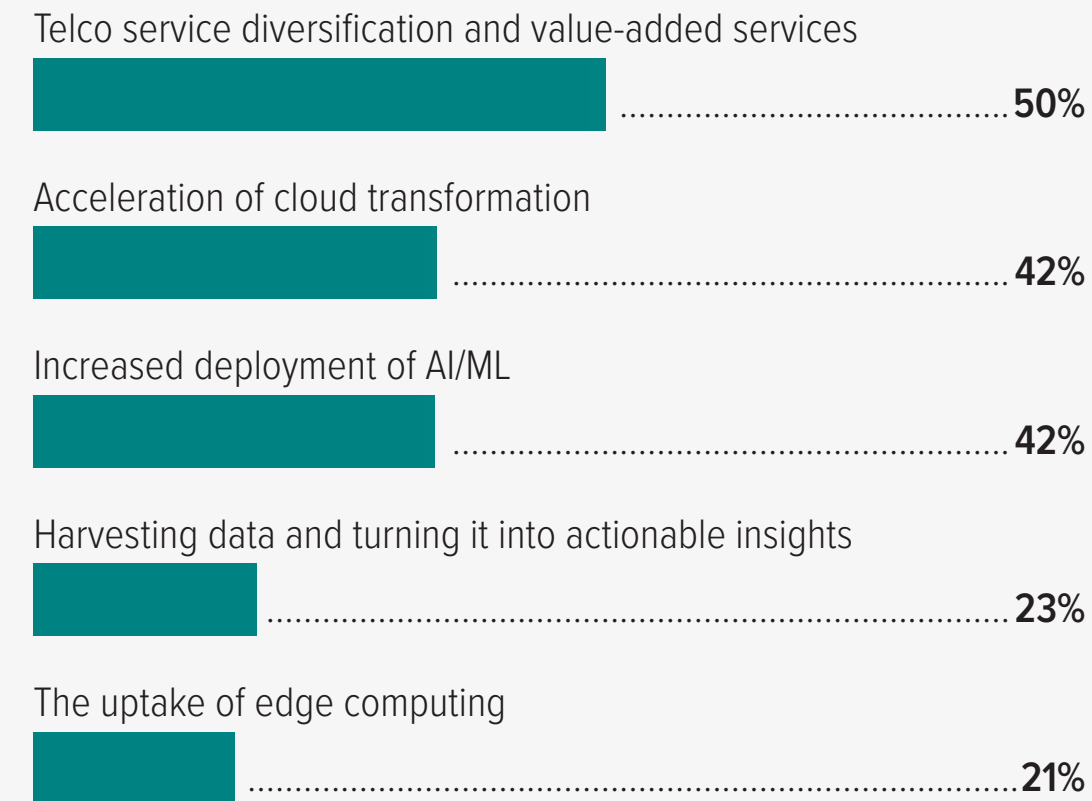
Having embarked on their operational automation and digitisation journey, Vodafone Group's efforts are seemingly paying off. The operator has **reportedly** reached savings of more than €500 million in capital and operational expenses over the past three years. This, it seems, is due to its efforts to digitalise and automate its network operations with layered AI and ML to enable intelligent decision making. For instance, a digital twin of the operator's network facilitates both technical and commercial decisions.

Service diversification and VAS as top trends in 2023

With regard to top trends in telecom operations expected over the year, respondents are most likely to anticipate telco service diversification and value-added services (VAS, 50%) in 2023, followed by acceleration of cloud transformation (42%) and increased deployment of AI/ML (42%). **Figure 1**

Figure 1: Top Trends Expected in 2023 Telecom Operations

What are the top two trends you are expecting to see in telecom operations in 2023? (Select up to two.)

Telco service diversification and value-added services
....**50%**

Acceleration of cloud transformation
....**42%**

Increased deployment of AI/ML
....**42%**

Harvesting data and turning it into actionable insights
....**23%**

The uptake of edge computing
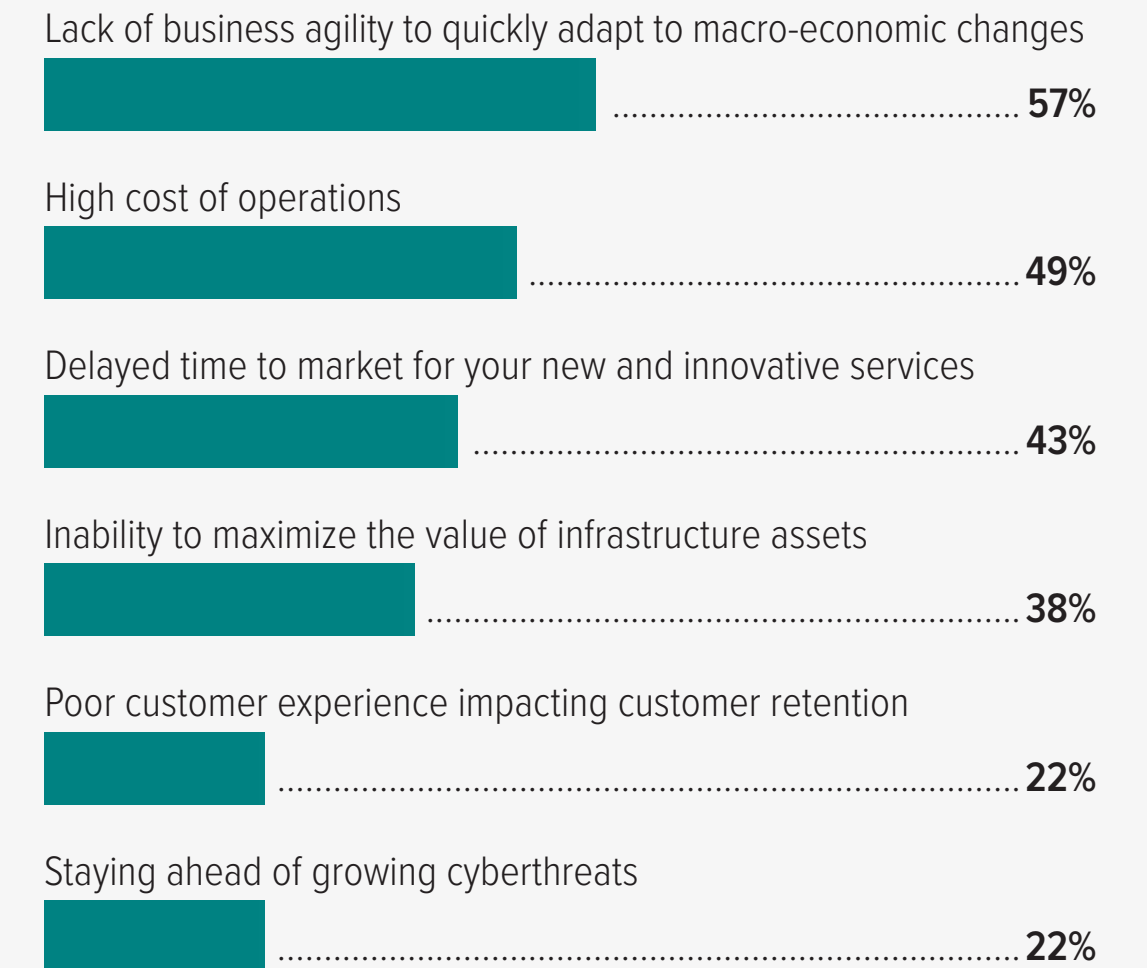.......................................**21%**

Service diversification and VAS, as the top trend, is also in accordance with the previously mentioned investment area, with new monetisation models born out of 5G capabilities, including network slicing, private networks, and ultra-low latency. Telco service diversification such as latency-based pricing tiers, SLA driven network exposure, and ecosystem collaborations will further ensure telcos can support vertical industries in their digitalisation efforts. These service diversifications are often cited to take place alongside existing connectivity services such as enhanced mobile broadband (eMBB) and Fixed-Wireless-Access (FWA).

With a cloud-native architecture, the deployment of 5G core is also inherently interconnected with the acceleration of cloud transformation. 5G core is predominantly being planned and implemented in the private cloud. According to data by **Capgemini**, more than four in five core network deployments are implemented or plan to be implemented in a purely private cloud environment, only a small fraction (2%) constitutes private cloud offered by hyperscalers or large cloud solution providers.
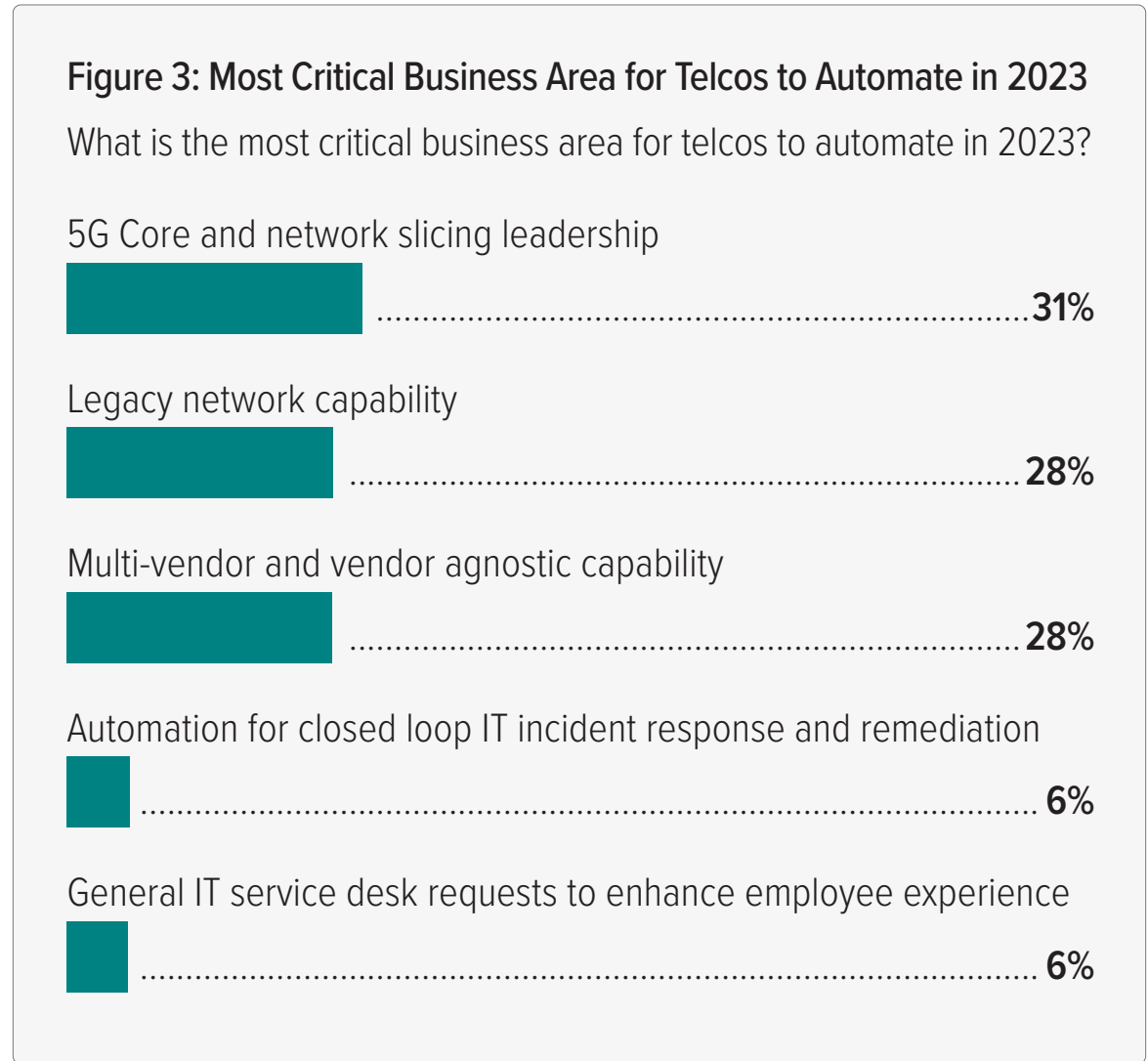
Figure 2: Key Business Challenges Interfering with Innovation

What key business challenges are holding telcos back from innovating their operations? (Select up to three.)
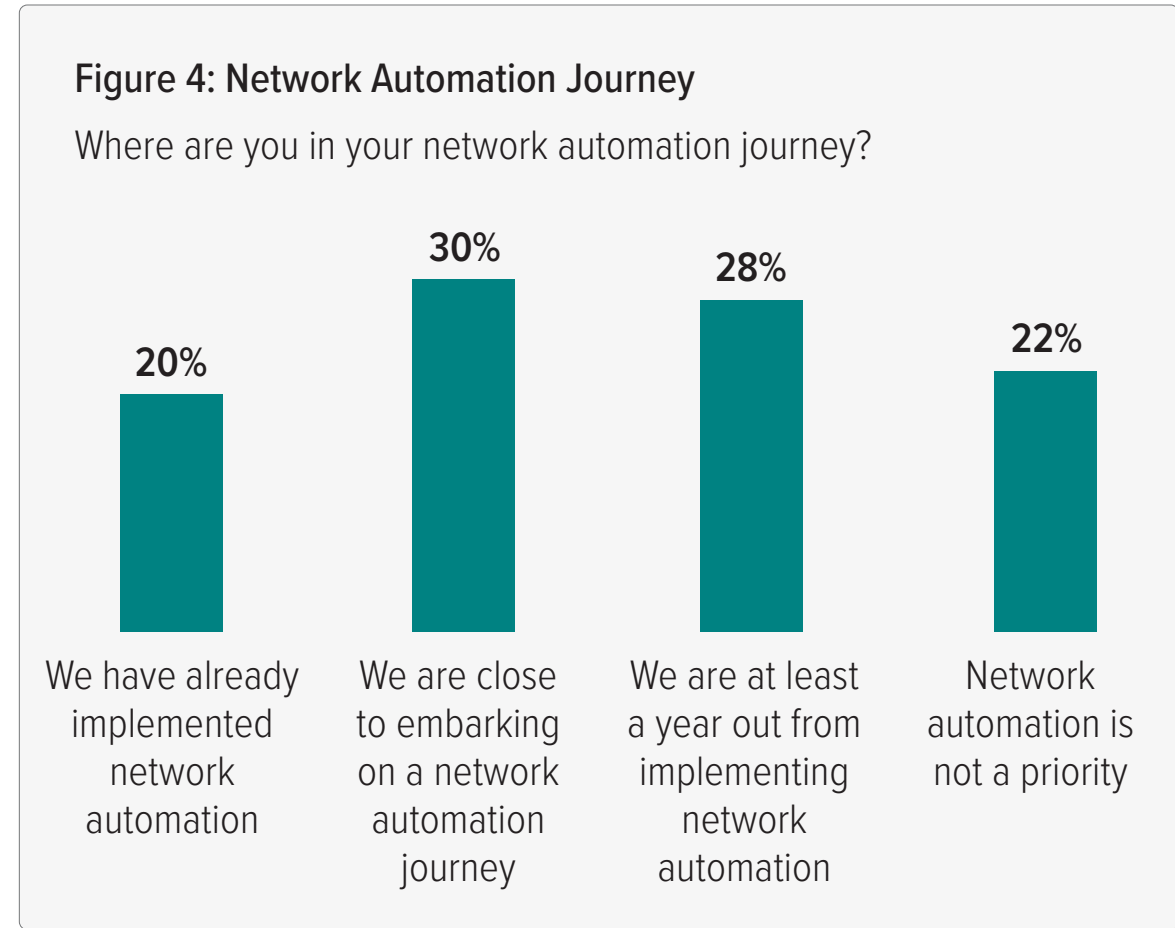
Lack of business agility to quickly adapt to macro-economic changes
....**57%**

High cost of operations
....**49%**

Delayed time to market for your new and innovative services
....**43%**

Inability to maximize the value of infrastructure assets
....**38%**

Poor customer experience impacting customer retention
....**22%**

Staying ahead of growing cyberthreats
....**22%**

Further, AI and ML offer a number of benefits for telco networks. According to **McKinsey & Company**, around 60-70% of telcos' operating budgets are spent on field and service operations. Implementing AI tools can support a host of tasks, including the improvement of network operations and forecasting maintenance schedules; enhancing contact centre operations and customer experiences; improving retail experiences and monetisation of networks.

The adoption of AI, ML, automation, and related technologies can also help with key business challenges most commonly associated with holding telcos back from innovating their operations. These challenges include a lack of business agility to quickly adapt to macro-economic changes (57%), followed by high costs of operations (49%), and delayed time to market for new and innovative services (43%). **Figure 2** When asked to choose the most critical business area for telcos to automate in 2023, just under a third of respondents (31%) chose 5G core and network slicing leadership as the most critical area. **Figure 3**

Figure 3: Most Critical Business Area for Telcos to Automate in 2023

What is the most critical business area for telcos to automate in 2023?

5G Core and network slicing leadership
....**31%**

Legacy network capability
....**28%**

Multi-vendor and vendor agnostic capability
....**28%**

Automation for closed loop IT incident response and remediation
.... **6%**

General IT service desk requests to enhance employee experience
.... **6%**

Overlaying these business challenges interfering with innovation with the most critical business areas within the networks to automate, means the top three challenges can be overcome and new features can more easily be delivered. Automation in the core network can drive agility in network security and the ability to generate revenue faster. Such reduced time-to-cash delivers new services more rapidly to customers. Further, with increased complexity brought about by 5G core, network automation can also eliminate human errors by reducing manual workloads and associated costs.

Looking ahead, to accelerate innovation in 2023, respondents are also most likely to believe network health checks (39%) and acceleration of resolution times (37%) should be prioritised, followed by IT capacity to handle 5G (33%) and customer service (33%).

Figure 4: Network Automation Journey

Where are you in your network automation journey?

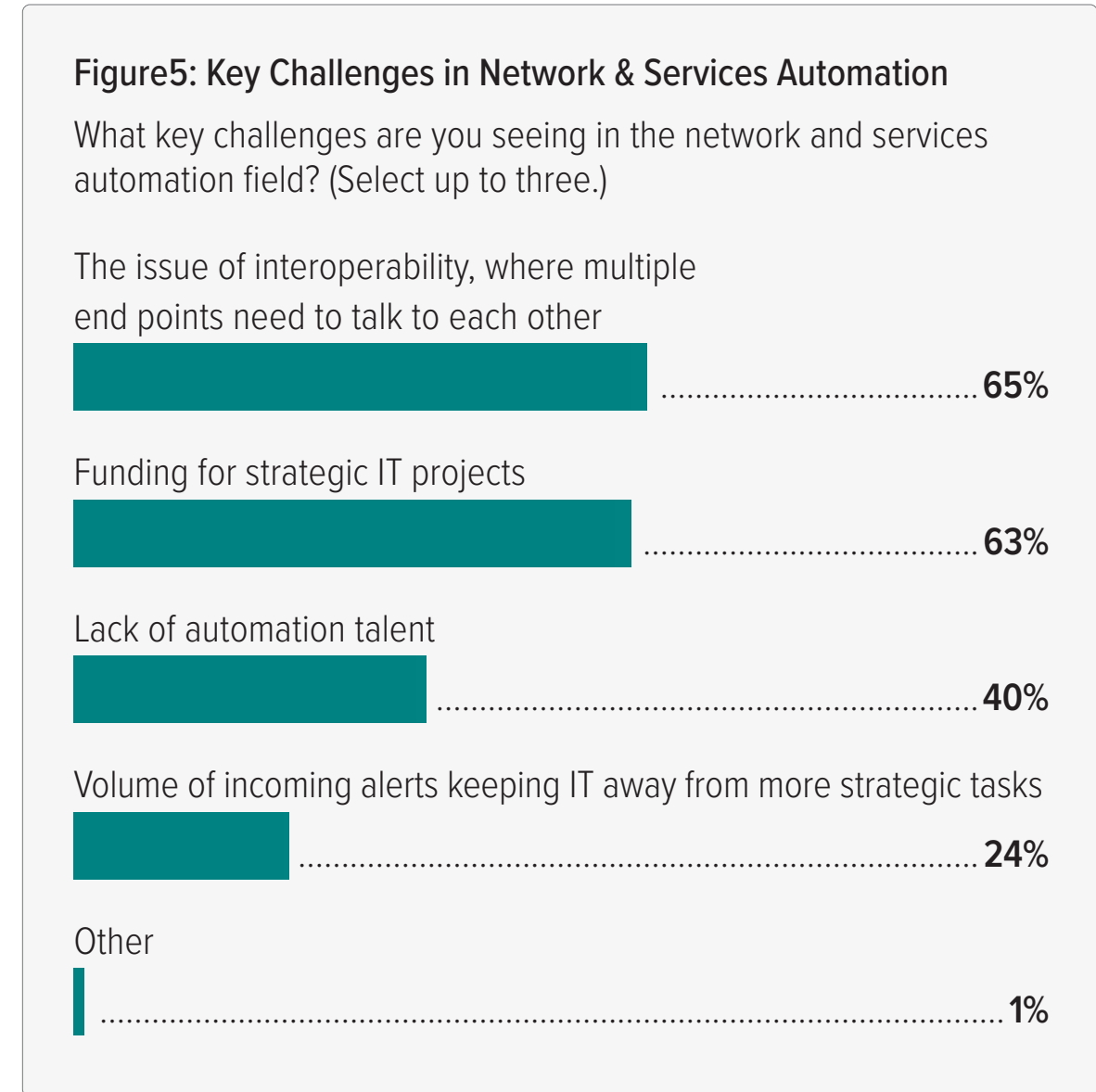| 20%	30%	28%	22%
We have already implemented network automation	We are close to embarking on a network automation journey	We are at least a year out from implementing network automation	Network automation is not a priority

For most telcos the journey to automation has already begun

Considering business agility, opex, and time-to-market are identified as the top business challenges that are holding telcos back from innovating their operations – all aspects that can benefit from automation – we wondered where telecom organisations are in their network automation journey. For most people (78%), some degree of priority has already been attributed to automation.

A fifth of respondents report they have already implemented network automation, and 30% are close to doing so. Meanwhile, another 28% are one year or more out from implementation. Only one in five state network automation is not a priority for them. **Figure 4** This indicates there is a healthy and growing appetite to adopt network automation in the near term.

The automation, and thus transformation, of network and service operations also comes with challenges of its own. This is reflected in the responses to the next question. Around two out of three respondents (65%) find lack of interoperability between multiple endpoints a key challenge, alongside funding for strategic IT projects (63%). **Figure 5**

Figure5: Key Challenges in Network & Services Automation

What key challenges are you seeing in the network and services automation field? (Select up to three.)

The issue of interoperability, where multiple end points need to talk to each other
....**65%**

Funding for strategic IT projects
....**63%**

Lack of automation talent
....**40%**

Volume of incoming alerts keeping IT away from more strategic tasks
....**24%**

Other
....**1%**

Lack of interoperability, and thus also the integration of multiple services, can hinder CSPs trying to connect two or more endpoints, such as a billing system with a customer relations management system. For two or more such systems to be able to communicate with each other and be interoperable, they must follow a standardised information and data exchange system. Vendor solutions that follow for instance the TM Forum Open APIs standards can address this challenge.

When asked if they could deliver one feature better and faster to improve subscriber service level and communications, respondents were split between prioritising network provisioning and configuration (39%) and proactive network testing to stay ahead of outages (36%).
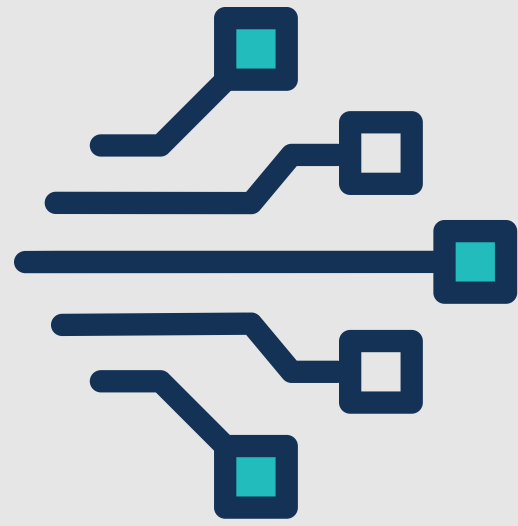
Conclusion

These results highlight the value telecom organisations see in automating their networks in the near term. Some of the key themes arising from our survey have revolved around cost efficiency and time to market. In times of rising costs across the business, an energy crisis, and an industry with stagnating growth, it is not surprising to see so much strategy revolving around cost management, revenue generation, and how to yield improved returns on investment.

With the deployment of 5G SA is expected to ramp up as we have entered the fourth year of this mobile generation, the industry seems to have reached an inflection point. A single 5G use case will not be sufficient to drive as much monetisation as needed any longer. Also, as CSPs remain concerned over the old argument of acting as connectivity 'dumb pipes', they seek more lean operational models driven by advanced technologies and revenue generation driven by service diversification and VAS.

While a number of industry-wide initiatives are introduced and gathering pace (e.g. the Open API Gateway, Sylva) to support telecom operators develop new monetisation models and run open and interoperable networks, CSPs that are already automating much of their relevant networks can drive cost saving strategies and also free up resources for more complex tasks.

The convergence of AI, ML, automation, and analytics combined with the acceleration of cloud transformation has been argued to help CSPs turn data into commercial insights, both driving performance efficiencies as well as monetisation opportunities. The results of this survey also show that to drive such transformation in the networks, healthier IT budgeting and improved skills are needed.

ABOUT

RESOLVE

Resolve Systems helps enterprise technology teams worldwide achieve agile operations with an industry-leading intelligent IT automation platform. With more than a decade of automation expertise, Resolve's solutions are purpose-built to address challenges posed by increasing IT complexity. Organizations use Resolve to automate IT operations, service management, network operations, cloud operations, and enable Centers of Excellence to orchestrate enterprise-wide automation. Resolve enables organizations to maximize operational efficiency, overcome labor shortages, reduce costs, quickly troubleshoot and fix problems, and accelerate service delivery. Resolve is majority-owned by Insight Partners, a leading global venture capital and private equity firm investing in high-growth technology and software companies. Learn more at resolve.io, follow us on Twitter @ResolveSystems, and LinkedIn.
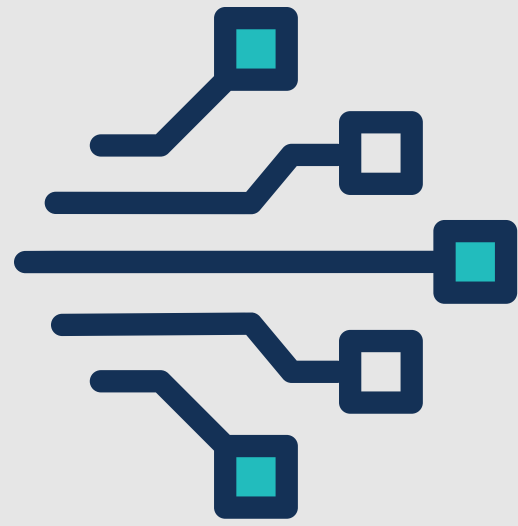
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Taking a Holistic Approach to Automation

When getting started with network automation, it's often tempting to seek out solutions for specific use cases. However, as networks become both more complex and more intertwined, this can lead to automation silos as tools struggle to communicate with each other.

Instead of specific tools, infrastructure and operations (I&O) teams should seek out a network automation platform. The right network automation platform can help you integrate automation easily into the rest of your I&O processes by helping you automate the specific use case that takes up the most time or could provide the most value for your business. Because you're using an automation platform, this solution can help you leverage those use cases as the foundation for greater automation across your network management operations.

To achieve the greatest value at the fastest rate, you'll want to focus your efforts on the key automation initiatives proven time and again to deliver the highest ROI from the beginning. Here's where to start.

- Provisioning and configuration: Day 0 – Day n automation for keeping the lights on.

- Incident response with auto-remediation: Close the IT incident resolution loop with automated remediation of alarms.

- Proactive network testing: Avoid unexpected and costly downtime with automation.

Appendix | Survey Results

Background

Q1: Please select the type of company you work for:

Answer	%
Mobile / Fixed / Virtual Operators	**51%**
System Integrator / Consultancy	**19%**
Hardware or Software Vendor	**10%**
Education Institute / Research or Consulting Firm	**5%**
Cloud/Web Services / OTT	**1%**
Value-Added Reseller (VAR)	**0%**
Government / Regulator / Authority	**6%**
Media / Entertainment	**1%**
Enterprise User	**0%**
Other (please specify)	**5%**

Other responses:
Computer Networking
Engineering Service
Utility

Base: all respondents

Q2: Which best reflects your current job function?

Answer	%
Mid-Level Management	**24%**
Engineering / Developer	**18%**
Sales / Marketing	**17%**
Corporate Management (CEO, COO, CFO, CTO, VPs)	**13%**
Analyst / Research	**9%**
Network Operations	**8%**
Administrative / Finance	**5%**
IT Management (CIO, VPs, Director of IT)	**3%**
IT Operations	**1%**
Other (please specify)	**3%**

Other responses:
Business Partner
Communications technology expense management/consulting

Base: all respondents

Q3: In which region is your company located?

Answer	%
Europe	**36%**
North America	**21%**
Asia / Asia Pacific	**19%**
Africa	**8%**
South America	**5%**
Middle East	**10%**

Base: all respondents

Q4: How long have you worked in the telecommunications industry?

Answer	%
Less than 5 years	**8%**
5 to 9 years	**5%**
10 to 14 years	**17%**
15 to 19 years	**13%**
20 to 24 years	**21%**
25 years or more	**37%**

Base: all respondents

Appendix | Survey Results

Telecom Ops Survey

Q5: With the demand for future generation services and devices, such as 5G and smart technologies expected to exceed $50 billion over the next five years, what are your priority investment areas in 2023? (Select up to two.)

Answer	%
Investing in 5G	**47%**
Investing in automating network operations and services	**34%**
Investing in artificial intelligence and machine learning	**29%**
Investing in cloud transformation	**27%**
Investing in IoT	**21%**
Investing in big data analytics	**12%**

Base: all respondents; up to two answers permitted

Q6: What are the top two trends you are expecting to see in telecom operations in 2023? (Select up to two.)

Answer	%
Telco service diversification and value-added services	**50%**
Increased deployment of AI/ML	**42%**
Acceleration of cloud transformation	**42%**
Harvesting data and turning it into actionable insights	**23%**
The uptake of edge computing	**21%**

Base: all respondents

Q7: What key business challenges are holding telcos back from innovating their operations? (Select up to three.)

Answer	%
Lack of business agility to quickly adapt to macro-economic changes	**57%**
High cost of operations	**49%**
Delayed time to market for your new and innovative services	**43%**
Inability to maximize the value of infrastructure assets	**38%**
Poor customer experience impacting customer retention	**22%**
Staying ahead of growing cyberthreats	**22%**

Base: all respondents; up to three answers permitted

Q8: What is the most critical business area for telcos to automate in 2023?

Answer	%
5G Core and network slicing leadership	**31%**
Legacy network capability	**28%**
Multi-vendor and vendor agnostic capability	**28%**
Automation for closed loop IT incident response and remediation	**6%**
General IT service desk requests to enhance employee experience	**6%**

Base: all respondents

Appendix | Survey Results

Telecom Ops Survey Continued

Q9: Where are you in your network automation journey?

Answer	%
We have already implemented network automation	**20%**
We are close to embarking on a network automation journey	**30%**
We are at least a year out from implementing network automation	**28%**
Network automation is not a priority	**22%**

Base: all respondents

Q10: Looking ahead to network automation, what are the top two areas that should be prioritized in order to accelerate innovation in 2023? (Select up to two.)

Answer	%
Network health checks	**39%**
Accelerate resolution times	**37%**
Customer service	**33%**
IT capacity to handle 5G	**33%**
Employee experience	**17%**
Customer self-help as 5G expands	**15%**
Upskill agents with SME-approved automations	**12%**

Base: all respondents; up to two answers permitted

Q11: What key challenges are you seeing in the network and services automation field? (Select up to three.)

Answer	%
The issue of interoperability, where multiple end points need to talk to each other	**65%**
Funding for strategic IT projects	**63%**
Lack of automation talent	**40%**
Volume of incoming alerts keeping IT away from more strategic tasks	**24%**
Other (please specify)	**1%**
Other responses: Legacy	

Base: all respondents; up to three answers permitted

Q12: If you could deliver one of the following better and faster to improve subscriber service level and communications, which would you prioritize?

Answer	%
Network provisioning and configuration	**39%**
Proactive network testing to stay ahead of outages	**36%**
NOC incident response and remediation	**24%**

Base: all respondents

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