



This report was commissioned by Oracle

# Survey results report on OSS closed-loop automation

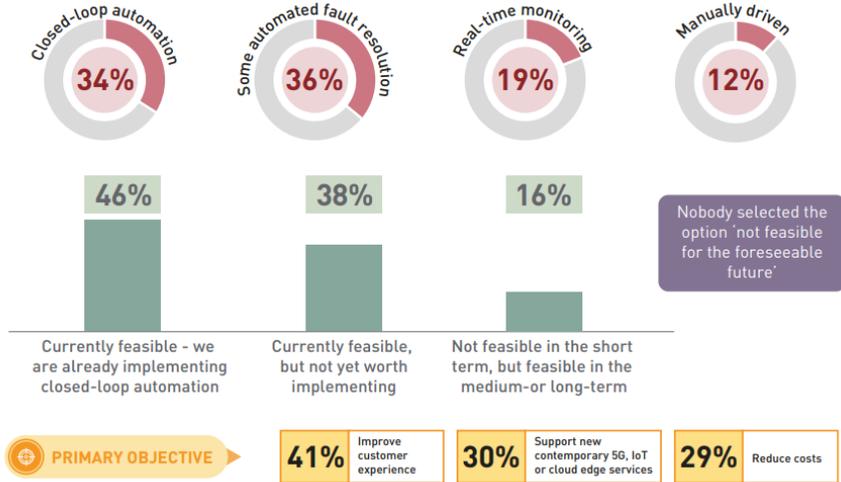


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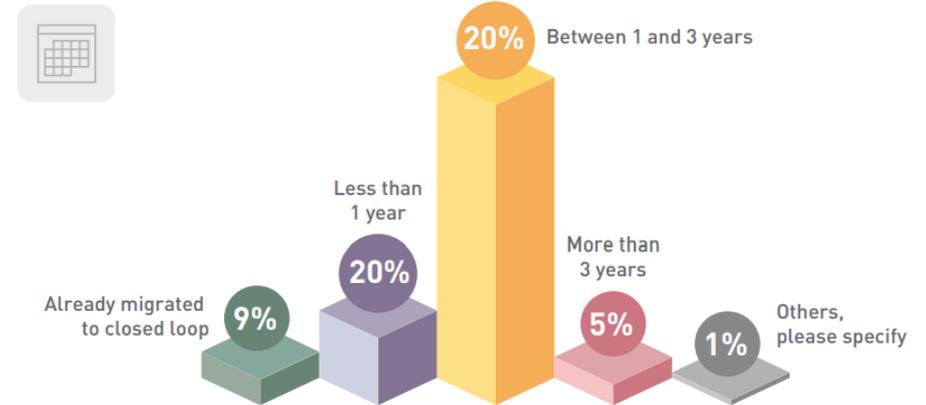
Justin van der Lande, Neil Kiritharan, Dev Chakravarty and  
Joshua Dayan

# Executive summary: The next 3 years will be crucial for closed-loop automation

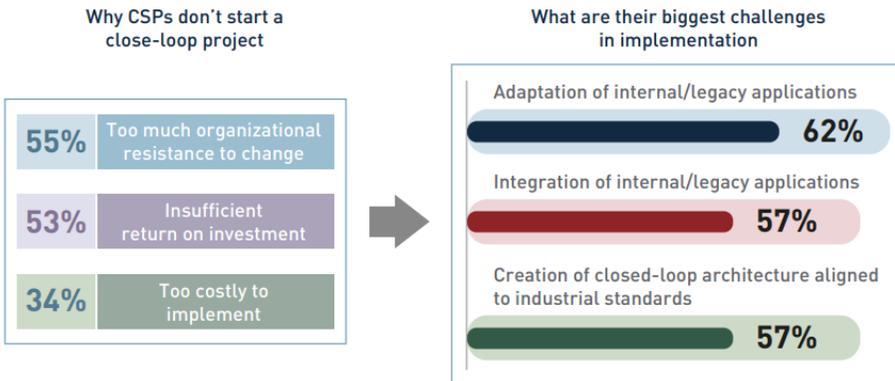
## Demand for closed-loop automation



## Timeframes and ownership of closed-loop automation

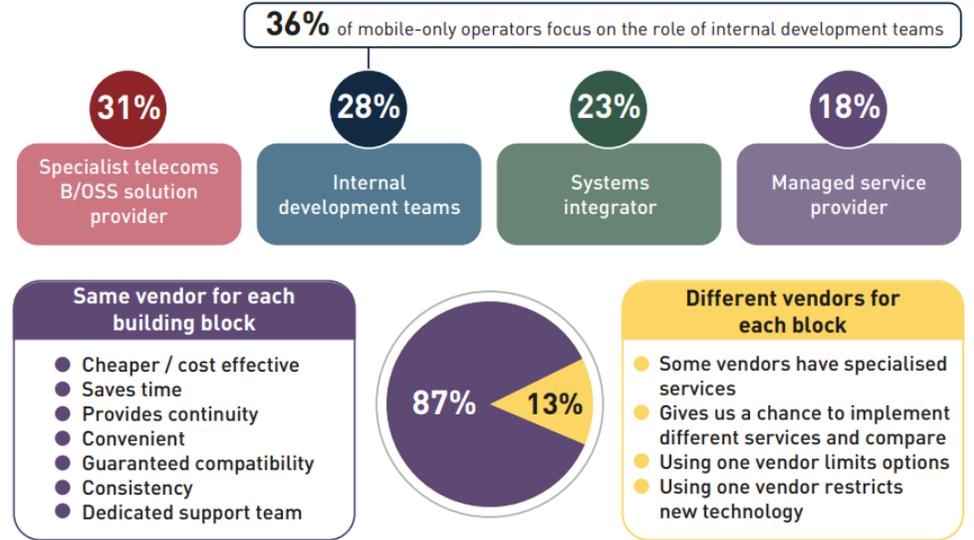


## Challenges to implement closed-loop automation

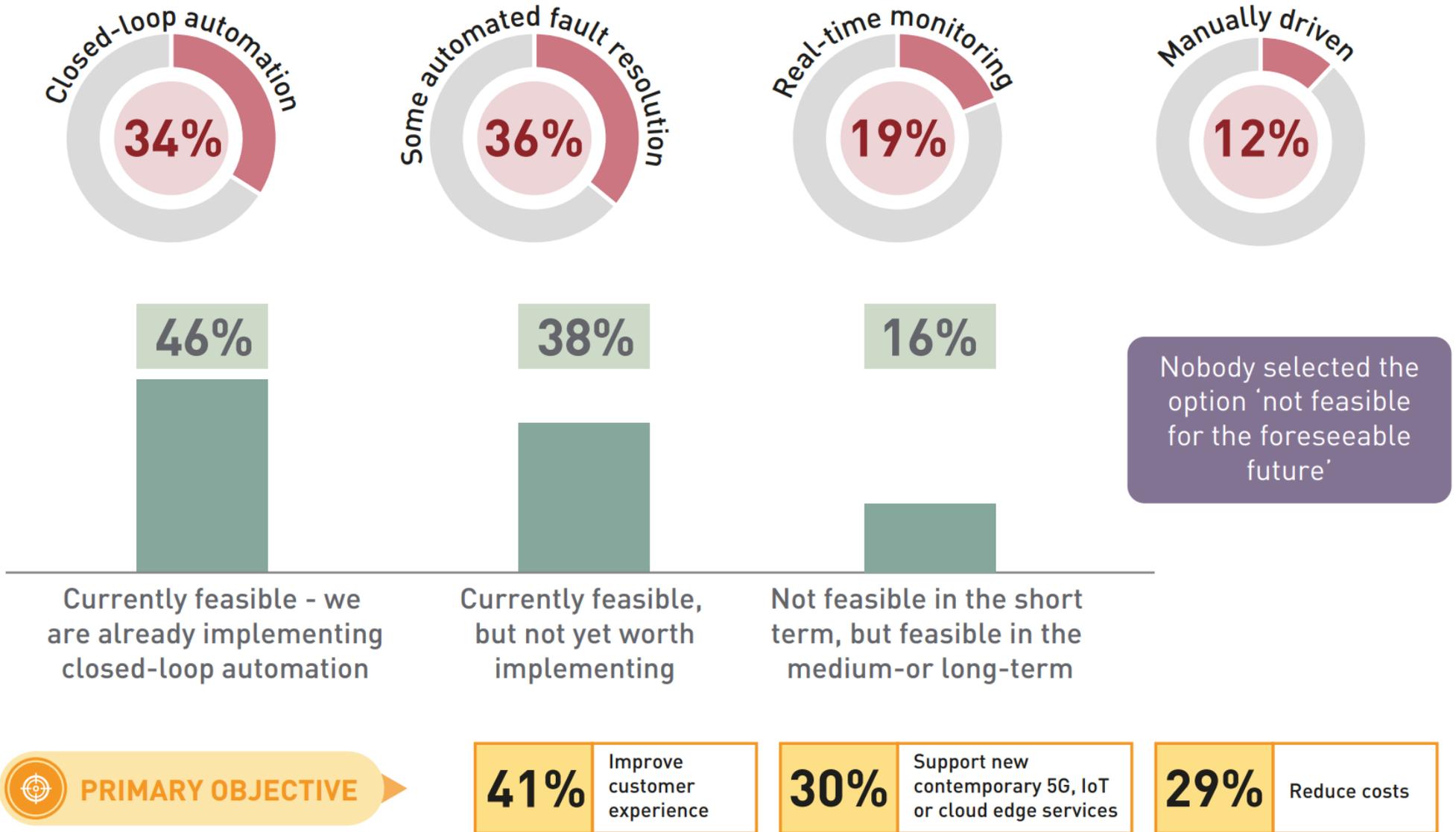


Each section is also available on the following slides

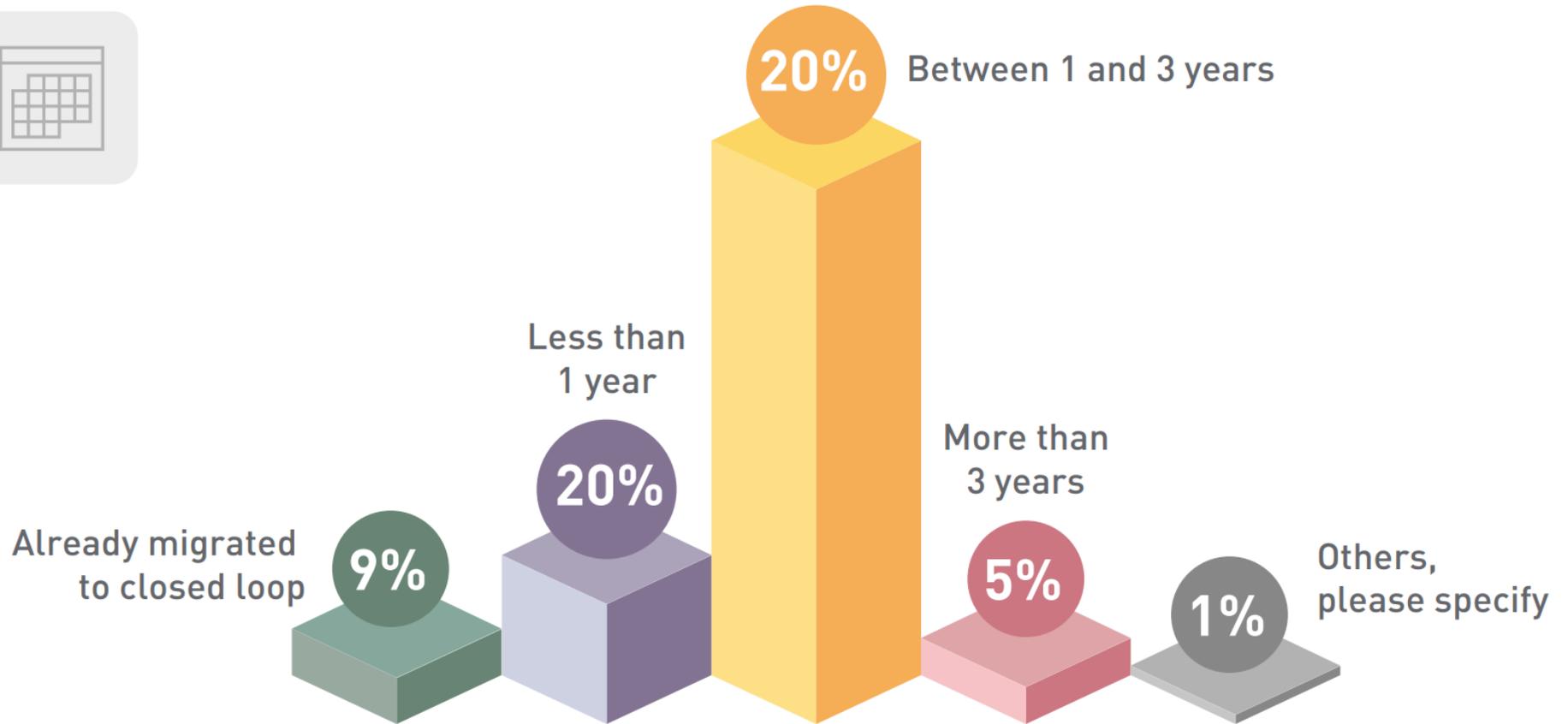
## Technology and vendor selection



## Demand for closed-loop automation: All CSPs consider closed-loop automation to be feasible in the medium-term, improving CX is the primary objective

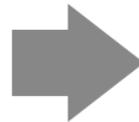


## Timeframes and ownership of closed-loop automation: Most respondents say the majority of their processes will support closed-loop in the next 1-3 years

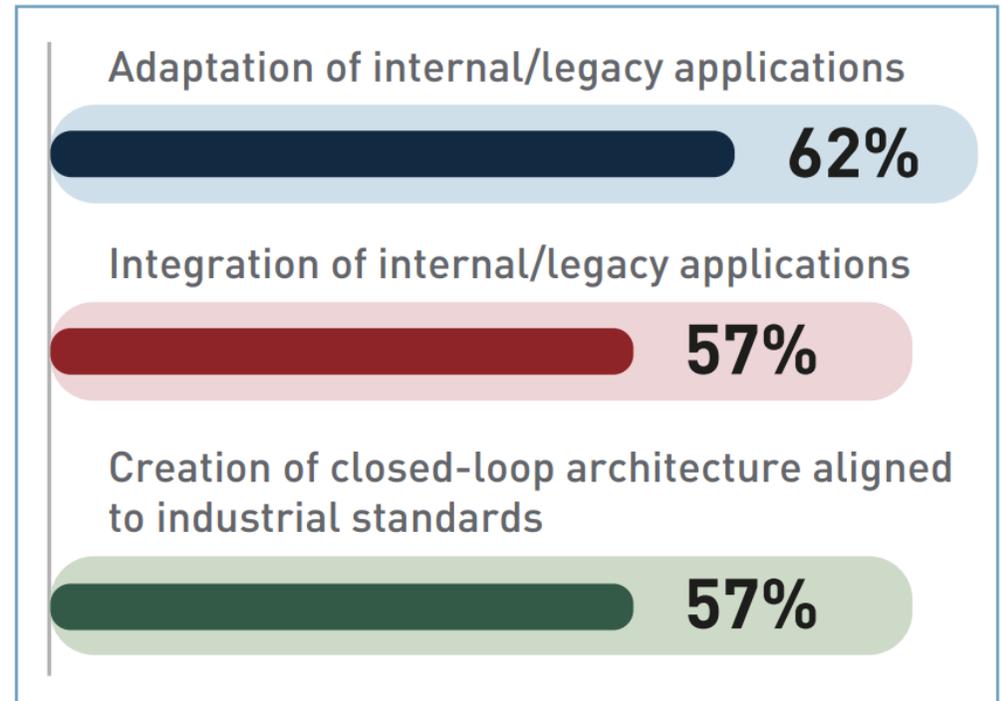


## Challenges to implement closed-loop automation: Organizational resistance to change and insufficient ROI are barriers to implementation; legacy apps will prove the biggest challenge

### Why CSPs don't start a close-loop project



### What are their biggest challenges in implementation



## Technology and vendor selection: Respondents are most likely to engage a single specialist solution vendors to deliver closed-loop

**36%** of mobile-only operators focus on the role of internal development teams

**31%**

Specialist telecoms  
B/OSS solution  
provider

**28%**

Internal  
development teams

**23%**

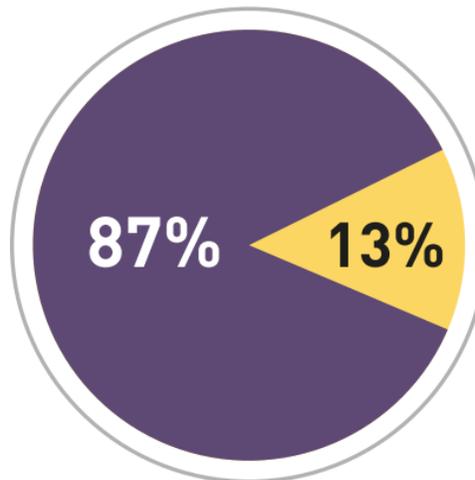
Systems  
integrator

**18%**

Managed service  
provider

### Same vendor for each building block

- Cheaper / cost effective
- Saves time
- Provides continuity
- Convenient
- Guaranteed compatibility
- Consistency
- Dedicated support team



### Different vendors for each block

- Some vendors have specialised services
- Gives us a chance to implement different services and compare
- Using one vendor limits options
- Using one vendor restricts new technology

## Summary of key findings: CSPs claim to have already begun implementing closed-loop, and the next 3 years will be crucial

### Demand for closed-loop automation

- All CSPs surveyed consider closed-loop automation to be feasible in the medium-term, and one-third of CSPs claim that some form of closed-loop automation has already been implemented
- Improving customer experience is the most important driver for closed-loop automation overall, though support for new 5G services and reducing costs were also important

### Timeframes and ownership of closed-loop automation

- The move to closed-loop automation is already underway; the majority of CSPs plan to have implemented closed-loop within the next 3 years – so the next few years are crucial
- This move will usually be run by CSPs' CTOs, with network ops being a key area

### Challenges to implement closed-loop automation

- Internal issues, both cultural and technological, are the key barriers to more widespread adoption
- Organizational resistance is key challenge - even though respondents indicated that organization setups are not an issue– indicating that attitudes are the barrier to adoption
- CSP's install bases will take some time to be updated and may never be fully updated; adaptation and integration of legacy systems will be a challenge

### Technology and vendor selection

- Vendors with telecoms experience are valued above network equipment providers
- CSPs consider the best positioned vendors to be application vendors with some independence from network (or at least, are viewed to have independence) and have expertise in all applications in closed-loop lifecycle
- Key building blocks for closed-loop automation are service and network assurance, then analytics and inventory
- Respondents overwhelmingly prefer to use components from the same vendor

## Demand for closed-loop automation: While most operators claim to engage in some closed-loop automation, the majority plan to extend automation in the future

Area	Question	Top answer	Outliers	Additional comments
Demand for closed-loop automation	Current approach to fault-to-resolution	We have implemented a real-time monitoring solution and some automated fault resolution (36%)	<ul style="list-style-type: none"> <li>27% of mobile operators are manually driven</li> </ul>	<ul style="list-style-type: none"> <li>Over a third of respondents have implemented assurance-driven closed-loop automation; this is likely to just be implemented 'to some extent' but is still higher than we anticipated</li> </ul>
	Feasibility of fully closed-loop automation	Currently feasible – we are already implementing closed-loop automation (46%)	<ul style="list-style-type: none"> <li>No operators believe that fully closed-loop automation is not feasible in the foreseeable future</li> </ul>	<ul style="list-style-type: none"> <li>No respondents considered closed-loop completely infeasible (though 16% considered it infeasible in the short-term)</li> </ul>
	Areas for which use of closed-loop automation is planned	In network operations (51%)	<ul style="list-style-type: none"> <li>55% of UAE operators intend to use closed-loop automation for customer operations, with only 36% planning to deploy it in network operations</li> </ul>	<ul style="list-style-type: none"> <li>Network operations ranking higher than service operations and customer operations seems to contradict the next question, but may imply that improvement of network ops is more effective</li> </ul>
	Drivers for implementing closed-loop automation	Improve the customer experience (30%)	<ul style="list-style-type: none"> <li>Mobile operators (42%) prioritised reducing costs over improved customer experience</li> </ul>	<ul style="list-style-type: none"> <li>Customer experience is the most important driver, though the cost vote was 'split' - cost cutting through systems optimisation, network optimisation and reduced need for staff were the next 3 most important drivers</li> <li>Support for new 5G services ranked higher than reducing costs</li> </ul>
	Which use cases are most likely for closed-loop automation	Resource/network optimisation (70%)	<ul style="list-style-type: none"> <li>Mobile operators are most interested in auto-scaling (72%)</li> </ul>	<ul style="list-style-type: none"> <li>Auto-healing was the least picked option; it may be the case that auto-healing is seen as less required in a closed-loop system due to decreased failure rates</li> </ul>

## Timeframes and ownership of closed-loop automation: While most operators already engage in some degree of automation, the next three years will be crucial

Area	Question	Top answer	Outliers	Additional comments
Timeframes and ownership of closed-loop automation	Processes / teams supporting closed-loop today	11-50% processes supported (52%) Service operations (62%)	<ul style="list-style-type: none"> <li>Fixed operators most commonly have 5-10% of processes supporting closed loop (33%)</li> </ul>	<ul style="list-style-type: none"> <li>Only 2% of respondents indicated that their processes do not support closed-loop. Respondents may consider their processes to support closed-loop even if they are not currently automated</li> <li>Network operations and IT provisioning are also likely to support closed-loop</li> </ul>
	Time until most processes support closed-loop	Between 1 and 3 years (65%)	<ul style="list-style-type: none"> <li>12% of mobile only operators believe it will take more than 3 years until most processes support closed-loop automation</li> </ul>	<ul style="list-style-type: none"> <li>9% indicated that the majority of their processes support closed-loop already; this is less than the 15% who had &gt;50% of processes currently supporting closed</li> <li>A further 20% of respondents will support closed loop within the year</li> </ul>
	Roles driving adoption of closed loop	CTO / VP Network Operations (49%)	<ul style="list-style-type: none"> <li>44% of APAC operators report that the Head of Consumer Services is primarily driving adoption of closed-loop automation</li> </ul>	<ul style="list-style-type: none"> <li>Head of consumer services (22%) and CIO (18%) are the next most important roles in driving adoption</li> </ul>
	Is organisation setup to take advantage of closed-loop	Yes - we are already organizationally aligned to implement closed-loop automation (52%)	<ul style="list-style-type: none"> <li>45% of Middle Eastern operators do not believe themselves to yet be ready to take advantage of automation, but are currently working on it</li> </ul>	<ul style="list-style-type: none"> <li>Most organisations feel like they are setup to take advantage of closed-loop, but still feel that organisational resistance to change is a challenge (in a later question)</li> </ul>

## Challenges in implementing closed-loop automation: Internal issues, both cultural and technological, are the key barriers to more widespread adoption

Area	Question	Top answer	Outliers	Additional comments
Challenges to implement closed-loop automation	Most significant issues	Too much organizational resistance to change (55%)	<ul style="list-style-type: none"> <li>Mobile operators equally consider 'insufficient ROI' and 'too costly' (both 48%) above organisational resistance (42%)</li> <li>Fixed operators have 'insufficient ROI' top (62%)</li> </ul>	<ul style="list-style-type: none"> <li>Organisational resistance to change being the most significant issue implies that respondents feel that organisations will resist the change despite it being beneficial</li> <li>'Insufficient ROI' was the second most chosen answer, ahead of 'too costly', implying ROI concerns are more related to insufficient (financial) benefits</li> </ul>
	Expected challenges / where help is needed	Adaptation of internal / legacy applications (62%)	<ul style="list-style-type: none"> <li>64% of converged operators single out integration of legacy systems as being an expected challenge of adoption</li> </ul>	<ul style="list-style-type: none"> <li>Integration and adaptation of internal/legacy applications are likely to go hand-in-hand; they were chosen by a similar proportion of respondents</li> <li>Despite integration and adaptation of internal/legacy applications being a concern, most are not concerned about openness of existing systems</li> </ul>
	Most important KPIs to closed-loop automation business case	Increase in enterprise SLA compliance (27%)	<ul style="list-style-type: none"> <li>27% of mobile only operators mention reduction in network downtime as the most important KPI</li> <li>33% of fixed only operators describe reduction in customer service downtime as the most important KPI for the success of closed-loop automation</li> </ul>	<ul style="list-style-type: none"> <li>Results on most important KPIs are a direct reversal of the question about drivers of closed-loop adoption</li> <li>Respondents want to improve customer experience but consider SLA compliance to be more important – or potentially feel that closed loop will have little direct effect on CSAT/NPS; there is a disconnect between the KPIs for customer experience being important (only 11% selected) and customer experience being a top driver</li> </ul>

## Technology and vendor selection: Application vendors with all-round closed-loop expertise are the tech partners most sought after to help with implementation

Area	Question	Top answer	Outliers	Additional comments
Technology and vendor selection	Expected partner to help deliver closed-loop automation	Specialist telecoms BSS/ OSS solution provider (31%)	<ul style="list-style-type: none"> <li>Mobile-only operators are most likely to use internal development teams as a first choice (36%)</li> </ul>	<ul style="list-style-type: none"> <li>Specialist BSS and OSS solution providers are the most common first-choice while Managed Service Providers are least common</li> <li>Internal development teams are chosen most commonly across respondents' top 3; they are the most common third choice option</li> </ul>
	Key considerations in selecting a vendor/partner	Expertise in contemporary networking, inventory, assurance, orchestration (22%)	<ul style="list-style-type: none"> <li>Enterprise-focused operators were most concerned for staff skills training (55%)</li> </ul>	<ul style="list-style-type: none"> <li>Support for staff training is the second most important consideration, which tallies with internal development teams being a common second/third choice for closed-loop implementation</li> </ul>
	Capabilities expected from vendor solutions	Offers (or partners for) assurance, inventory / topology, and orchestration (28%)	<ul style="list-style-type: none"> <li>Converged/integrated operators are most interested in closed-loop driven by data analytics (35%)</li> </ul>	<ul style="list-style-type: none"> <li>Privacy and security capabilities are a common 'third most important' consideration, but is not a primary concern</li> <li>Coupled with the following questions on key building blocks, it is clear that CSPs favor application vendors when selecting a closed-loop partner</li> </ul>
	Key building blocks	Service and network assurance (fault, performance, topology) (70%)	<ul style="list-style-type: none"> <li>Enterprise-focused operators are most concerned with a complete inventory (70%)</li> </ul>	<ul style="list-style-type: none"> <li>A complete, accurate inventory is seen as just as important as analytics and AI/ML capabilities</li> <li>Standards-aligned data models rank second-bottom; this contradicts the expectation for standards-aligned architecture to be a challenge</li> </ul>
	Key standards	TOSCA (63%)	<ul style="list-style-type: none"> <li>55% of Middle Eastern operators say that MEF is their preferred standard</li> </ul>	<ul style="list-style-type: none"> <li>MEF and TMF are the two least chosen options, which contrasts with the additional awareness that these standards have as compared to TOSCA</li> </ul>

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