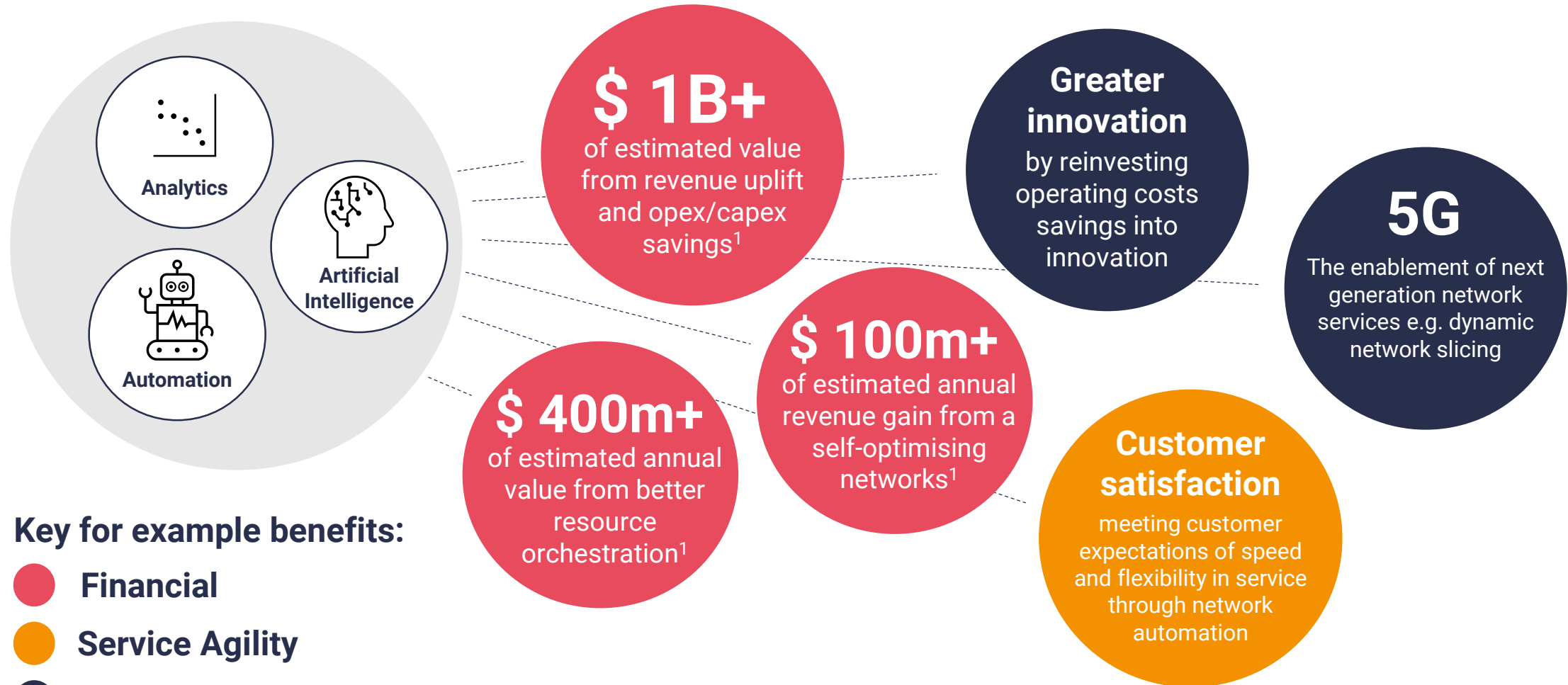# A³: Automation, analytics and artificial intelligence

Insights from the industry

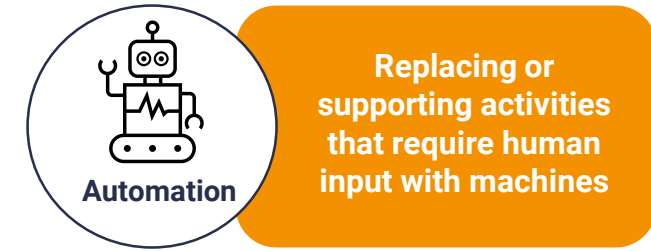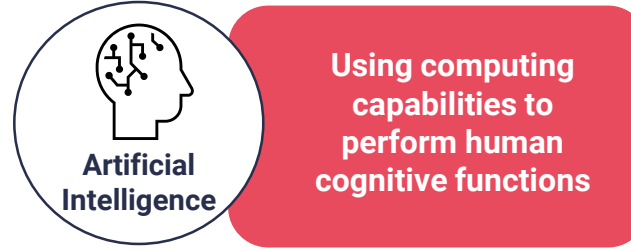**Overview by STL Partners**

Telco Cloud Practice

STL PARTNERS

There are clear benefits to operators who successfully implement A³ within their organisation...

Analytics

Artificial Intelligence

Automation

$ 1B+
of estimated value from revenue uplift and opex/capex savings[1]

Greater innovation
by reinvesting operating costs savings into innovation

5G
The enablement of next generation network services e.g. dynamic network slicing

$ 400m+
of estimated annual value from better resource orchestration[1]

$ 100m+
of estimated annual revenue gain from a self-optimising networks[1]

Customer satisfaction
meeting customer expectations of speed and flexibility in service through network automation

Key for example benefits:

● **Financial**

● **Service Agility**

● **Innovation**

This is evident in the industry's investment in multiple telco domains, albeit with varying levels of maturity...

Analytics — Collecting and analysing data to drive better decision-making

Artificial Intelligence — Using computing capabilities to perform human cognitive functions

Automation — Replacing or supporting activities that require human input with machines

Telco domains utilising A^3 and example use cases

Sales & marketing
- Personalised marketing
- Call centre augmentation

Customer experience
- Customer value management
- Troubleshooting

Network planning & operations
- Infrastructure planning
- Predictive maintenance

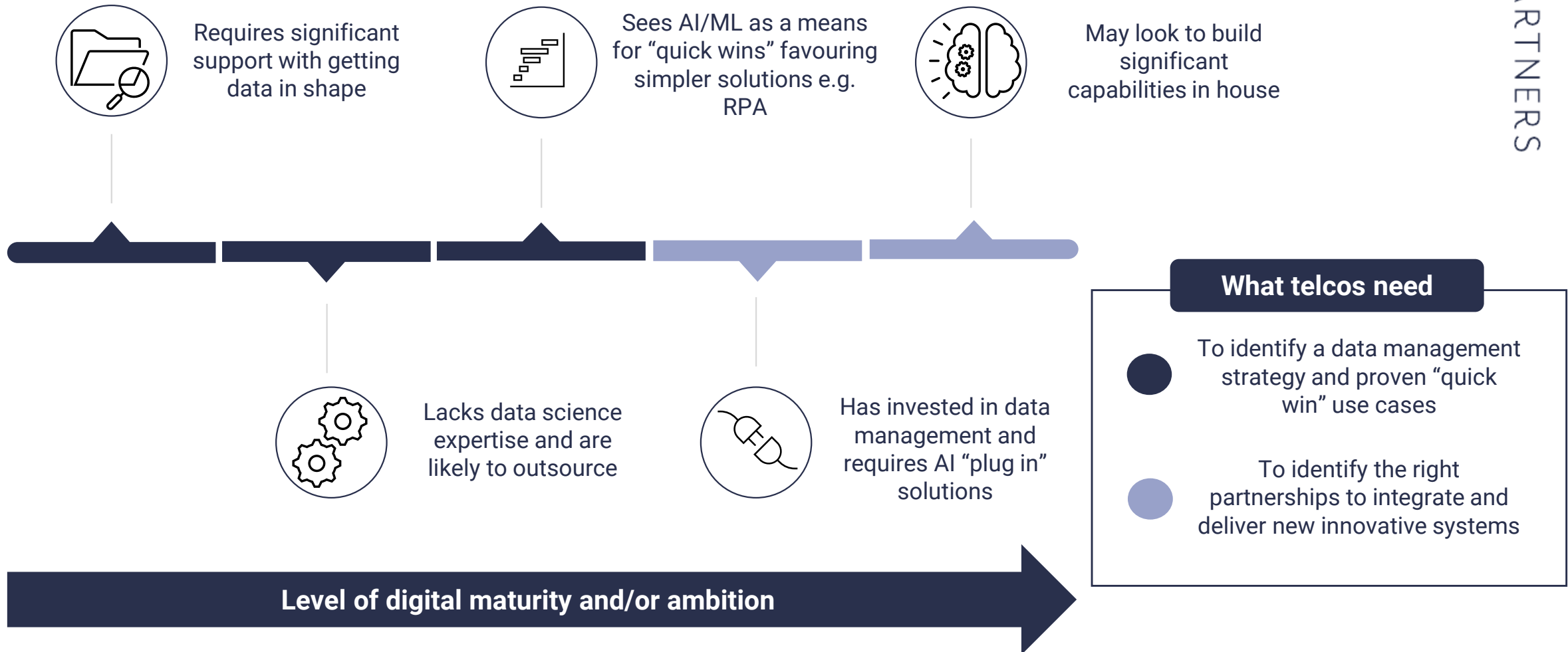**Service innovation**
- AI-as-a-service
- Product development and augmentation

Other operations
- Supply chain management
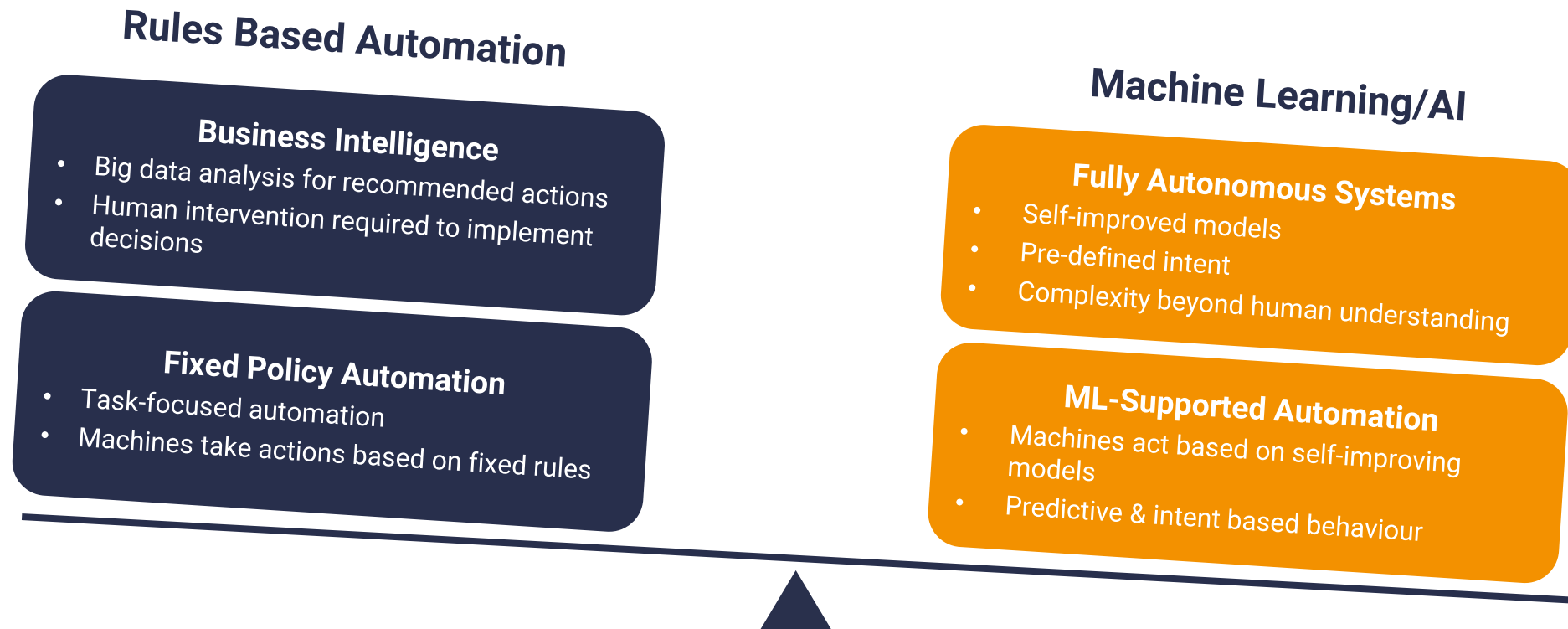- SLA risk modelling

In advanced analytics, there is a vast spread in tech maturity within the industry, each with vastly different needs

Requires significant support with getting data in shape

Sees AI/ML as a means for "quick wins" favouring simpler solutions e.g. RPA

May look to build significant capabilities in house

What telcos need

To identify a data management strategy and proven "quick win" use cases

Lacks data science expertise and are likely to outsource

Has invested in data management and requires AI "plug in" solutions

To identify the right partnerships to integrate and deliver new innovative systems

Level of digital maturity and/or ambition

They are largely however, unified in their ambition for advanced analytics capabilities e.g. machine learning and AI...

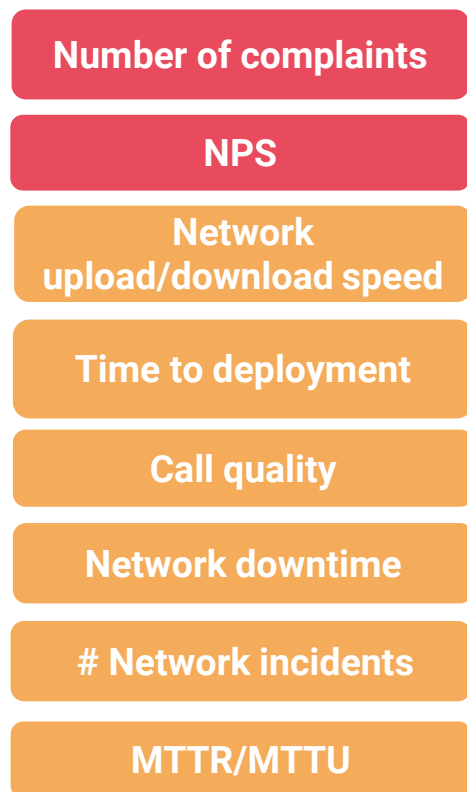**Most telcos tend to focus on more innovative use cases when speaking about analytics**

Rules Based Automation

Business Intelligence
- Big data analysis for recommended actions
- Human intervention required to implement decisions

Fixed Policy Automation
- Task-focused automation
- Machines take actions based on fixed rules

Machine Learning/AI

Fully Autonomous Systems
- Self-improved models
- Pre-defined intent
- Complexity beyond human understanding

ML-Supported Automation
- Machines act based on self-improving models
- Predictive & intent based behaviour

... often charmed by the potential benefits advanced analytics can bring e.g. in advanced network planning...

O2 Case Study: Using ML and network metrics to support process optimisation
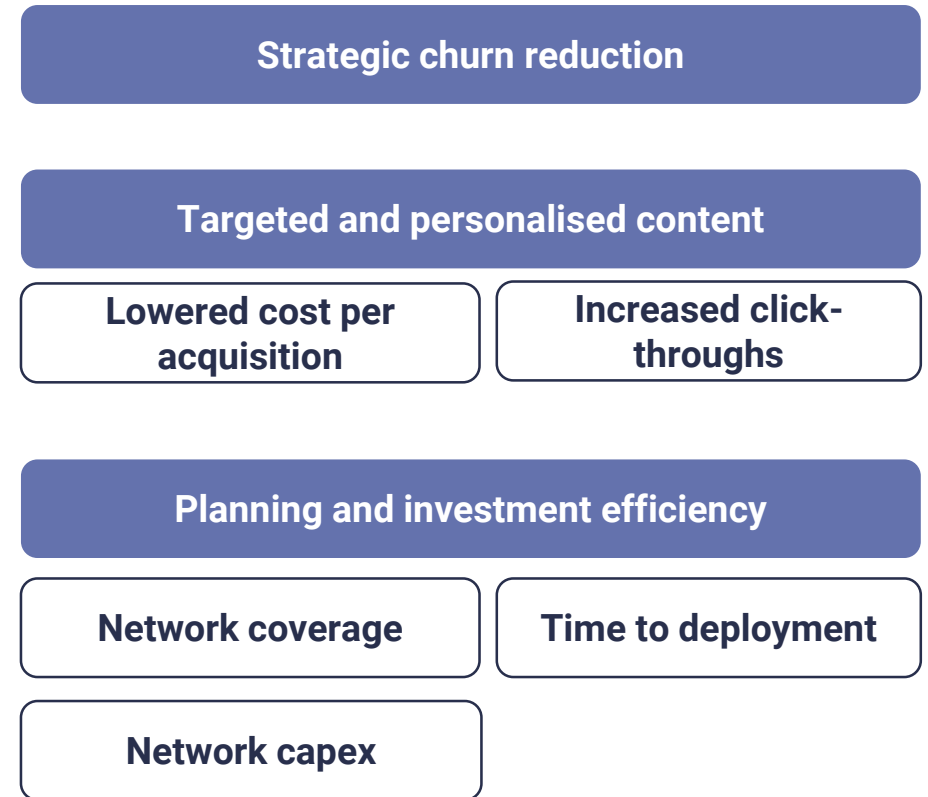
Network Metric Inputs

- Number of complaints
- NPS
- Network upload/download speed
- Time to deployment
- Call quality
- Network downtime
- # Network incidents
- MTTR/MTTU

Customer experience attributes

Network KPIs

Machine learning algorithm

Customer experience optimisation

Strategic churn reduction

Targeted and personalised content

Lowered cost per acquisition	Increased click-throughs

Planning and investment efficiency

Network coverage	Time to deployment

Network capex

See our case study on O2 UK and advanced analytics for more details

In reality, most telcos are much earlier in their journey and are primarily focusing on automation and advanced analytics

Where 99% of operator live deployments are…

Rules Based Automation

Business Intelligence

- Big data analysis for recommended actions
- Human intervention required to implement decisions

Fixed Policy Automation

- Task-focused automation
- Machines take actions based on fixed rules

Where 95% of operators aspire to be…

Machine Learning/AI

Fully Autonomous Systems

- Self-improved models
- Pre-defined intent
- Complexity beyond human understanding

ML-Supported Automation

- Machines act based on self-improving models
- Predictive & intent based behaviour

See our report on _Telecoms data analytics: Where's the real value_ for more details

There are 3 key challenges telcos must address before advanced analytics adoption will be more prevalent

Clean and unified data

The lack of alignment in data management processes lead to **out-of-date, inaccurate and incomplete** data sets

15% of interviewees cite data collection and management as their biggest challenge in leveraging data analytics

77% of interviewees cite data collection and management as a key issue

Skills and capabilities

Some telcos believe that **they lack the internal capabilities required** and, in some instances, **external partnerships were insufficient**

38% of interviewees cite they lacked the in-house capabilities to properly utilise their data

31% of interviewees cite that external capabilities were not up to the necessary standards

Culture

Creating a data-centric culture that is aligned from leadership all the way down is essential to **consistently deliver data driven processes**
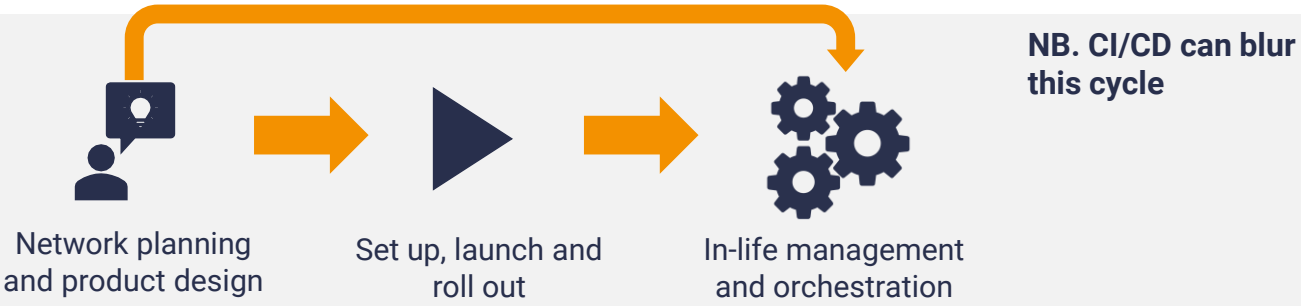
48% of interviewees list culture barriers as one of the biggest obstacles to wider analytics adoption
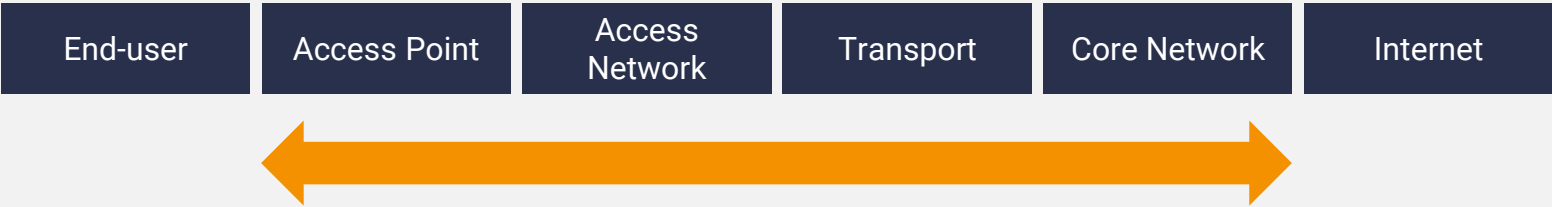
Similarly, in automation, the industry is fragmented both in how end-to-end network automation is defined

Perspective 1:
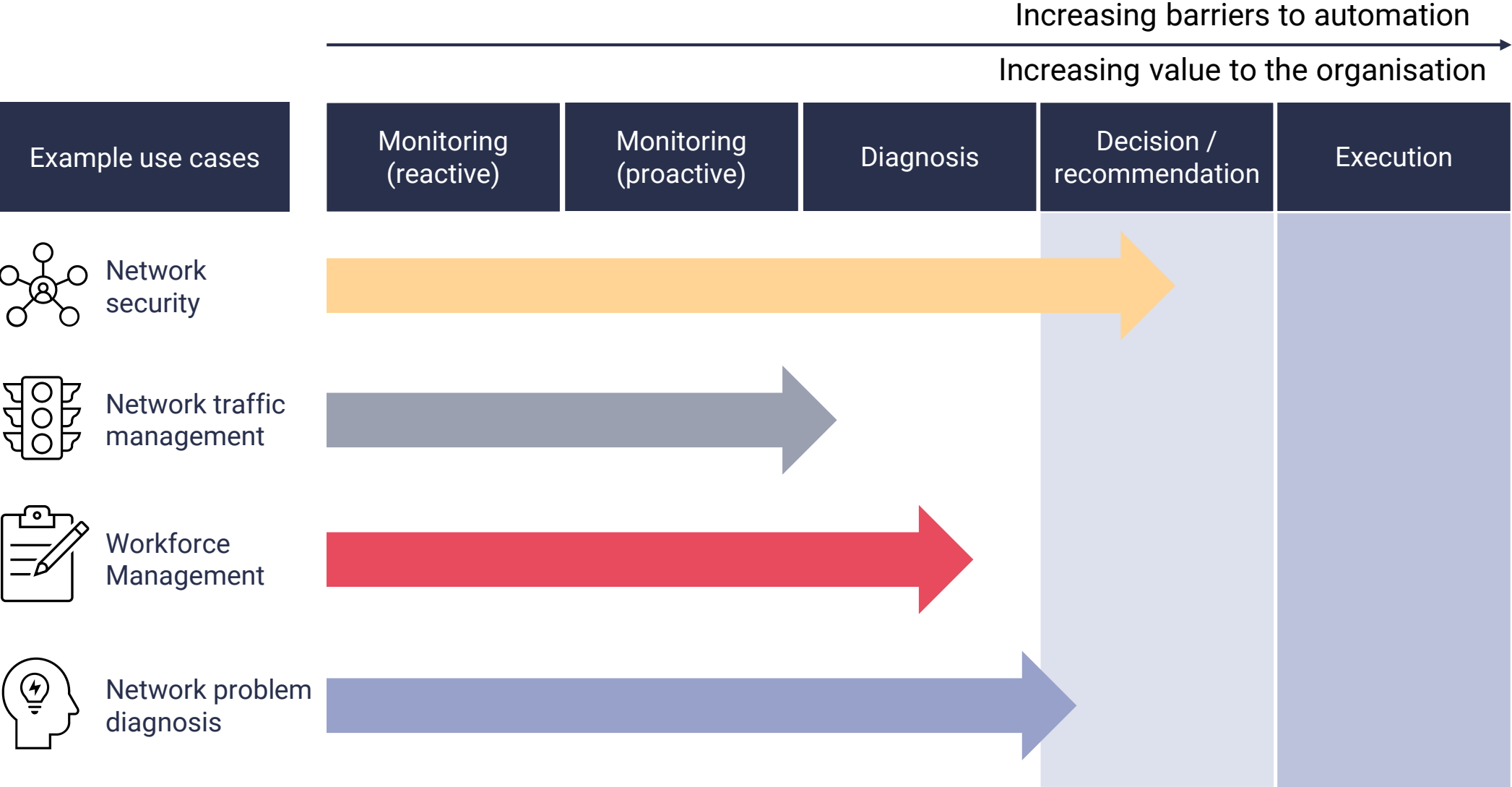Automation across the entire lifecycle of the network

Network planning and product design → Set up, launch and roll out → In-life management and orchestration

NB. CI/CD can blur this cycle

Perspective 2:
Automation across all the different network domains, from access to core

End-user	Access Point	Access Network	Transport	Core Network	Internet

Perspective 3:
Automation across the end-to-end customer experience

BSS

Service ordering → Order fulfilment → Service provisioning → Customer billing → Customer care

See our report on End-to-end network automation: Why and how to do it for more details   9

Many live automation use cases today still require human intervention due to cultural *and* technical barriers

Increasing barriers to automation →

Increasing value to the organisation

Example use cases	Monitoring (reactive)	Monitoring (proactive)	Diagnosis	Decision / recommendation	Execution
Network security					
Network traffic management					
Workforce Management					
Network problem diagnosis					

See our report on End-to-end network automation: Why and how to do it for more details

Though most telcos do believe automation of new and 'high cost' legacy areas provide the greatest value...

New deployments

- Many telcos have set mandate that all new stuff by default must be automated
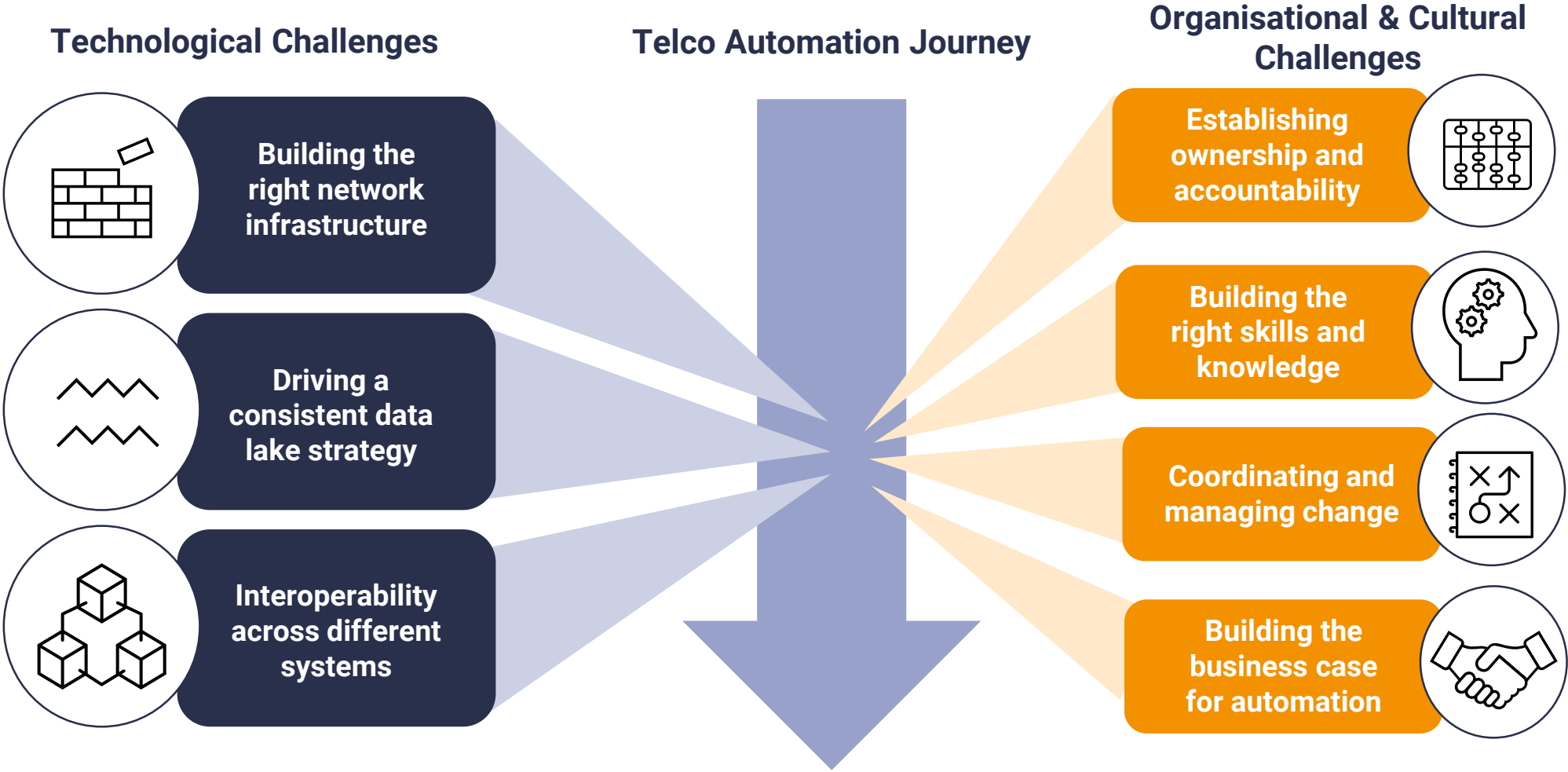- Increased ability to automate based on common blueprints and standards for future technology

Tackling biggest legacy burdens

- Heavy manual aspect and human intervention
- Prone to human errors
- Meeting immediate customer's requirements
- Heavy network opex and capex spend

Other areas of legacy

- Ringfenced prior to phase-out
- Legacy nearing end-of-life
- Seen as not worth investing into

...they face many types of challenges, both technical and organisational, that slow down automation efforts

Technological Challenges

- Building the right network infrastructure
- Driving a consistent data lake strategy
- Interoperability across different systems

Telco Automation Journey

Organisational & Cultural Challenges

- Establishing ownership and accountability
- Building the right skills and knowledge
- Coordinating and managing change
- Building the business case for automation

See our report on <u>End-to-end network automation: Why and how to do it</u> for more details

Tying all of this together, why must telcos address these challenges to adopt A³? And why now?

Staying ahead and relevant	Technology is maturing	Meeting expectations
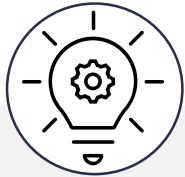
- Operators who want to innovate and **create value beyond connectivity** can leverage on operational savings from A³

- New capabilities e.g. 5G mean automation is built into design and bottom up. Without high-levels of automation, **next generation capabilities cannot be facilitated** e.g. network slicing

- **Newer technologies like AI and ML are developing** and increasing the telco network management and optimisation capabilities beyond the traditional means

- As **network are becoming increasingly virtualised**, and network functions become software, the vast amounts of data and available infrastructure mean more opportunities for A³
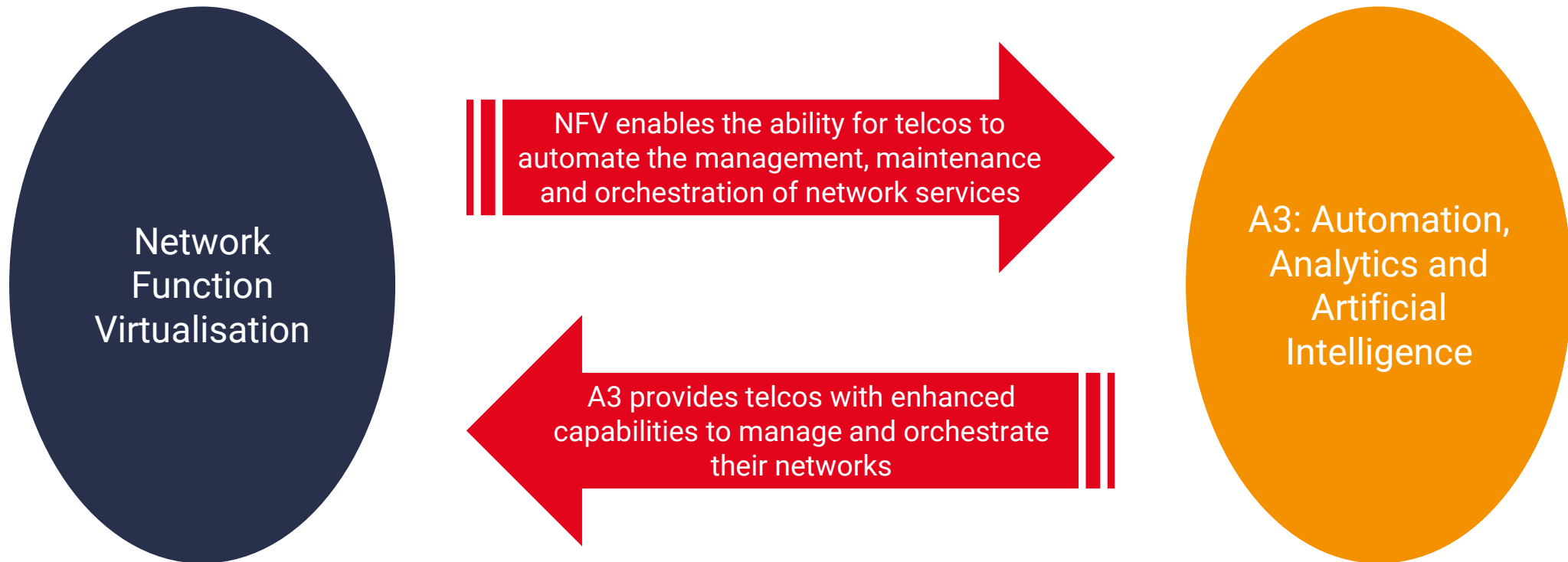
- Customers today expect the level of **speed, flexibility and accuracy** that can only be achieved in a cost-effective manner with high degrees of network automation

- There is an **expectation from external partners** that telcos must themselves be digitally transformed in order to support them in their journeys

Telcos who wish to offer differentiated value beyond connectivity and remain relevant in the market must act now

Network virtualisation opens up new A3 possibilities but A3 enhances telcos' capabilities to operate and manage networks

Network virtualisation, orchestration and automation come hand-in-hand:

The full potential of 5G and NFV/SDN cannot be realised without A3 but network virtualisation enables greater abilities for A3.

Network Function Virtualisation

NFV enables the ability for telcos to automate the management, maintenance and orchestration of network services

A3 provides telcos with enhanced capabilities to manage and orchestrate their networks

A3: Automation, Analytics and Artificial Intelligence

How can STL Partners can support you

An overview of our services

STL PARTNERS

STL Partners combines strategy research, agile consulting, and deep events experience to deliver results

Research

15 of the 25 top CSPs subscribe to STL's publications

Consulting

Our consulting team are trusted advisors on new service development to operators globally
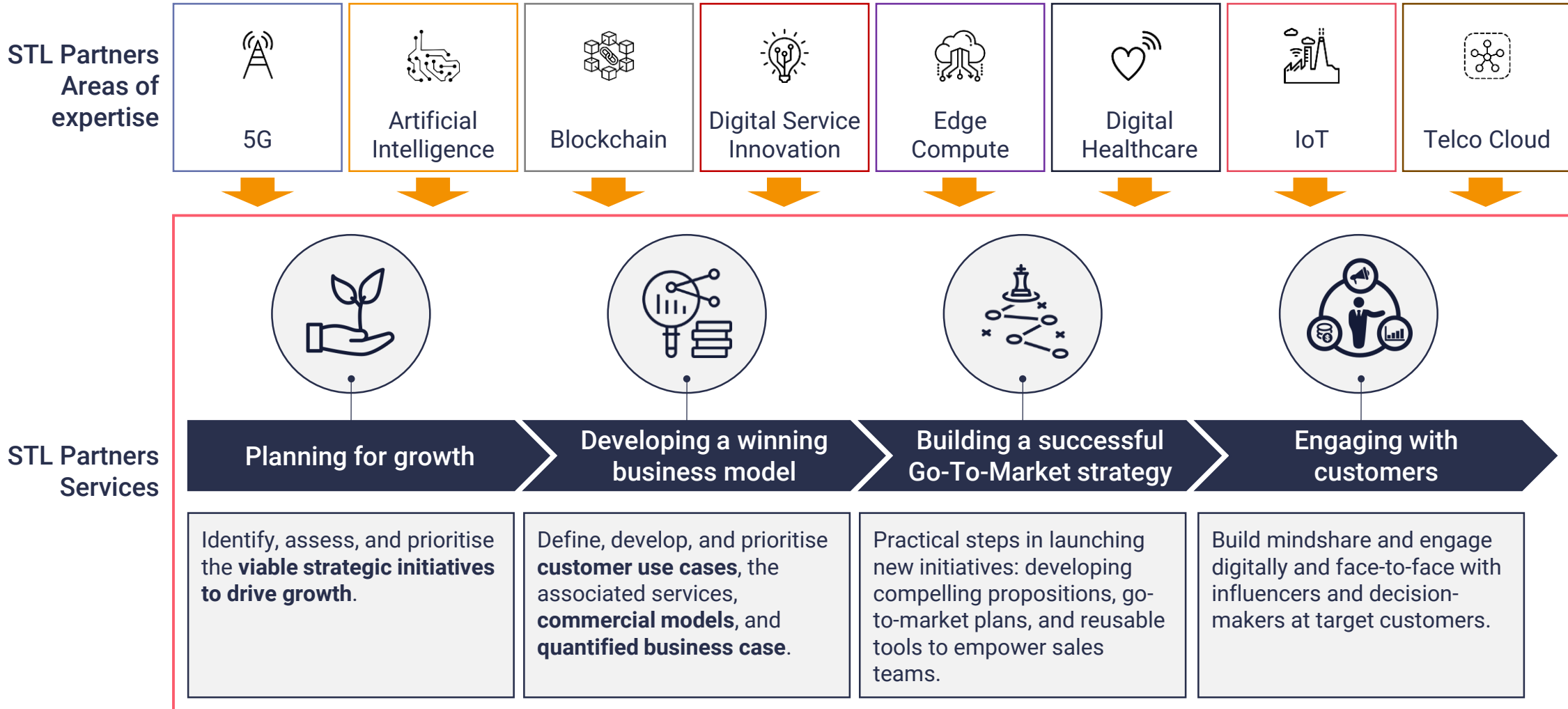
Events

We have a track record of running high value events for senior executives from CSP's

STL Partners advises companies to develop and execute a winning strategy in the Coordination Age

STL Partners Areas of expertise

| 5G | Artificial Intelligence | Blockchain | Digital Service Innovation | Edge Compute | Digital Healthcare | IoT | Telco Cloud |

STL Partners Services

Planning for growth	Developing a winning business model	Building a successful Go-To-Market strategy	Engaging with customers
Identify, assess, and prioritise the **viable strategic initiatives to drive growth**.	Define, develop, and prioritise **customer use cases**, the associated services, **commercial models**, and **quantified business case**.	Practical steps in launching new initiatives: developing compelling propositions, go-to-market plans, and reusable tools to empower sales teams.	Build mindshare and engage digitally and face-to-face with influencers and decision-makers at target customers.

This insight pack highlights one of our many Telco Cloud practice's areas of expertise

Our Telco Cloud Portfolio

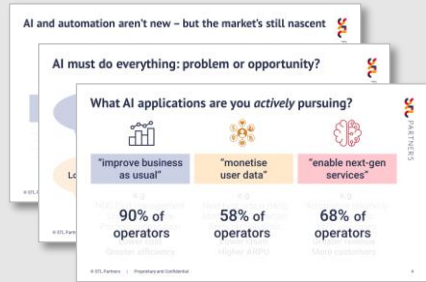| Network Function Virtualisation/ Software-Defined Networking | Open RAN | Automation, Analytics and AI | Telco Edge Computing | Private Cellular Networks |

Our research team at STL Partners has been publishing thought leadership on A³ for several years


TELCOS AND AI: WHAT IT WILL TAKE TO CREATE AN AI-DRIVEN TELECOMS INDUSTRY

THE VALUE OF ANALYTICS, AUTOMATION AND AI FOR TELCOS – PART 1: THE TELCO A3 APPLICATION MAP

NETWORK AI: STATE OF THE ART

TELECOMS DATA ANALYTICS: WHERE'S THE REAL VALUE?

THE FUTURE OF ASSURANCE: HOW TO DELIVER QUALITY OF SERVICE AT THE EDGE

END-TO-END NETWORK AUTOMATION: WHY AND HOW TO DO IT?

A3 FOR TELCOS: MAPPING THE FINANCIAL VALUE

ELISA AUTOMATE: GROWING VALUE WITH SISU

We also have extensive experience in working with and advising key players across the industry

**Helping a global technology company understand how SPs are and should make use of data analytics**
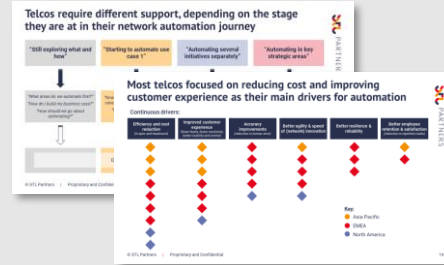
**Understanding the telco journey and challenges in achieving end-to-end network automation**
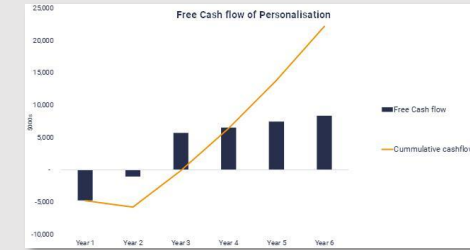
Building financial models to quantify the benefits of implementing telco AI and automation use cases
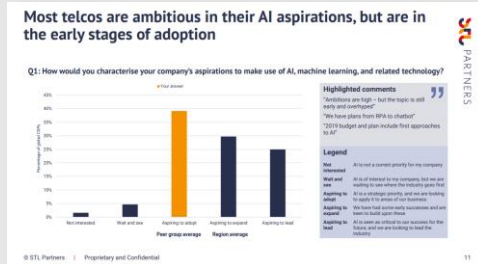
Evaluating the current state of AI in the telecoms industry and measuring telcos' AI maturity
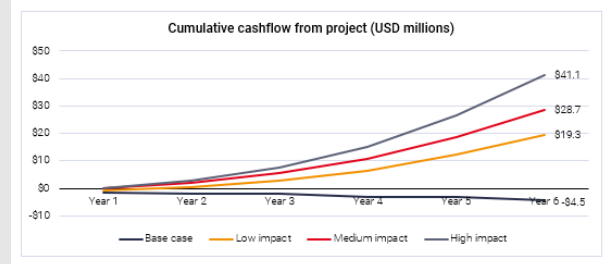
Quantifying the return on investment of advanced analytics on telco business models for a solution provider
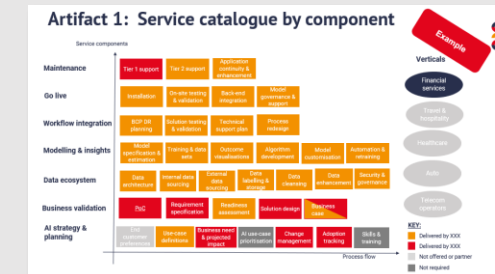
Facilitating a partnership between a global services company and a unified comms provider with AI capabilities

If you are interested in understanding how STL Partners can support you...

Contact us!

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Yesmean Luk, Telco Cloud Practice

yesmean.luk@stlpartners.com

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