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Executive Briefing

TRANSITIONING TO TECHCO IN APAC: PRIORITIES FOR SUCCESS

Telecoms operators globally are attempting to transition their business model towards a "technology company" centric approach, as they seek to grow revenues and change the foundation their network is built on. This report incorporates insights from primary research to uncover key lessons to accelerate this evolution.

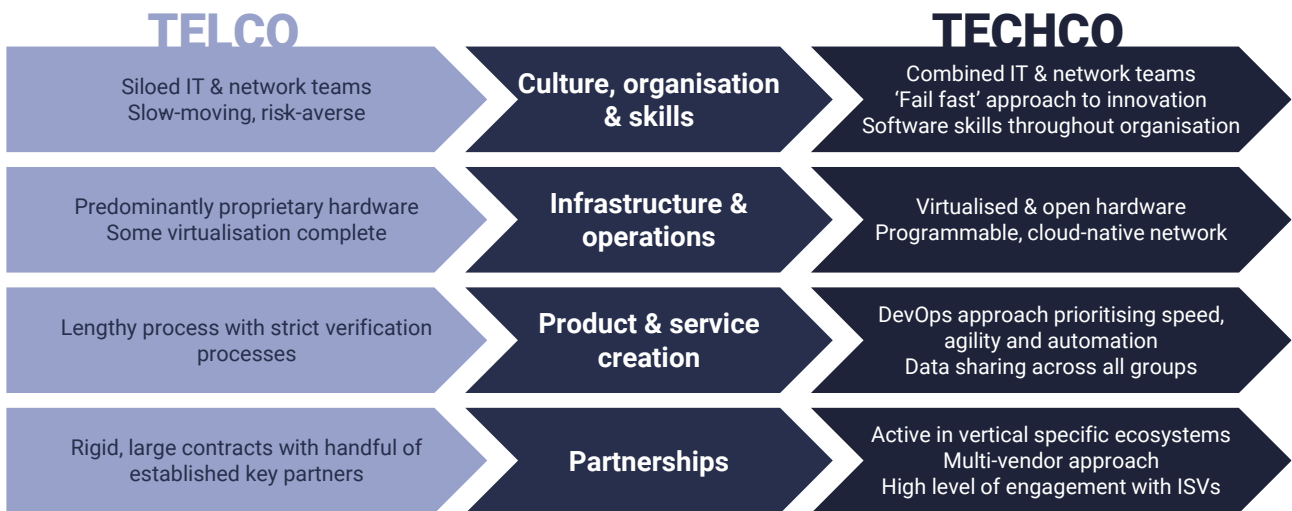Tim Otto, Consultant | tim.otto@stlpartners.com | July 2022

Executive Summary

Telcos have come under increasing pressure in the last 10-15 years, and now find themselves at an inflection point. The commoditisation of traditional telco services, large investment in 5G and other new technologies, plus the threat of new market disruptors places them in a precarious position. Their current busines model is unable to meet their customers' current and future needs.

For many telcos, moving towards a 'techco' model is the solution. This is about adopting the technologies, practices and processes that are akin to a successful technology business. It means becoming a more agile and open organisation that leverages software technologies to create a modular foundation on top of which they can innovate. This operating model is underpinned by a flexible, horizontal workforce and an ecosystem of partners, able to dynamically develop new products and services for customers.

Figure 1: Telcos are looking to move to a 'techco' model

TELCO		TECHCO
Siloed IT & network teams Slow-moving, risk-averse	**Culture, organisation & skills**	Combined IT & network teams 'Fail fast' approach to innovation Software skills throughout organisation
Predominantly proprietary hardware Some virtualisation complete	**Infrastructure & operations**	Virtualised & open hardware Programmable, cloud-native network
Lengthy process with strict verification processes	**Product & service creation**	DevOps approach prioritising speed, agility and automation Data sharing across all groups
Rigid, large contracts with handful of established key partners	**Partnerships**	Active in vertical specific ecosystems Multi-vendor approach High level of engagement with ISVs

Source: STL Partners

This research programme focused on telco to techco transformation in the Asia Pacific (APAC) region, interviewing eight telcos and surveying 66 individuals, supplemented by secondary research to construct a digital transformation index featuring over 30 telcos. This digital transformation index allowed us to measure the progress of these telcos in both internal capabilities (domains that are fully determined by the telco, e.g. implementation of telco cloud practices) and external capabilities (domains that are influenced by how telcos engage partners and customers, e.g. new services in edge computing). Figure 2 below shows how the telcos in the APAC region compared, and highlights a clear correlation in the two domains.

Five key areas where telcos must focus as they transform their business model

The telcos in this region are heterogenous – they are different sizes with different capabilities and facing different national circumstances. Depending on the existing characteristics of their organisation, telcos should develop a celar understanding of who their primary customers are, and what they want to provide for them as a horizontal network provider, and/or a vertical solution provider. Most telcos are prioritising this horizontal strategy, with only a third (31%) of our survey respondents stating that vertical solutions were their primary objective. However, we found that there are five key areas that telcos must prioritise when transitioning to a techco:

1. **Executive vision**. This clear vision starts from the top of the organisation. 46% of the remaining survey responses favoured horizontal technologies such as edge computing and private networks as the primary differentiator between success and failure in B2B, while a further 23% felt traditional connectivity would remain an important driver in the medium-term. Without consensus within an organisation, with a clear ambition laid out for the direction and purpose of the new structure, CSPs will struggle to establish a new culture which fosters innovation and agility.

2. **Operations and organisation**. Instilling an entrepreneurial mindset which gives greater responsibility to key individuals within the business. This also includes removing legacy siloes, building software skills, and shifting to dynamic product development where data is constantly flowing between IT and network domains. One of the most advanced operators we spoke to in JPC described a centre of automation established to create the standards by which the whole organisation could install automation into their processes. This group also provides the blueprints for integration with partners, accelerating the onboarding journey, and ensuring automation is a priority for the product development teams. Not all CSPs have the internal skills to create such a group, highlighting the need for intense upskilling programmes which enable to existing workforce to operate with new technologies.

3. **Ecosystem-led approach**. Building ecosystems of partners to augment expertise and provide exposure to a greater range of solutions and innovations, allowing telcos to capture an important portion of the B2B opportunity. Established examples such as Singtel's Amobee advertising ecosystem offer lessons to other CSPs in how to prioritise a specific vertical and create value for customers through an integration of telco capabilities with industry-specific technologies. Amobee is part of Singtel's Group Digital Life unit which analyses adjacent industries to establish where telco capabilities can best be leveraged to create valuable solutions for enterprise customers, thereby creating new revenue streams for the CSP. This approach ensures the CSP focuses on one to three verticals, even when adopting a horizontal strategy, to provide enough resource to gain the prerequisite expertise needed for a vertical solution.

4. **Multi-vendor technology**. Transitioning to a cloud-native, open architecture within the core technologies, collaborating with ISVs and NEPs. For the majority of CSPs in APAC, multi-vendor systems remain a nice-to-have, with only 12.5% currently running them in their network stack. For today, deployment of the 5G stand-alone network infrastructure remains the priority for most

CSPs and, alongside it, network automation. Automating network operations was considered the highest priority for automation by 38% of survey respondents.

5. **KPIs**. Changing KPIs so that they use new metrics which measure progress in a different way and ensure transformation objectives are achieved. One operator we spoke to discussed their transition to KPIs which emphasise the agility of the organisation. These included how many base stations they can bring online in a single day, how fast they are able to run security patching, how fast they can turn a blueprint into preproduction and commercial deployment, ticket reduction per week, etc. Traditional operators use upload and download speed as their major KPIs, but this movement toward a prioritisation of speed and agility reflects the needs of enterprise customers.
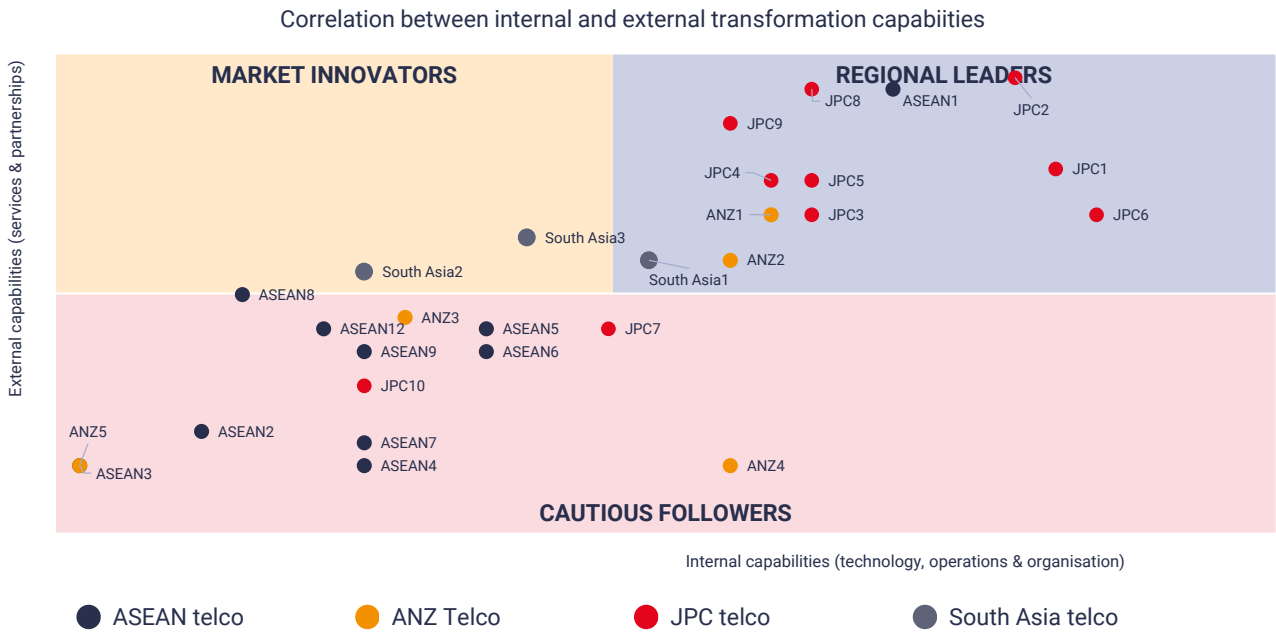
We segmented the region into three profiles based on the CSP's score in both of the categories outlined above. Depending on the profile it fits, a CSP will have different priorities when it comes to their digital transformation, with more advanced operators focusing on developing new solutions and technologies, while others will remain preoccupied with infrastructure development and connectivity.

We define the profiles as follows:

- **Regional leaders**: Operators who are at least two years into their 5G roll-out and already have a significant B2B business, now developing new products and services, and ahead of the curve when it comes to building the internal capabilities to support these.

- **Market innovators**: Operators in this group are more advanced than Cautious followers when it comes to their external capabilities and therefore likely pushing to bring new services to their individual markets.. This may be because they have a strong brand within their markets and have a unique right to play, pushing them forward to engage partners and customers effectively and take a leading role in their country to drive digital transformation. Despite this, most are yet to build the internal capabilities of a techco Few APAC operators fit here.

- **Cautious followers**: These operators are still very focused on traditional telecoms services and are yet to start engaging customers and partners, some of whom will be application developers, in a techco manner. Their progress on internal capabilities varies, but they are generally lagging the Regional Leaders.

Mapping all 32 CSPs onto a matrix of their internal and external capabilities clearly shows the strength of Japan, South Korea, and China (JPC) as a subregion. More densely populated urban areas combined with technological prowess has enabled CSPs within this area to cloudify their network and deploy 5G at a faster rate, with many of them now actively turning to the enterprise opportunity as a primary focus. These operators are investing in private networking, on-prem and network edge compute capabilities, and installing a horizontal and dynamic organisational structure. Some of the most advanced are already working with an established enterprise and vendor ecosystem to provide commercial solutions.

Figure 2: Regional leaders are furthest ahead in digital transformation, excelling across both internal and external capabilities

Correlation between internal and external transformation capabilities

MARKET INNOVATORS

REGIONAL LEADERS

JPC8 ASEAN1 JPC2

JPC9

JPC4 JPC5

ANZ1 JPC3

JPC1

JPC6

South Asia3

South Asia2

ANZ2

South Asia1

ASEAN8

ASEAN12 ANZ3 ASEAN5 JPC7

ASEAN9 ASEAN6

JPC10

ANZ5 ASEAN2

ASEAN3 ASEAN7

ASEAN4 ANZ4

CAUTIOUS FOLLOWERS

External capabilities (services & partnerships)

Internal capabilities (technology, operations & organisation)

● ASEAN telco   ● ANZ Telco   ● JPC telco   ● South Asia telco

Source: STL Partners APAC Transformation Index (using publicly available information)

# Table of Contents

Table of Figures

Foreword

The document has been prepared by independent consulting and research firm STL Partners and commissioned by Red Hat® and Intel Corporation.

STL Partners maintains strict editorial independence. Mentions or allusions to companies or products in this document are intended as illustrations of market evolution and are not included as endorsements or product/service recommendations.

This report leverages findings from an extensive research programme conducted in APAC, including interviews with 8 different CSPs and a survey with 66 responses from CSPs across the region. This research explored the digital transformation achievements and ambitions of CSPs across the APAC region.

Figure 3: Regional spread of survey responses
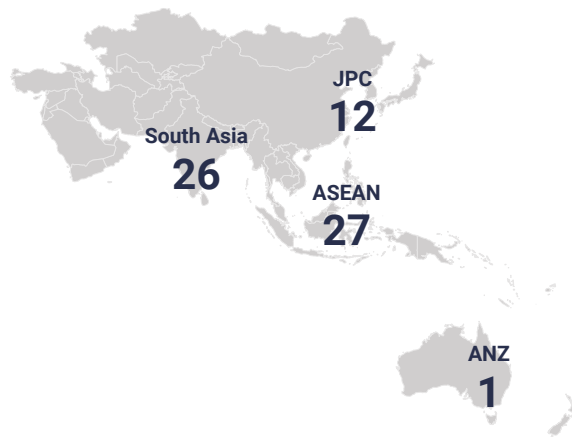
We also conducted a large amount of secondary research, attempting to score CSPs on their progress in certain domains (5G, edge, telco cloud, organisation & operations, partnerships). The following operators were included, however the index is ever-evolving and new ones may have been added since publishing this report:

- Singapore: SingTel
- Thailand: True Telecom, DTAC, AIS
- Malaysia: Digi, Celcom Axiata, Telekom Malaysia, Maxis
- Indonesia: Telkomsel
- Philippines: Globe Telecom, PLDT
- Australia: Telstra, Optus Mobile
- New Zealand: Spark New Zealand, Vodafone New Zealand, Two Degrees

- South Korea: KT Corp, SK Telecom, LG UPlus
- India: Bharti Airtel, Vodafone Idea, Reliance Jio
- Japan: KDDI (au), NTT Docomo, Rakuten, Softbank Corp
- China: China Mobile, China Telecom
- Hong Kong: PCCW Hong Kong (HKT)
- Brunei: DST
- Pakistan: Zong, Jazz

What does telco transformation look like in 2022?

5G is a trigger for transformational change

Over the past 10-15 years, the telco business model has come under pressure as infrastructure and services have become increasingly disaggregated. Globally, telcos are at an inflection point due to:

- Heavy investment in (further) 5G development and deployment, now demanding a return on investment;

- Innovation in the networks – particularly in moving towards software-defined, cloud-native network and IT;

- Threat of hyperscalers whose presence and interest in telecoms is growing;

- Commoditisation of voice, messaging and data services consumer market and diminishing returns on network innovation;

- Potential growth of B2B enterprise services due to 5G, edge computing and private networking.

The investment in 5G is providing the telecoms industry with a catalyst for change, as it forces change across businesses, while presenting opportunities for revenue growth. However, the pressure for telecoms operators to deliver on this is also significant.

Telcos are looking to transition to techcos

The traditional telco model has historically resulted in a close relationship with the NEPs and the outsourcing of services innovation to third-party ISVs who manage the creation of new applications that make use of the underlying connectivity infrastructure.

STL Partners defines a "techco" as an agile and open organisation that leverages software technologies to create a modular foundation to innovate on top of. Its operating model is underpinned by a flexible, horizontal workforce and an ecosystem of partners to dynamically develop new products and services for their customers. The "techco" formula is based on lessons from the most disruptive telecommunications organisations on how they have achieved success in transforming their model, with an eye to the internet players and hyperscalers and their internal measures of success. Moving away from traditional KPIs towards the measurement of speed and agility ensures the organisation is adaptable – the hallmark of a strong technology company.

We have identified a framework articulating the key areas telcos must focus on as they look to transition to a techco:

Figure 4: Telco to techco factors

TELCO		TECHCO
Siloed IT & network teams Slow-moving, risk-averse	**Culture, Organisation & Skills**	Combined IT & network teams 'Fail fast' approach to innovation Software skills throughout organisation
Predominantly proprietary hardware Some virtualization complete	**Infrastructure & Operations**	Virtualised & open hardware Programmable, cloud-native network
Lengthy process with strict verification processes	**Product & Service Creation**	DevOps approach prioritizing speed, agility and automation Data sharing across all groups
Rigid, large contracts with handful of established key partners	**Partnerships**	Active in vertical specific ecosystems Multi-vendor approach High level of engagement with ISVs

Source: STL Partners

APAC is a heterogeneous region, but CSPs have similar goals

This research focused on the APAC region, which is extremely diverse, but can generally be divided into 4 sub-regions:

- JPC (countries such as Japan, South Korea and China)

- ANZ (Australia and New Zealand)

- ASEAN (Association of Southeast Asian Nations, including Singapore, Indonesia, Thailand and Malaysia)

- South Asia (countries such as India, Pakistan and Sri Lanka)

Operators are at different stages of deploying 5G across these sub-regions. Those in JPC are advanced in their deployment of network automation and 5G, having started with the densely populated urban areas to launch 5G services as early as 2018. Operators in ANZ, such as Telstra in Australia, also boast strong 5G coverage. Other geographies, particularly in ASEAN and South Asia, are currently still improving LTE networks or, in some cases, starting to make 5G spectrum available and rolling it out.

Figure 5: Current status of LTE/5G roadmap in APAC (as of April 2022)
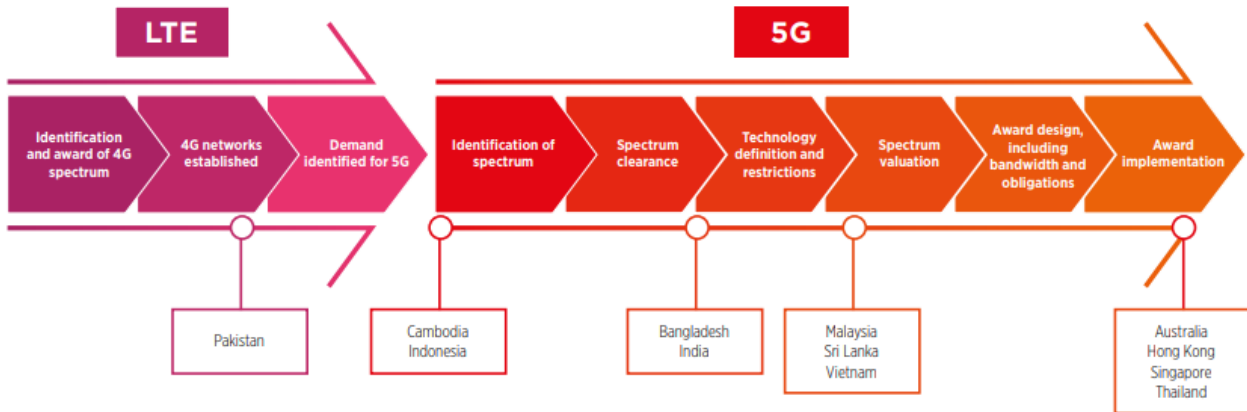
Despite the diversity within the region, 49% of all telecoms operators who participated in our survey stated a clear focus on growing revenues through their 5G and edge strategy.

Figure 6: The majority of telecoms operators in APAC are looking to grow revenues or serve new customers

What would you say is your primary business objective for your 5G and edge strategy?

- Serving new enterprise customers **17%**
- Reducing operational costs **3%**
- Reducing capital expenditure **1%**
- Maintaining / growing market share **20%**
- Increasing agility **12%**
- Growing revenues **47%**
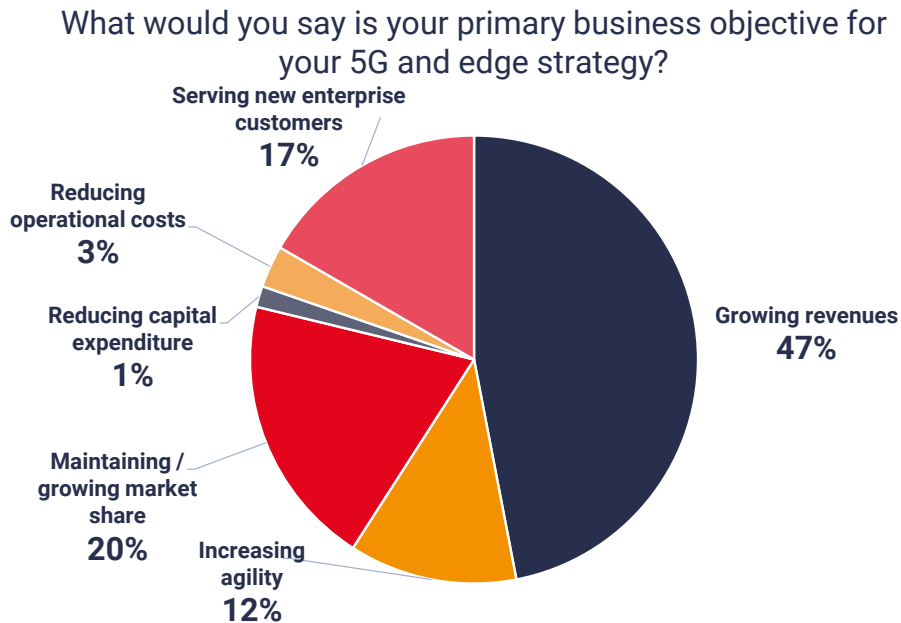
Most CSPs in the region see this revenue growth (in the B2B sector) coming from outside their core, traditional telecoms services, with only 5% of respondents believing traditional connectivity would be the main revenue driver on the B2B side for the next 3 years.

Figure 7: APAC operators believe the main drivers for B2B revenue growth will come from outside network services

Which areas do you think will be the main drivers for revenue growth in B2B for your organisation within the next 3 years?

Vertical solutions for specific industry sectors
21%

Moving into new value chain segments e.g. systems integration, managed services
22%

Traditional connectivity (and related services, e.g. security, managed services)
8%

New horizontal, technology-based products and services e.g. edge computing, private networks
35%

Opening the network as a service for 3rd party applications, e.g. network slicing
14%
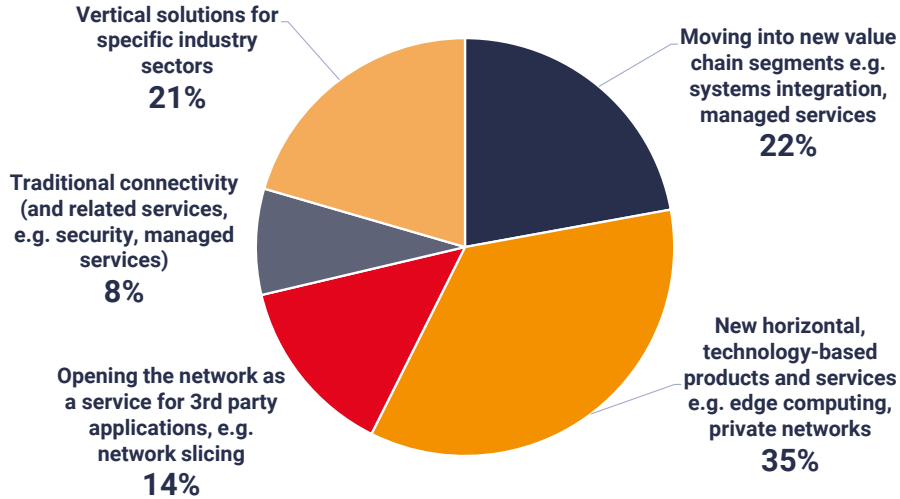
Source: Survey conducted by STL Partners, N=66

This is why telcos must therefore move towards becoming techcos; their business models need to change to support the future solutions and services they want to take to market. This includes moving away from a "cost-plus" mindset and looking to leading technology companies for lessons on how to better structure their organisation, reform operations, and optimise technology to ensure growth and better margins. There is no one size fits all, but operators can leverage common learnings and apply them to their business model to increase their chances of success.

This report explores the progress telcos in APAC are making towards a roadmap that moves away from the traditional telco model, transitioning into a modern techco.
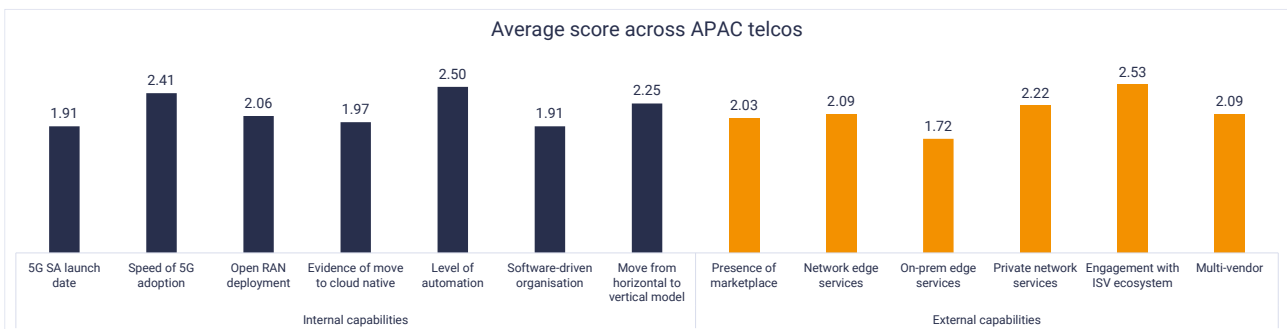
APAC transformation: state of play today

In order to assess the progress of this digital transformation to a techco in Asia Pacific, STL Partners has created an index of 13 key metrics that measures a range of capabilities from telcos' speed of rolling out 5G, to levels of automation within the business, to edge computing deployments and services. Detail on the methodology and how these are defined can be found in the Appendix.

The metrics can be divided into 2 categories:

7. **Internal capabilities**: domains that are fully determined by the telco, for example its 5G roll-out, implementation of telco cloud, changes in organisation and operations, etc.

8. **External capabilities**: domains that are influenced by how telcos engage partners and customers, for example new services in the edge computing and private networks space.

Figure 8: APAC telcos' transformation measured by these 13 internal and external metrics

Average score across APAC telcos

Internal capabilities:
- 5G SA launch date: 1.91
- Speed of 5G adoption: 2.41
- Open RAN deployment: 2.06
- Evidence of move to cloud native: 1.97
- Level of automation: 2.50
- Software-driven organisation: 1.91
- Move from horizontal to vertical model: 2.25

External capabilities:
- Presence of marketplace: 2.03
- Network edge services: 2.09
- On-prem edge services: 1.72
- Private network services: 2.22
- Engagement with ISV ecosystem: 2.53
- Multi-vendor: 2.09

Source: STL Partners APAC Transformation Index (using publicly available information)

The APAC market is diverse and difficult to generalise. Looking at the averages within sub-regions highlights some minor differences; ASEAN and South Asian operators lag slightly on internal capabilities. This is unsurprising given the early stages of 5G availability in these markets, plus end-customers' maturity in adopting new technologies (i.e. enterprise customers). The JPC market clearly contains many of the leaders in the region, reflecting much larger, more advanced countries.

Figure 9: The 5G-mature JPC market has allowed operators to make more progress

Comparison of average sub-region index scores
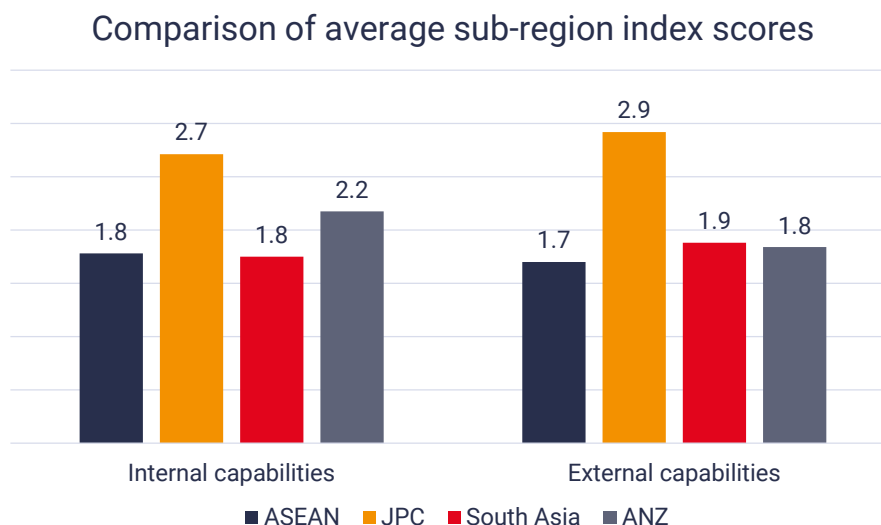
Source: STL Partners APAC Transformation Index (using publicly available information)

However, there are trends seen by looking at the individual operators' results. Overall, there is clear correlation between internal and external capabilities; operators tend to try and progress both types as they advance. Across the APAC region, we are able to identify three groups of operators (see **Error! Reference source not found.**):

9. **Regional leaders**: Operators who are likely at least 2 years in their 5G roll-out and already have a significant B2B business, now developing new products and services and are ahead of the curve when it comes to building the internal capabilities to support these.

10. **Market innovators**: Few APAC operators fit here but this group is categorised as being ahead in external capabilities and likely pushing ahead to bring new services to their individual markets but are yet to build the techco internal capabilities. This may be because they have a strong brand within their markets and have a unique right to play, pushing them forward to engage partners and customers effectively and take a leading role in their country to drive digital transformation.

11. **Cautious followers**: These operators are still very focused on traditional telecoms services and are yet to start engaging customers and developers in a techco manner. Their progress on internal capabilities varies, but are generally lagging the Regional Leaders.

Figure 10: Regional Leaders are furthest ahead when it comes to digital transformation, excelling across internal and external capabilities

Correlation between internal and external transformation capabilities
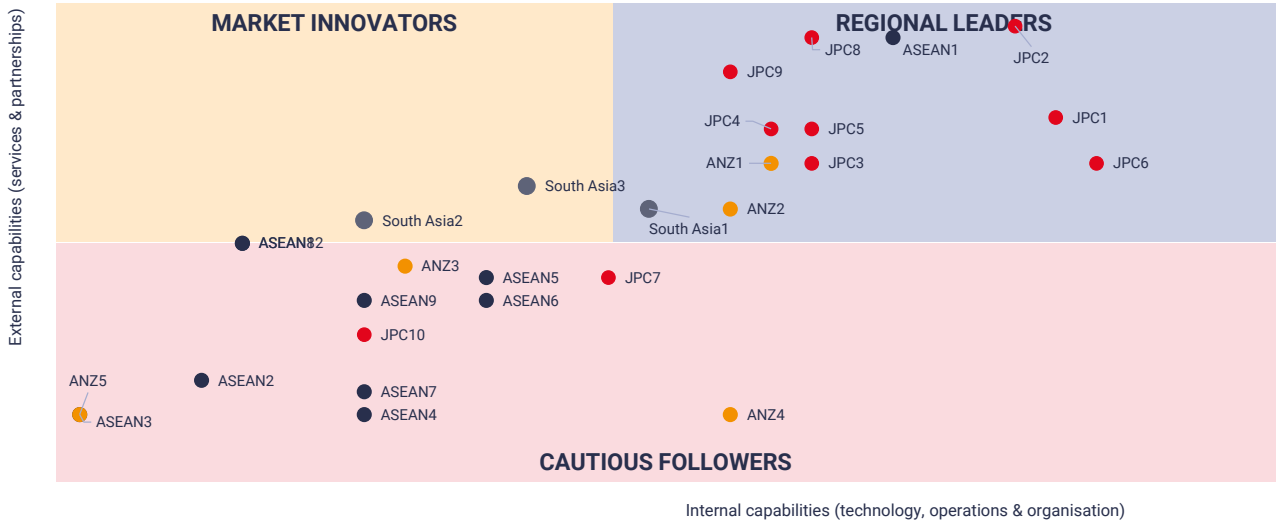
Source: STL Partners APAC Transformation Index (using publicly available information)

Five priorities in building a "techco" business

To achieve a seamless transition from the legacy model towards a disruptive techco roadmap, there are several steps that telcos can make to position themselves to exploit the opportunities this presents. Regardless of the ultimate goal of the CSP – whether it wants to provide horizontal platforms, become more specialised in an industry vertical, or provide reliable connectivity as before – there are core foundations that telcos should be looking to transform.

In this section we outline 5 key areas where telcos can change their model to become more of a techco:

- **Clearly defined end-goal**: starting from the top of the organisation, defining how it seeks to identify itself and grow in the future

- **Operations and organisation**: instilling an entrepreneurial mindset which gives greater responsibility to key individuals within the business;

- **Ecosystem approach**: building ecosystems of partners to augment expertise and provide exposure to a greater range of solutions and innovations, in particular to provide industry-specific services to verticals;

- **Multi-vendor technology**: transitioning to a cloud-native, open architecture within the core technologies, collaborating with ISVs and NEPs;

- **Changing your KPIs**: using new metrics to measure progress and ensure transformation objectives are achieved.

1. Telcos must set clear end-goals to define their transformational objectives

For a CSP to successfully transform their organisation, they must first decide on their end-goal – what role do they want to play in the new digital solution value chain? As the consumer market becomes increasingly commoditised, telcos will turn their attention to B2B and their strategy here will define the subsequent digital transformation required to deliver the new business model.

We asked survey respondents what business areas would drive their enterprise revenue over the next three years to understand how telcos believe they will harness the B2B opportunity. Approximately 30% of respondents selected horizontal, technology-based products (private networks, edge computing, etc.) as the primary driver of the B2B business opportunity. The rest of the responses believed the telco should either focus on an integration, managed services role, a provider of traditional connectivity, or moving into B2B solutions focused on industry verticals.
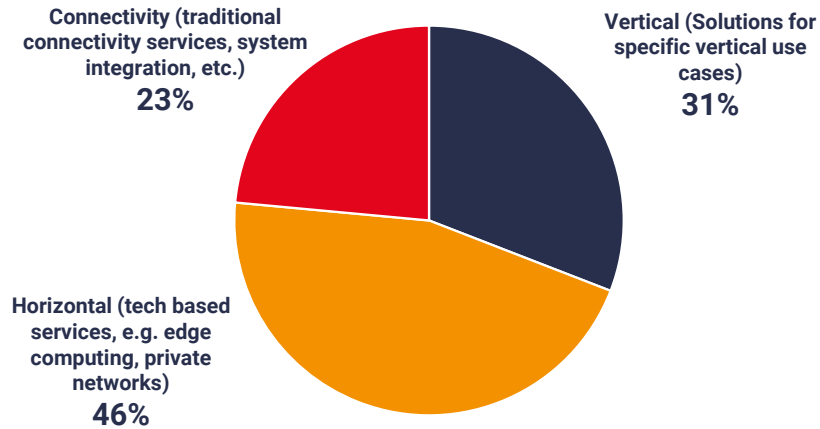
We aggregated these business area responses into three primary business models: Vertical platforms and solution providers, Horizontal platform players, and Connectivity players. Depending on how they are expecting to achieve the goal of growing revenues, telcos can broadly fit into one of these three

categories. Improving revenue margin and further digitalising is the objective for all models, but the roadmap for each – the steps which must be taken in order to achieve success – differ from model to model.

Figure 11: Operators are pursuing three different business models

What areas will drive revenue growth in B2B for your organisation within the next 3 years?

Connectivity (traditional connectivity services, system integration, etc.)
23%

Vertical (Solutions for specific vertical use cases)
31%

Horizontal (tech based services, e.g. edge computing, private networks)
46%

Source: Survey conducted by STL Partners, n = 66

Of the 49% who responded to our survey stating that growing revenues was their primary goal, there was clear confusion around how this would be achieved. Throughout the survey, this confusion can be seen through the contradiction within individual responses, with some stating that their organisation should focus both on connectivity services and highly vertical solutions. As Figure 11 shows, 60% of respondents provided opposing answers when asked what would drive B2B revenues. It is telling that respondents in the majority of cases were unable to provide an aligned view as to their organisation's strategy.

Figure 12: Responses in the survey showed a lack of a clear strategy for many CSPs

How many operators responding to the survey were consistent in
how they see their organisation driving revenues?

■ Consistent   ■ Inconsistent
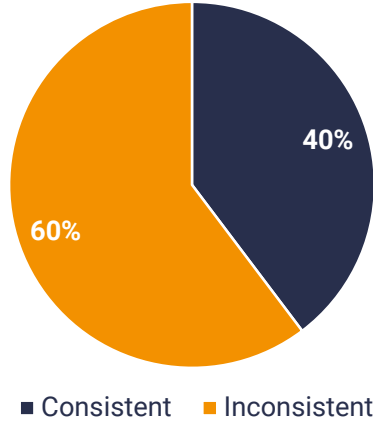
Source: Survey conducted by STL Partners, n = 66

The confusion surrounding the best course to establish new revenue streams depicts the lack of a coherent vision the telcos have for their future. Telcos need to first understand their end-goal, articulating the characteristics of their future organisation before they can create a clear roadmap which they can use to achieve this transformation.

This vision comes from the top down, from the C-suite to the operational teams. Mukesh Ambani articulated Jio's desire to create digital connectivity to the Indian population, focusing on horizontal platforms as they leverage their position as a conglomerate. This need for top-down guidance is reflected in our survey, where 41% of respondents felt they needed stronger executive vision to achieve their digital goals.

Figure 13: There is demand for stronger executive vision, regardless of the business model

What steps do you think your organization should take to better facilitate
digital transformation?

Clearer executive vision showing a desire to innovate and foster a culture	Better coordination between networks/technology and business owners	Better engagement with external stakeholders, e.g. ISVs, vendors, enterprises, government, etc.	Greater financial resources dedicated to transformation and innovation	Dedicated transformation business units	Reskill workforce through training or new hires	Acquiring companies with the right expertise
22	12	8	6	4	3	1

Source: Survey conducted by STL Partners, n = 66

2. Operations & organisation: removing legacy siloes, building software skills, and shifting to dynamic product development

To move to platform-based business models, technology becomes integral to product and service innovation. This requires a change from an organisational structure that separates networks and product; today, the majority of product innovation is in packaging and pricing consumer tariffs, with these teams taking the network as a given. A techco must be able to leverage the underlying assets to create innovative products and services that differentiate based on technology superiority.

A key part of the transition to cloud-native will be to ensure the huge investments in technology are taken advantage of. The challenge with the virtualisation journey the last 5+ years is that it primarily focused on replacing appliances with COTS hardware, however the supporting operational processes remained largely untouched. Now, telcos in APAC want to be able to control and manage the network, making use of the benefits that come with open network platforms. The challenge is that these networks require new skills – software skills – and telcos are struggling to obtain these quickly enough. This is partly a function of individual markets; certain markets within the APAC region, outside of China and India, have limited supply of software engineers. In addition, telcos have to compete with large technology companies and innovative start-ups for talent. This puts more pressure on internal initiatives, e.g. upskilling the workforce through training programmes, to meet similar outcomes.

CSPs can drive faster, more disruptive growth by implementing an agile horizontal teams where individuals can work across multiple groups instead of being isolated to specific siloes. On top of this, CSPs should be using new KPIs for product development prioritising agility and speed over traditional metrics around performance and reliability. This should be in parallel to removing legacy siloes and ensuring stakeholders are given more responsibility across the organisation. Developing horizontal

business units focused on innovation enables learnings to filter throughout the CSP and accelerates transformation.

We spoke to an operator in Japan who has used a completely different operating model to managing its network and ensuring continuous innovation:

- A centralised automation group, articulating core principles for integrating automation throughout the technology stack and operational processes;

- Non-standard KPIs around network deployment agility, edge deployments per day, RAN base station uplink speed, conversion of managed operations into automated processes;

- Upskilling programmes to develop engineers with end-to-end product oversight.

Figure 14: This JPC operator has implemented a new operating model for managing networks and IT
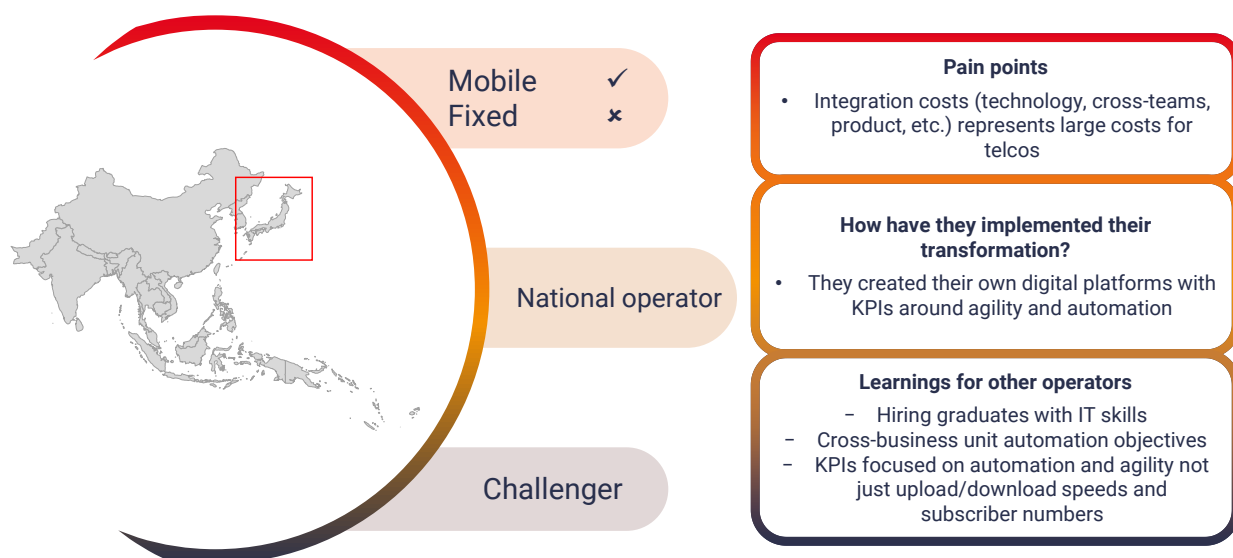
Source: STL Partners

An integral element of its cultural strategy is the implementation of an entrepreneurial mindset throughout groups, providing leaders with more autonomy to own their budget and product development timelines. Enabling them to function like a start-up gives them the ability to disrupt traditional technology timelines and take greater risks than larger, more bureaucratic teams which have historically stalled telco innovation.

Although this CSP has focused on hiring as many new graduates as possible, the challenge facing the industry at large is the scarcity of these individuals. Current network engineers often struggle to easily adopt automated processes, meaning there is a skills gap throughout the telco organisation. This operator has focused on giving responsibility to software engineers to develop and build the network platform, giving them end-to-end visibility across the whole solution lifecycle, transforming their position from network lead to product manager.

> "Eventually you want someone to be responsible for the whole stack…for us, the engineering and operations teams own what they have built and they own the KPIs and this is how we build and grow expertise
>
> *Head of Product Development, JPC CSP*

Other operators looking to transform their operations and organisation to that of a techco should look to:

- Create horizontal, internal teams with agile workers moving across teams, sharing insights and expertise;

- Transition toward KPIs which prioritise agility and speed of development over reliability and performance;

- Focus on upskilling the existing workforce, giving particularly strong stakeholders greater responsibility and autonomy to develop and manage their own solutions.

3. Ecosystem: building partnerships in new industries

In the past, telcos have focused on developing deep relationships with the NEPs. These relationships are often exclusive and last many years, locking the telco into the innovation cycles of said partner. CSPs are beginning to explore an ecosystem model, working with a larger group of ISVs / OEMs / SIs, as well as the traditional NEPs to allow for solutions that are built on best-of-breed components. To ensure this is successful, partners and telcos must get used to using more open platforms that allow flexibility, but are easy to integrate with others' offerings.

This model is particularly powerful when customer needs are changeable, their budgets limited, and time-to-market is shorter than in traditional markets. As customers demand ever more specific requirements on their network, an ecosystem approach allows the telco to produce the environment for the customer to provision their own service, an area our survey respondents highlighted as a key area to implement greater automation (21% stated this was an area their organisation should prioritise automation).

As seen in Figure 6, telcos in APAC are looking to generate revenues outside connectivity. Many are hoping this will come from horizontal platforms that serve multiple industries, such as 5G (network slicing) or edge computing/MEC platforms. This requires strong platform capabilities and the ability to scale quickly. Others are looking to specialise in a small number of vertical sectors and build end-to-end solutions that leverage connectivity technologies but allow telcos to move much higher up the

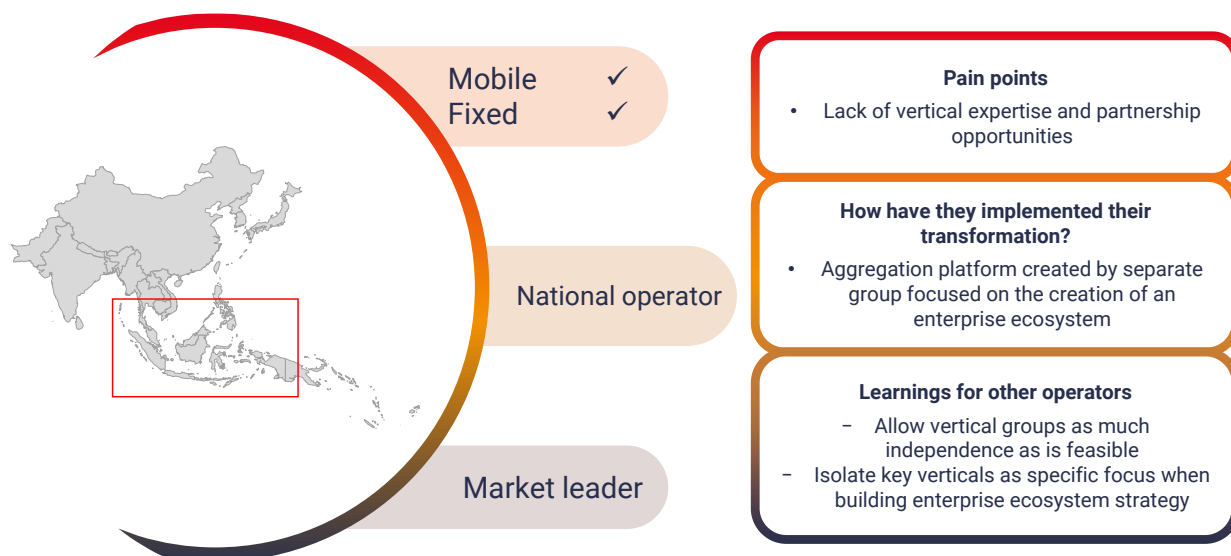value chain. Telstra, for example, has made concerted efforts in healthcare (Telstra Health) and mining.

Given that telcos are focused on B2B and, in some cases, specific verticals, building ecosystems of sector-specific partnerships is key. For instance, in order to become a healthcare digital solution provider, a telco would need to ensure healthcare application developers and device manufacturers could easily plug in to their platform. Another example is SK Telecom, who is focused on developing its AR/VR and metaverse capabilities, having launched platforms such as ifland and Jump, plus building partnerships with content developers, such as ViveStudios. Telcos are looking to engage ISVs through practical engagements, such as innovation programmes, hackathons and labs, which seek to encourage software developers to try 5G, edge computing and other technologies. Globe, for example, runs a hackathon to find ideas that demonstrate how Globe's 5G Technology can positively impact society (education, healthcare, livelihood), industries (retail, manufacturing, logistics, e-commerce), and build intelligent cities.

Ecosystems are becoming increasingly important for operators who need to latch onto the expertise which can be generated by a vertically orientated ecosystem of ISVs, MSPs, developers and start-ups. Even for those operators who are focused on protecting their core comms or developing a more horizontal play, the vertical opportunity is imperative across domains and requires the telco to designate resources to establishing internal groups and, importantly, solution ecosystems.

We spoke with an operator in the ASEAN region who has built a separate group to build a digital enterprise ecosystem:

- This group has subgroups focusing on education, healthcare, and gaming.

- They have used joint-ventures and acquisitions to build initial relationships in each vertical;

- The group has financial and strategic autonomy from the larger telco.

Figure 15: One ASEAN operator has moved to address a lack of vertical expertise

Mobile ✓
Fixed ✓

National operator

Market leader

Pain points
- Lack of vertical expertise and partnership opportunities

How have they implemented their transformation?
- Aggregation platform created by separate group focused on the creation of an enterprise ecosystem

Learnings for other operators
- Allow vertical groups as much independence as is feasible
- Isolate key verticals as specific focus when building enterprise ecosystem strategy

Source: STL Partners

This operator is pushing the ecosystems of education, healthcare, and gaming by creating the aggregation platform which will enable start-ups, customers, and investors to connect across the nation. By building the infrastructure upon which these stakeholders can transact, the operator is creating the digital ecosystems for these verticals, with themselves at its centre. These three verticals are the initial priority, representing the areas where the organisation see the greatest opportunity. The aim is to expand this platform to other verticals as their brand as an aggregation point deepens.

The operator has recently transferred their education and healthcare platforms from the main telco business onto the digital ecosystem platform, giving both complete strategic independence whilst still encouraging them to share data insights and operational learnings through the platform. Both platforms currently serve over one million B2C customers each. In another example, industry units within Telenor Group's Asian operation will report their own P&L, consolidating their autonomy as an organisation and encouraging each group to be responsible for its success.

> " In an ideal situation, management would entrust a strong leader to create a start-up within the telco, operating autonomously to deliver the best results…
>
> *Lead of Procurement & Contracting, South Asia CSP*

Through its ecosystem, this operator has chosen to focus on connecting start-ups with a wider network of customers and investors in the hopes of boosting the development of young digital companies. Operating in a nation with a particularly fragmented population, a platform through which smaller companies can connect to potential investors offers the former an invaluable route to

financing. CSPs must understand the nuance of their geography to inform their choice of ecosystem targets; in some cases start-ups are the priority, whilst in others large, established companies should be targeted. Importantly, the ecosystem also enables the operator to build relationships throughout the value chain of their priority verticals to better their position as they look to move up the value chain themselves.

Other operators looking to move to an ecosystem approach more befitting a techco should look to:

- Allow vertical groups the independence to make their own strategic decisions and remain agile whilst operating within the telco business;

- Isolate 1-3 verticals as an initial focus for an ecosystem approach, developing the infrastructure expertise to share horizontally;

- Decide whether to focus on large, established enterprises or small start-ups as initial members of the ecosystem.

4. Technology: moving to cloud-native and operationalising multi-vendor stacks

Most techco business models focus on integrating services and solutions from a wide ecosystem of NEPs and ISVs that are software-oriented. Telecoms operators have been undergoing a process to implement software throughout their business, starting with IT applications and, more recently, in networks and support systems.

Telcos are aware of the changes they are required to make to their infrastructure, having started the network virtualisation journey and now continuing this by adopting containerised architectures and automation wherever possible. The current focus is on 5G, particularly adopting a flexible 5G standalone core for operators who have already rolled out 5G radio. This is seen as vital to unlock edge computing; ensuring a flexible 5G core makes it easier to move 5G core network functions to edge nodes to support low latency applications.

As operators in APAC continue to build out their 5G networks, many are looking to navigate the growing complexity in their infrastructure. 5G SA is inherently cloud native and therefore can act as a lightning rod for operators looking to transform their network. Many of the stakeholders we spoke to articulated their aim to adopt a multi-vendor compatible architecture that will enable them to increase the flexibility of their networks and avoid the rigidity that often comes with strict vendor lock-in. Cloud native is essential for this, enabling operators to scale and upgrade their networks more easily.

As well as protecting CSPs from stagnating lock-in, a multi-vendor approach fosters greater agility in network function, allowing operators to react to the changing demands of a 5G and edge enabled network. Leveraging open-source technology is a critical element of this strategy, complementing a virtualised architecture by allowing a huge community of developers to create new and innovative solutions running on the off-the-shelf hardware.

When it comes to Open RAN, the question of its viability remains in the spotlight, with many operators looking to Rakuten and their results as a guiding light. In our research, only 12.5% of operators covered are currently implementing multi-vendor capabilities across their network stacks, and only 15% have deployed a commercially active Open RAN site. Although still a small portion of the total operator community, our interviews pointed to operator's readiness to adopt these practices once the ROI presents itself, with many developing the technology required to deploy an open approach across their network.

Talk of 5G SA and multi-vendor will not appeal to all CSPs, as those with small resources in smaller markets are more restricted. However, what is central to all of this is that automation is key for techcos of any size. Telecoms operators, such as Telstra, are razor-focused on using technology such as APIs to better manage internal applications and create a modular foundation to improve agility. Telstra's T22 programme focused on the rationalisation and simplification of network infrastructure, reducing the complexity of the business model, and digitising the organisation. In the next stage of Telstra's development (T25), it will look to inculcate a greater culture of growth and further distribute the network architecture.

> "
> 5G is not a prerequisite, transformation principles can be applied to the existing 4G network technologies and used to guide ongoing system upgrades
>
> *SVP, Head of Network Architecture (Group), ASEAN CSPs*

Part of the objective here is to optimise service provisioning (and development), however, in the survey, the domain that was seen to be a priority for automation is the network itself. This will require a complete overhaul in how telcos operate their networks, moving from traditional telecoms engineering and waterfall processes to software-based, DevOps-style operations.

Figure 16: Network operations, customer experience management and service provisioning are the 3 areas to prioritise for automation

In which area should your organisation prioritise higher levels of automation?
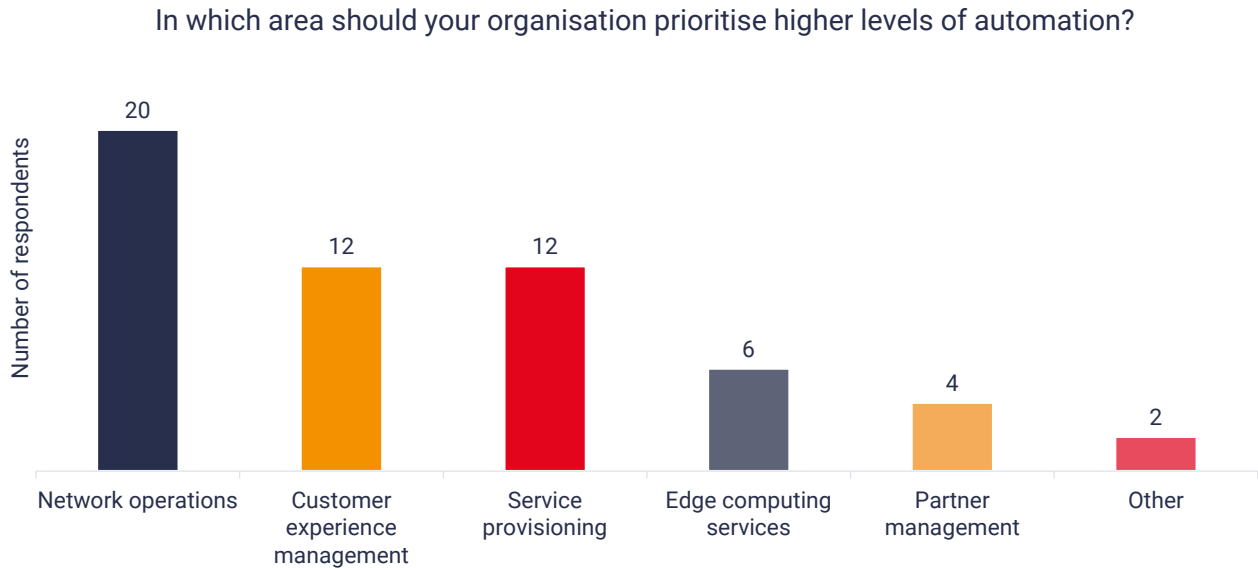
Source: Survey conducted by STL Partners, n=66

5. Changing your KPIs: moving to the new world

The interview programme revealed the importance of using appropriate KPIs to manage the transition to a techco. Part of the reason for a telco to change its KPIs and target is it to ensure progress is made. For example, if a telco wants to focus on improving the speed at which it deploys new network infrastructure, this needs to be measured to assess the level of change. Relevant KPIs here that were mentioned and being measured already today are those such as "number of base stations built per day", where a best practice telco was deploying 30 base stations a day. Another benchmark mentioned was the time it took to launch a new edge system (for the network) – best practice achieved 30 systems per day. Figure 17 maps different KPIs that were mentioned by interviewees.
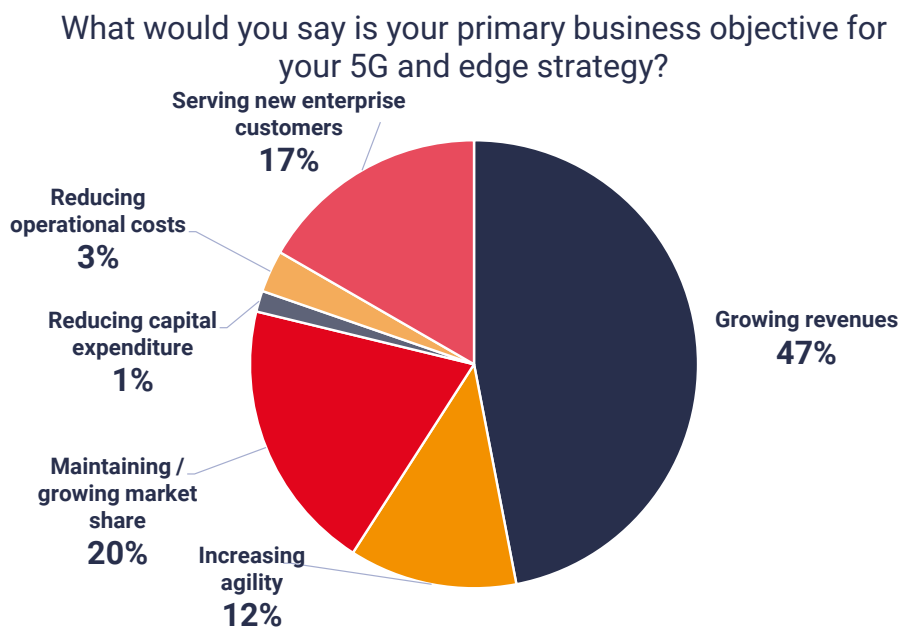
Figure 17: Interviewees mentioned a range of KPIs to be used by telcos-turned-techcos

Culture, Organisation & Skills	Number of people upskilled to each level
Infrastructure & Operations	Number of base stations built per day; time to launch new system (from months to days), centralising information, frequency of network monitoring (in seconds), time to patch security errors, number of managed operations converted into automated workflows, number of weekly tickets, mean time to recover network
Product & Service Creation	Time from blueprint to reproducibility, number of new services launches, volume and transaction value for APIs, time to market for new services
Partnerships	Time it takes to onboard new partner (from months to minutes), number of PoCs, % of revenues outside telco services

Source: STL Partners

A second reason for using new KPIs is to reflect the difference in the techco business model, when compared to a traditional telco. Telcos today are highly focused on very consumer-centric KPIs, such as average revenue per user (ARPU), churn and market share. In a techco world, the focus will be on enterprises and potentially even developers as the driver of growth. Therefore, telcos must turn their attention to this side of the business and start measuring their ability to capture these new markets. Traditional metrics such as average revenue per (enterprise) account could still be relevant, but new ones which reflect new business models are important to measure too. An example that was raised was around the success of API-based businesses – the volume and transaction value from such services.

Figure 18: Most interviewees stated the need to boost revenues

What would you say is your primary business objective for your 5G and edge strategy?

Serving new enterprise customers
17%

Reducing operational costs
3%

Reducing capital expenditure
1%

Maintaining / growing market share
20%

Increasing agility
12%

Growing revenues
47%

Source: Survey conducted by STL Partners, n=66

Conclusion: next steps for telcos in APAC

Figure 19: Five principles for digital transformation
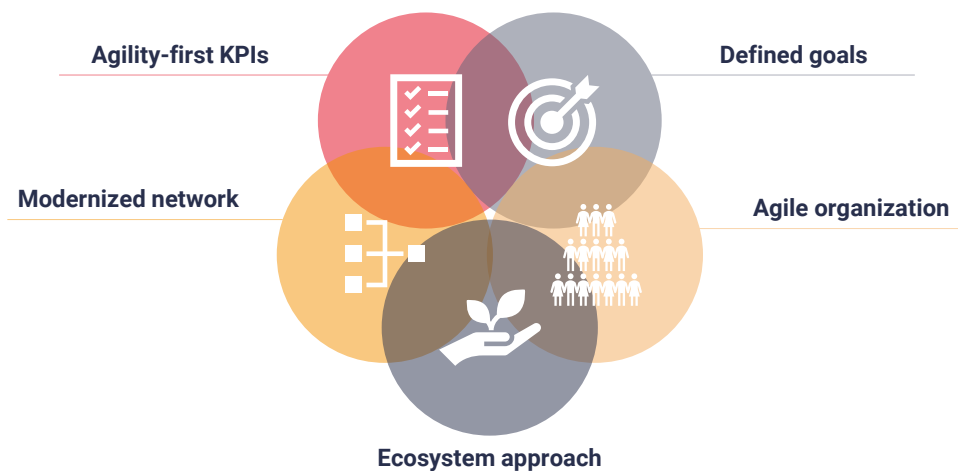
Our research leads us to conclude that establishing these five principles throughout the telco organisation will be critical to their digital success. To ensure their long-term survival, telcos must make far-reaching changes to the way they structure their business and interact with customers. Moving away from a model which has served them well for such a long period of time will be a long process blighted by numerous growing pains, but it is essential they invest in a future which will see them traverse up the value chain and realise the B2B opportunity.

The priorities outlined above help to narrow in the focus for any digital transformation effort. The first task telecoms operators must do is define their ultimate goal and systematically socialise this across the business. When this is clear, objectives can be set with appropriate KPIs to measure against, cascading from the highest level goal to individual's roles.

The final focus areas are about technology and how to use it to its full potential. It is almost a given that telecoms operators will continue to evolve the underlying technology. The most prominent challenge is ensuring they have the skills and expertise in place to make use of this, plus be able to maximise its potential even with external partners and customers. STL Partners' Transformation research will continue to track the industry's progress on this and provide insights on how to succeed.

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