Predicts 2021: CSP Technology and Operations Strategy

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Challenged with the slow pace and suboptimal outcomes of various transformation initiatives, CSPs will increasingly plan their transformation to revenue growth initiatives. CSP CIOs can use the strategic planning assumptions covered here to evolve their technology and operations strategies.

Overview

Key Findings

- Communications service providers (CSPs) see the need to accelerate their pace of digital transformation, focusing on revenue growth and multiple business models across connectivity and other services of interest to consumers and enterprises.
- Revenue growth initiatives through siloed technology implementations are proving to be a barrier to scaling transformation and add to overall technology complexity, pointing to the need for better governance.
- Increasing competitive pressure on CSPs through a number of digital services players requires CIOs and technology strategists to prioritize their objectives of developing and shaping platforms, and new business and operating models in the organization.

Recommendations

CSP CIOs responsible for shaping the digital transformation and innovation should:

- Align technology transformation to business outcomes by prioritizing initiatives that enable revenue growth while accelerating the pace of change.
- Develop a platform operation model that can scale revenue growth initiatives by increasing adoption of product management approach, APIs and network exposure, while addressing automation, operations efficiency and customer experience (CX) objectives.
- Avoid hype around technologies and enable participation in digital ecosystems by developing the critical mass of skills and capabilities required for the design and operation of flexible

operating models.

Strategic Planning Assumptions

- Through 2024, network-based CSPs who evolve their cloud network-as-a-service using platform initiatives, marketplace and automation will increase from 5% in 2020 to 40%.
- Through 2025, the number of CSPs investing in artificial intelligence (AI) technologies for improving their infrastructure planning, operation and products will rise from 30% in 2020 to 70%.
- Through 2024, the number of CSPs implementing platforms for effective participation in digital ecosystems will rise from 10% in 2020 to 50%.
- Through 2025, the number of CSPs incorporating content and media products and service management solutions for better growth will rise from less than 1% in 2020 to 40%.
- Through 2025, only 5% enterprise use cases promised through public 5G will get commercialized, pushing 70% of use cases further to 6G implementation.

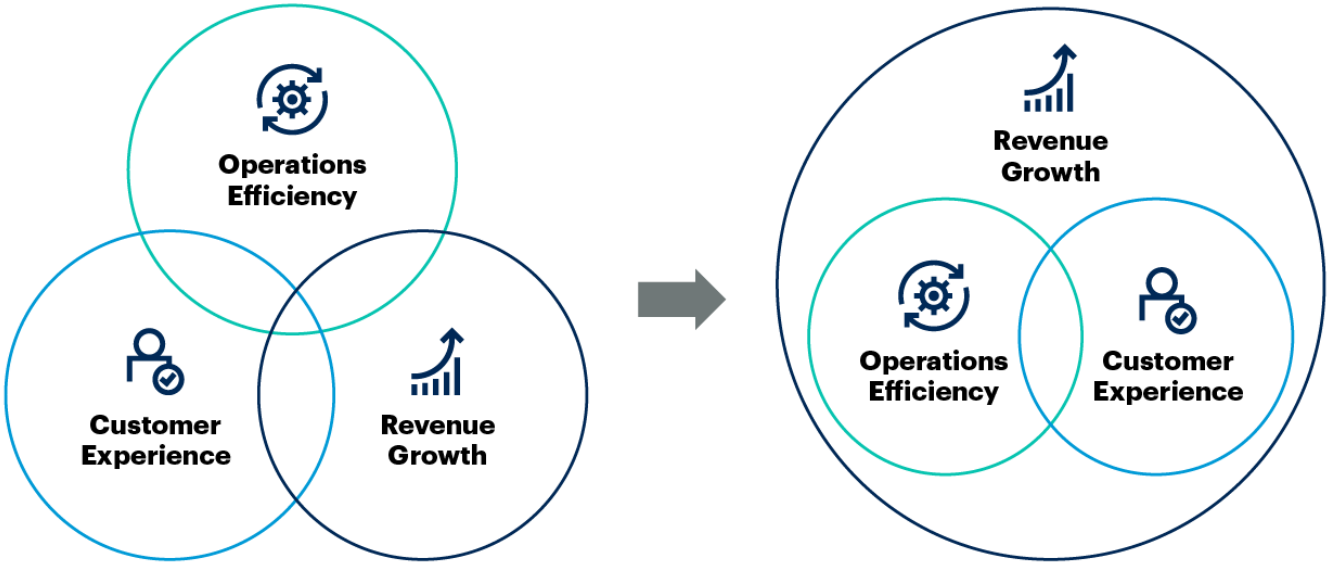
Analysis

Communication service providers, and in particular, network-based CSPs, have been focusing on three outcomes of transformation for many years (see Note 1). These three outcomes are operations efficiency (OE) improvement, customer experience enhancement and revenue growth (RG). During the last decade, specifically crafted projects, such as omnichannel implementation, operational technology applications rationalization, legacy transformation, products rationalization and others, were carried out by the majority of CSPs. These projects were guided by one or other outcomes among OE, CX and RG. Digital transformation initiatives (since 2015), however, proved to be far more challenging owing to scope, complexities and nature of transformation. CSPs crafting transformation initiatives with specific OE, CX and RG motivations have struggled with outcome and return on investment (ROI) justifications.

In addition to outcome justifications, the slow pace of digital transformation and lack of alignment of various transformation initiatives to governance purposes have also been challenging. Gartner foresees an increasing shift in approach to prioritizing, planning and execution of transformation programs in future, as presented in Figure 1.

Figure 1: Shifting Logic in CSP Technology and Operations Transformation

Shifting Logic in CSP Technology and Operations Transformation



Source: Gartner
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Gartner

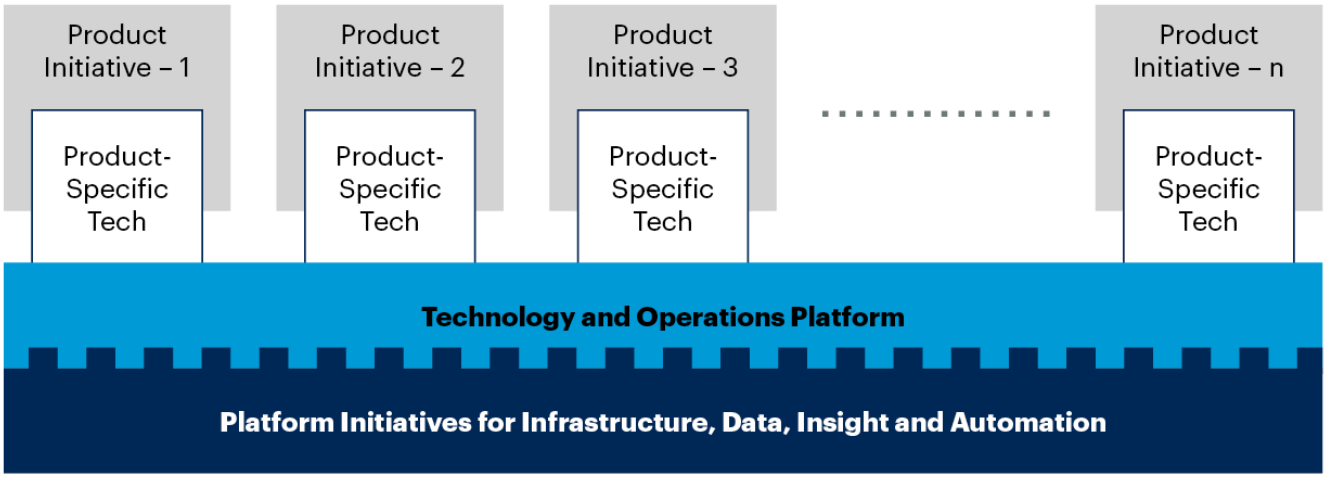
Some CSPs have started prioritizing revenue growth initiatives, or they have increased their focus on future products and services and that has started to shape technology and operations. Examples of such an approach can be seen in BT "DigiCo," MTS' IT transformation and a few other cases. This trend is likely to gain wider acceptance with two specific implications:

- CSPs' products and services ambitions will drive change rationale and technology strategy — as an example, utilization of additional technology stacks (such as business support systems [BSSs]) for Internet of Things (IoT) and second brand initiatives.
- Technology strategy and operations and product development aligned to business outcomes driven by vision and business models/strategy — causing a shift in operations models, organizations structure and ecosystems relationships, and participations.

These shifts and implications mean the need for CSP CIOs to align their technology strategy and information and technology (I&T) operating models to highly business-oriented outcomes — planned and run like product line management. A conceptual view of desirable relationships can be seen in Figure 2.

Figure 2: Evolving Relationship of Technology Strategy and Operations in the I&T Operating Model

Evolving Relationship of Technology Strategy and Operations in the I&T Operating Model



Source: Gartner
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Gartner

A horizontal platform approach (executed as a set of capabilities through products-centric development) and product-aligned agile and responsible technology organization (as shown in Figure 2) is much needed to support scalable revenue growth. This enables aligning change/transformation initiatives to a company's vision and business outcomes. CSPs need to start moving from a project to a product mentality in their transformation by following the vision → business model → enterprise operating model → I&T operating model. By doing this intentionally, CSP CIOs can enable the alignment of IT resources (old and new, internal and external) to specific business outcomes. For this agility, new ROI models need to be adopted to actually enable DevOps and BizOps.

What You Need to Know

This Predicts 2021 document captures the key areas of focus for CSP CIOs to align their technology strategy and operations to support revenue growth prioritization of the organization. These areas pertain to growth promises and momentum across B2B and B2C segments.

Developing a platform approach to design, create, fulfill and assure a wide set of products and services to enterprises and small and midsize businesses (SMBs) is crucial to scale transformation for revenue growth. While many CSPs are working toward it, there is a need for CIOs to develop agile and scalable technology and operations strategy for all kinds of network-as-a-service (NaaS) products. A similar approach is needed for a variety of information, media, entertainment and gaming products for consumer segments. Innovative and differentiating products and services should be possible to create quickly and flexibly through orchestration of media and telco platforms. To scale products and services across multiple customer segments, CIOs must facilitate ecosystem development and participation through a systematic approach.

Insights-based decision making and automation must not be limited to specific operational use cases, but should become part of broader product and service delivery. As an example, using AI for monitoring and tracking SLAs and quality of experience (QoE) for individual customers.

As CIOs work on these initiatives, they should be cautious to avoid the hype associated with 5G and other technologies. A pragmatic approach that prioritizes revenue growth must incorporate critical evaluation of features, functionalities and use cases to be developed and implemented.

Strategic Planning Assumptions

Strategic Planning Assumption: Through 2024, network-based CSPs who evolve their cloud network-as-a-service using platform initiatives, marketplace and automation will increase from 5% in 2020 to 40%.

Analysis by: Amresh Nandan

Key Findings:

- Network-as-a-service continues to be a key area of market growth for CSPs, with a roadmap going up to dedicated 5G network slices for specialized requirements offered as a service.
- CSPs have been focusing on enhancing their enterprise networking value proposition by leveraging cloud programmability and virtual network functions (VNFs) to offer customizable connectivity and network appliances services.
- The popularity of software-defined WAN (SD-WAN) has further motivated CSPs to focus on greater automation, configurability, security and network exposure requirements to strengthen their NaaS offering portfolio.
- CSPs' value proposition enhancement and scalability of NaaS business depends largely on how CSPs craft a platform to manage customer journey, product life cycle and its ecosystem partners.

Near-Term Flag:

Migration toward cloud computing platforms, cloud-enabled network virtualization and demand for pay-as-you-go commercial models have started to buttress the growth momentum of NaaS evolution. Leading multicountry CSPs have started platform design and development initiatives. Such platform initiatives can be seen in AT&T, BT, Telstra, Verizon. These CSPs' platform initiatives aren't tied to specific product launches, even though they may have such short-term goals. Instead, they are focused on security, automation and scalability of business processes for a variety of enterprise and SMB offerings.

Market Implications:

While growth opportunities demand the evolution of NaaS, increasing competition in the B2B space point to the need for superior customer experience, agility and new service offerings.

Evolving connectivity demand characteristics and security requirements will challenge the way NaaS has been evolving. Traditional approaches taken by some CSPs to develop product/service specific solutions do not scale, and more and more CSPs will have to adopt platforms and marketplacelike ideas in their operations.

CSP CIOs have a critical role to play in this journey, as the evolution of NaaS is significantly dependent on adequate application of several technologies and tools. Key technologies and tools include virtualization, automation, analytics, AI/machine learning (ML) and simulation (capabilities to simulate various network and customer scenarios). In addition, application of these technologies and tools must be done through construction of a platform that allows scalability. The platform approach allows implementing a life cycle model to a number of products and services through suitable abstractions of underlying events, transactions and data.

NaaS platform initiatives will also get enriched through:

- Various, easy-to-consume API strategies — including supporting intercarrier operations.
- Network exposure mechanisms and capabilities.
- Broader market coverage — involving IoT, edge, network slices, over-the-top (OTT) services requirements of large, medium and small enterprises.
- Enablement of various partners, leads, sales channels and marketing programs.

In essence, technology application and implementation must be guided by the goal of enabling various types of services that future businesses will demand.

Recommendations:

- Initiate a dedicated NaaS evolution program to orchestrate your technology initiatives into a platform, if not done already, by integrating the siloed/separate technology and operations change initiatives associated with various B2B products and services.
- Assess the efficacy of your platform for sales, product, customer, revenue and partner management — focusing on the need to offer greater customizable, quality of service specific and bundled services offerings.
- Balance dependence on technology vendors through investments in in-house skills for core and differentiating capabilities related to platform design, integration and operations. Leverage vendor solutions through open API-based integration.
- Proactively include ecosystems participants in conceptualizing your NaaS platform initiatives for the future.
- Consider business model openness alongside your technology layers openness with ecosystems participants. Do not assume integration with external entities as merely a technology integration. This will be crucial for marketplacelike services offerings.

Recommended Research:

Hype Cycle for Communications Service Provider Operations, 2020

Hype Cycle for the Future of CSP Networks Infrastructure, 2020

Toolkit: CSP B2B Customer Journey and Process Map Development

Case Study: From Traditional IT to a Business-Oriented Software Organization (MTS [Russia])

Fusion Teams: Cross-Functional Collaboration for the Digital Era

Strategic Planning Assumption: Through 2025, the number of CSPs investing in AI technologies for improving their infrastructure planning, operation and products will rise from 30% in 2020 to 70%.

Analysis by: Peter Liu

Key Findings:

- CSPs increasingly use artificial intelligence and machine learning in various aspects of their business, from enhancing the customer experience to predictive maintenance, to improving network reliability.
- Recent advances in the AI areas of deep learning (deep neural networks) and allied areas of natural language processing (NLP) continue to drive innovation and interest in what AI can accomplish.
- The increased adoption of AI by CSPs positions chief technology and information officers (CTIOs) as key enablers to create differentiating value, enhanced customer experience and operational intelligence in the organization.
- Key challenges to implementing AI techniques are related to the lack of understanding the business benefits of AI, the complexity of the technology and its integration, data quality and accessibility, security, and the lack of skills.

Near-Term Flag:

Artificial intelligence promises to be one of the most disruptive and innovative classes of technologies during the next 10 years and has been identified as top game-changer technology by CSP CIOs (see 2021 CIO Agenda: A CSP Perspective). Major CSPs in developed markets have been leveraging advanced analytics, artificial intelligence and automation-related technologies for some years now, aiming to empower and enable various capabilities, processes and technologies that represent a huge opportunity potential for solution providers.

Market Implications:

Artificial intelligence applications in the telecommunications industry not only promise to help CSPs plan, manage, optimize, and maintain the infrastructure, but also support customer service and inform new service creation. Network optimization, virtual assistants, predictive maintenance or robotic process automation (RPA) are examples of how AI can impact the telecommunications industry, enhance user experience and add value to the enterprise as a whole.

Ongoing adoption of the 5G and Internet of Things will lead to billions of new devices that need to be connected by CSP infrastructure. This will result in a far more complex and dynamic network that challenges the current human-based planning and operation. At the level of network and service design, new layers of complexity are added due to the expectations that networks must support diversified use cases in different verticals with very different requirements. In addition, the cloud-native network architecture is also more dynamic. Network resources can now scale up or down — even at the level of individual network slices — in real time, in response to changing conditions. Responding to these challenges while contemplating the future, CSP are increasingly adopting emergent and innovative technologies, such as AI and AI-related techniques.

CSP CTIOs have a critical role to play in AI adaptation, but with challenges. The top barriers to implementing AI techniques are related to the lack of understanding the business benefits of AI, the complexity of the technology and its integration, data quality and accessibility, security, and the lack of skills.

Getting AI in production at scale required a team-based, cross-functional transformation. In addition, rigid procedures need to be reduced to facilitate the use of AI and also equip with the right talents. CSP CTIO should:

- Accelerate the use of AI beyond optimization and incremental improvements by prioritizing AI initiatives that can drive new and differentiating value.
- Assess the business value of AI initiatives by increasingly shifting to developing business key performance indicators (KPIs) that clearly link AI capabilities to business outcomes.
- Establish future-proof data and infrastructure strategies that are ready for AI. This includes curating DataOps ecosystems that ensure the data is accessible, consistent and valuable; and devising ModelOps ecosystems that enable versioning, reuse, rollback and deployment of ML models.
- Invest in skill development programs/initiatives to develop a critical mass of AI expertise in the organization and start multiple proof of concept (PoC)/trial projects to leverage trained resources.
- Unleash the power of agile. Agile allows the adoption of a flexible and value-driven approach and enables working across functions — capabilities that are necessary to scale AI.

Recommendations:

- Assess the business value of AI initiatives by increasingly shifting to developing business KPIs that clearly link AI capabilities to business outcomes, such as churn rate, network operating cost, subscriber acquisition cost, etc.
- Identify your organizations' needs for future operating models (business and IT) that will benefit from AI augmentation, guided by the intent to create differentiating value using data as an untapped asset.
- Accelerate your AI skills and talent development by implementing a variety of use-case prototypes. This will help to identify the breadth and depth of AI skills and talent you will need.
- Deploy data infrastructures as part of core data foundations for production AI. In addition, nurture ModelOps environments that simplify the deployment of production-ready models in streaming data environments.
- Create a platform-agnostic inference engine deployment process by storing models, algorithms and associated dependencies.

Recommended Research:

AI in Organizations: Communications Service Providers' Perspective

Strategic Planning Assumption: Through 2024, the number of CSPs implementing platforms for effective participation in digital ecosystems will rise from 10% in 2020 to 50%.

Analysis by: Mentor Cana, Ted Chamberlin

Key Findings:

- CSPs recognize the need to participate in emerging digital ecosystems. However, many approach this in an opportunistic manner, often struggling to adapt their operations as the power balance shifts to the ecosystem.
- Digital ecosystems are increasingly impacting how CSPs function and how technology solutions are defined. In digital ecosystems, communications service providers do not control the value exchange. Rather, all digital ecosystem participants collaborate to create and deliver value.
- Cloud-native CSPs are emerging as aggressive challengers, and leading incumbent CSPs are expanding on efforts to virtualize their networks and adopt cloud-native capabilities.

Near-Term Flag:

Many CSPs are already building and implementing platforms to enable various digital ecosystem participation across a number of industries. Data platforms and data lakes are examples of how CSPs are exposing data, information and insights to ecosystem partners for a variety of use

cases. Most recently, Deutsche Telekom announced its MagentaGaming cloud gaming platform focused at gaming, streaming and content ecosystems. [1] Acumos AI is an example of a platform and an open source framework supported by AT&T, Tech Mahindra and the Linux Foundation aimed at driving ecosystem collaboration for AI capabilities across industries. [2]

Market Implications:

Most traditional network-based CSPs are based on a linear business model value chain. In this approach, the provider takes input from suppliers, adds value to it via its operations and then delivers services to customers (hence the reference to “linear chain”).

A digital business model leverages technology to create new business value in new ways — ways that were not possible without digital technology. In the context of digital business, a platform business model is one where an ecosystem is leveraged to create new value. Monolithic infrastructures, which led to a predominance of linear value chains from full-service providers delivering integrated offerings, must transform into multilayered open stacks of composite but reusable components and services in partnership with ecosystem participants in order to create new value. The ecosystem can include employees, customers, competitors, traditional supply chain partners, third-party developers as well as organizations outside the CSP industry.

While CSPs recognize the opportunities in emerging digital ecosystems, many approach this in

an opportunistic manner, often looking to exert control rather than determining how mutual

value will be created. Thus, CSPs need to be cautious not to implement point solutions for any specific industry. Doing so, they will be repeating the mistakes of the past in building siloed solutions, tying resources to specific solutions without the ability to be scaled beyond specific use cases. Therefore, the goal of platform enablement is not only to make consumption of CSPs’ connectivity and networking on-demand, but more so to enable a horizontal technology platform that is agile, flexible, open, expandable and easy to scale.

In addition to the technology layer openness, these platforms must enable CSPs to engage with flexibility in their business strategy. Namely, the technology openness should enable CSPs to create value with the following platform business models styles: collaboration, orchestration, creation and matching (see How to Select the Best Platform Business Model) for mutual benefits for the ecosystem participants.

Therefore, CSP CIOs and CTOs should start building the technology infrastructures (inclusive of networking and IT) that bring together internal and external resources to be aligned to CSPs’ business outcomes as well as the business outcomes of CSPs’ enterprise customers.

Recommendations:

- Initiate your platform journey by identifying the capabilities that are required to enable participation in digital ecosystems. Some of these capabilities are: ability to slice the network, manage infrastructure for businesses, service orchestration, capturing usage, provision quality

of service, collaboration around content-centric services or even offer specialized information, such as location.

- Implement your capabilities as platforms by building the core components with modularity and reusability in mind so that they enable easy and open internal and external integration, with an emphasis on creating value through digital ecosystems and disruptive business models.
- Build an orchestration and provisioning IT stack and/or layer that is vendor-agnostic and inclusive of the resources that are provided by the broader ecosystem.
- Increase the adaptability of your platforms, by building your capabilities with product-centric approaches in order to increase reusability of components and capabilities across industries as well as enable industrialization.
- Start investing in people, skills and culture transformation by instilling behaviors similar to those of digital-native companies.
- Empower your platform approach by focusing on data flows (collecting and transporting data), enabling various transactions among and between machines, processes and people, and using AI to extract meaningful insights that create value.

Recommended Research:

Top 10 Trends for the Communications Service Provider Industry in 2020

How CSPs Can Approach Digital Ecosystems for Successful Collaboration

CSPs Must Make Crafting Their Digital Dragon Strategy a Top Priority

Strategic Planning Assumption: Through 2025, the number of CSPs incorporating content and media products and service management solutions for better growth will rise from less than 1% in 2020 to 40%.

Analysis by: Ted Chamberlin, Mentor Cana

Key Findings:

- The rate of PayTV subscribers that have cut or shaved the cord and migrate to OTT streaming platforms continues to increase at a torrid pace.
- Content ownership continues to influence which partnerships, advertising solutions and monetization strategies as well as product offerings and operations.
- Monetization opportunities for CSPs continue to be limited to carrying commodity traffic or data center capacity.
- Emerging markets, including ultra-low-latency and immersive streaming, cloud gaming and esports, will represent a need for orchestration between edge, networks and data center

capacity.

Near-Term Flag:

CSPs have slowly incorporated support for dynamic media and content delivery but have only supported commodity payload delivery services. Several have made large-scale acquisitions of media conglomerates (Comcast-NBCUniversal, AT&T-Time Warner) and have since had to divest, reorganize and compete among powerful content creators. CSPs must drive deeper partnerships with content protection, audience measurement and digital asset management providers to extend value into the media services supply chain.

Market Implications:

To achieve value creation and value exchange, explore a mix of owned assets and digital ecosystems relating to 5G, IoT, data, AI, content, media, gaming, esports, edge compute and security, rather than focusing on delivering undifferentiated transit. This includes:

- Increasing value with content-centric services requires disruptive transformation of business models and enterprise operating models for communication services providers.
- Successful aggregation, implementation and delivery of content-centric services hinges on the CIOs' ability to transform the information and technology operating model and align the IT strategy to content-centric enterprise operating models.

Recommendations:

- To achieve value creation and value exchange with a broader set of participants, explore digital ecosystems relating to 5G, IoT, data, AI, content, media, gaming, esports, edge compute and security, rather than focusing on traditional telco-centric services.
- Create compelling use cases and reference architectures to leverage media and entertainment tasks at edge locations. The battle for ownership at the edge will be fought by cloud providers, wireless towers, content delivery networks (CDNs), software platform providers as well as colocation operators. CSPs must ensure that they occupy a critical link in ensuring the scalability of multiaccess connectivity.
- Identify potential business opportunities that digital ecosystems offer by uncovering relationships, roles and potential for shared capabilities rather than being limited by traditional CSP business models.
- Evaluate the outcomes of ecosystem participation for the business strategy by reflecting on the value of your participating roles.
- Proactively explore value exchange enabled by digital ecosystems by collaborating with business leaders to develop business models utilizing all the possibilities that digital ecosystems offer. Explore your participation as founders, leaders, providers or consumers.

- Identify opportunities for digital ecosystem participation. Anticipate participation roles, value exchanges and the need for shared platforms, and get involved in rule setting.

Recommended Research:

CSP CIOs Must Transform Their IT Operating Model for Content-Centric Services

Strategic Planning Assumption: Through 2025, only 5% enterprise use cases promised through public 5G will get commercialized, pushing 70% of use cases further to 6G implementation.

Analysis by: Kosei Takiishi

Key Findings:

- Current 5G commercial service by CSPs is just the small enhancement of 4G Long Term Evolution (LTE) and can hardly provide the new value to enterprise clients.
- 5G technology itself could be matured in around 2025, but many enterprises will hesitate to adopt it quickly for industry-specific use cases.
- CSPs continue to suffer from 5G monetization in the 2020s, and its mission, vision and goal will be taken over by 6G, which will be commercialized in 2028.

Near-Term Flag:

3rd Generation Partnership Project (3GPP)-compliant 5G commercial services are being offered by leading CSPs in North America, mature Asia/Pacific (APAC) and EMEA regions. While the 5G vision offers distinct features over current 4G services, it will be challenging for CSPs to successfully monetize 5G in early 2020s. This is because of the early deployments that focus on consumer business based on 4G networks for connection management (non-stand-alone) and lacking technical innovation. The latter is in regard to edge computing, software-defined network/network function virtualization (SDN/NFV), orchestration/automation and network slicing.

In addition, limited experience and expertise about vertical industries and the lack of cross-industrial cooperation led to a hesitation regarding transition from 4G LTE in the enterprise market. This limited CSPs' capability to be more innovative in the enterprise market, including manufacturing, healthcare, utility, transport and agriculture. This can result in the other wireless technology adoptions, such as private LTE, Wi-Fi and low-power wide-areas (LPWAs), or postponement of problem solving.

Market Implications:

Advanced CSPs could provide 5G new values in around 2025 by logically separating network slices that can satisfy various enterprise requirements simultaneously; but technology itself will not be a big issue. One of the big challenges CSPs face is to identify client demands and provide

business-driven solutions. It will not work well for CSPs to repurpose carrier-grade solutions to an enterprise that requires inexpensive and limited functions. Also, each industry has its own rule, regulation and culture, and new technology adoption is slow compared to the IT industry. As an example, wireless Highway Addressable Remote Transducer (HART) for process field device networks was introduced to the market in 2007, and many factories and plants still use previous HART and wireless HART together.

6G commercialization is expected around 2028, and its first standard specification could be finished in 2027. It means that the telecommunication industry could start 6G standardization in around 2025, and there are only several years ahead. This expected future implies that various 5G digital transformations on vertical industries, including smart factories, remote surgery and autonomous cars, could be carried over to 6G because these initiatives are often associated with time-consuming deregulation.

A “radio access-only” or “technology-oriented” approach will not be enough to help CSPs grow 5G enterprise business. For 5G to achieve revenue growth it must deliver real business value to CSPs’ enterprise customers so that they will pay a premium for 5G solutions that will solve their challenges.

Recommendations:

- Avoid 5G posturing and focus on real-world business benefits of your technology.
- Launch your 5G enterprise business by adopting a customer-first and issue-driven approach.
- Provide new 5G solutions promptly by adopting multivendor integration and best-of-breed approach.

Recommended Research:

Hype Cycle for the Future of CSP Networks Infrastructure, 2020

Market Trends: 5G in Manufacturing

Market Trends: 5G for Banking

Market Trends: 5G for Retail

Market Trends: 5G for Healthcare

Tech Providers 2025: CSPs Can Use 5G to Become Insurance Providers

Tech Providers 2025: Future of Telecommunications Infrastructure Vendors Ecosystem Landscape

Market Trends: How TSPs Are Preparing 5G Solutions With Cloud Edge Providers

A Look Back

In response to your requests, we are taking a look back at some key predictions from previous years. We have intentionally selected predictions from opposite ends of the scale — one where we were wholly or largely on target, as well as one we missed.

On Target: 2018 Prediction — By 2020, CSP utilization of digital platforms for customer and partner engagement will double from 35% today.

- Through 2021, 60% of network-based CSPs will fail to realize programmable networks due to lack of uniform resources and service orchestration.
- By 2022, 50% of CSPs will use artificial intelligence across multiple functions; up from 10% today.
- Through 2023, only 1% of CSPs will be able to boost revenue from 5G services.

Above-listed predictions made in November 2017 (see Predicts 2018: CSPs Must Scale Operational Technologies and Capabilities for Successful Digital Transformation) have been nearly on-target or moving in the direction as predicted.

Missed: 2018 Prediction — By 2021, 90% of Tier 1, network-based CSPs will implement open source in their infrastructure for cost optimization and sourcing flexibility — up from 45% now.

We note that one of the predictions (mentioned above) in Predicts 2018: CSPs Must Scale Operational Technologies and Capabilities for Successful Digital Transformation is not going to meet the target despite significant hype and even interest by CSPs. Overall, CSPs have increased utilization of open-source components in their technology solutions. However, the trend is increasingly shifting toward open-interfaces and open solutions.

In response to your requests, we are taking a look back at some key predictions from previous years. We have intentionally selected predictions from opposite ends of the scale — one where we were wholly or largely on target, as well as one we missed.

Evidence

[1] MagentaGaming: Telekom Launches Its Own Cloud Gaming Platform, Deutsche Telekom. [2] Making Artificial Intelligence Accessible to Everyone, Acumos AI.

This research is based on a combination of CSP-OT forecast assumptions, quarterly forecasts, input from CSP technology leaders during the last year and analysis of CSPs' digital transformation efforts.

Note 1: Network-Based Communications Service Providers (CSPs)

Network-based CSPs refer to traditional telecom carriers that own extensive network infrastructure to provide communications services. See Market Definitions and Methodology: Communications Service Provider Operational Technology for additional details on Gartner's classification of CSPs.