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Telecom Transformation Agenda for the 2020s

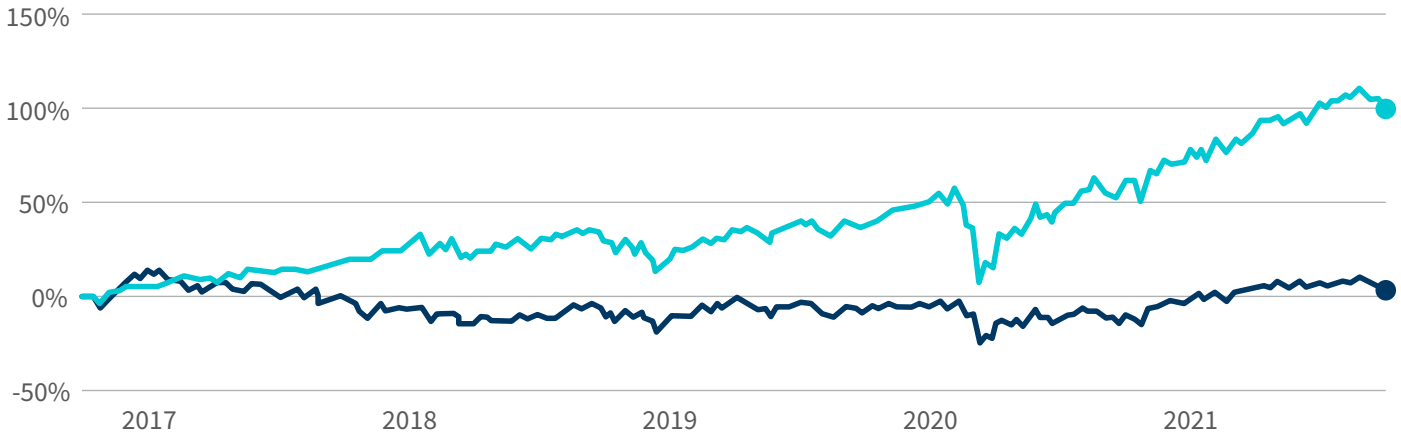
Telecommunications services are the gateway to the digital world, leading the development of the Internet and now powering a third wave of the digital revolution. The pandemic has only accelerated the volume, complexity and demand, making telecom services even more critical to everyday life since the outbreak and enabling industries across sectors to operate with an unexpected semblance of normalcy. This outcome has changed an entire generation's perspective on the possibilities for the future.

Despite the potential, telecom operators underperform other sectors — in particular, the digital native players they often enable but who are setting the standards for the industry. This has negatively impacted a variety of metrics ranging from customer satisfaction to shareholder returns. Indeed, telecom has been one of the worst-performing sectors as measured by equity growth over the past five years (**Exhibit 1**).

Numerous attempts at transformation and significant investments have not yielded the anticipated benefits. Telecoms, or telcos, have remained siloed and slow to change, often lacking clarity of vision. Legacy processes, organizational structures, ways of working and an immense operational support system/business support system (OSS/BSS) technical debt have contributed to making the transformation journey challenging. Uncoordinated and patchwork solutions have only exacerbated the pain, often leading to stalled projects or underperforming initiatives.

At the same time, the demands from the industry will only intensify as increasing digitalization of enterprise processes and scaled application of technologies such as the Internet of Things (IoT) will require a fully digitalized environment. A structured, integrated approach and boldness of vision are needed.

Exhibit 1 - 5 Year Growth: Telecom vs. S&P 500



iShares US Teleco.	$32.56	+$1.04	↑3.30%
SPDR S&P 500 ETF	$430.57	+$215.53	↑100.23%

Source: Google Finance

An inflection point for telcos

The current environment for telcos is reminiscent of classic industry inflection points such as the early 2010s was for retail, when big-box retailers began to face the onslaught of digital native e-commerce companies due to an intersection of consumer, business and technology trends. A similar convergence has taken place for telcos. The following factors show a need for change within the industry:

1. **Abstraction of services** with the accelerating softwarization of networks is on a path to further unlock the potential of digital. SDN, NFV, 5G and other software-based paradigms could create an opportunity for more immediate, automated, seamless provisioning and remediation.

2. Digital native players have set a new level expectation for the customer experience, which telecom operators have yet to match. **Consumers' service needs and patterns are rapidly evolving,** such as increased fiber-to-the-home (FTTH) penetration, and will continue to change at a rapid pace as pandemic restrictions ease and economies reopen.

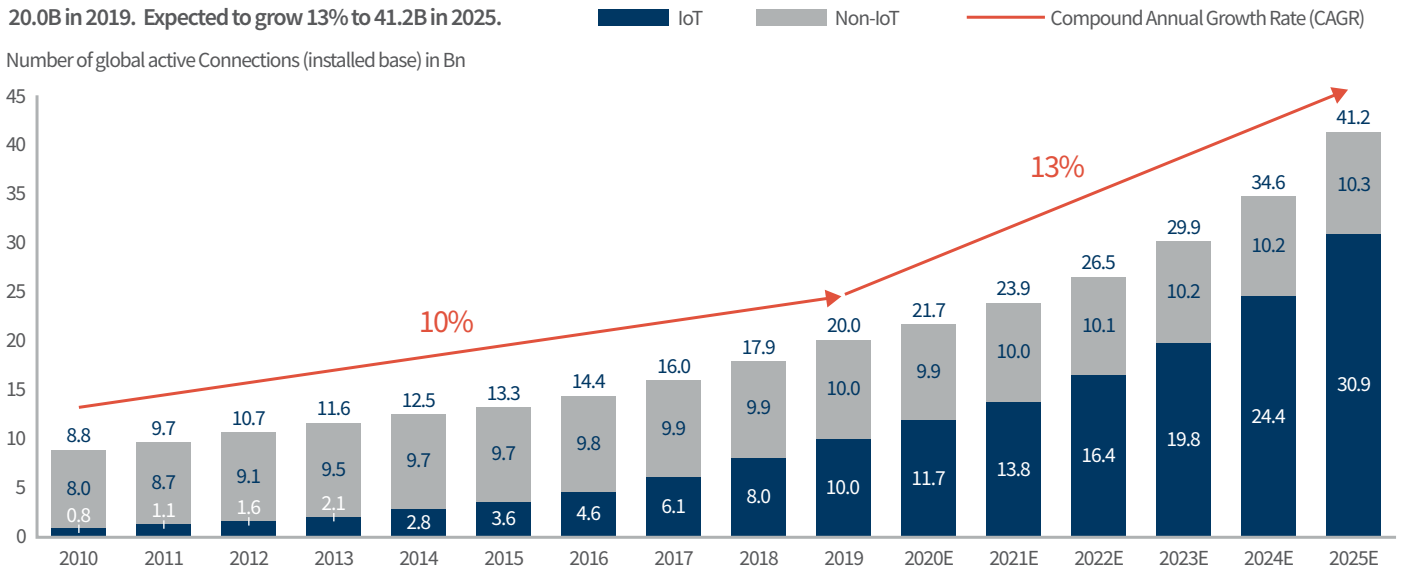
3. Enabling Web3 use cases and IoT activation (**Exhibit 2**) has become a reality, requiring automated operations, edge computing capabilities and the ability to consume and interpret data across the enterprise at an unprecedented scale.

4. This intersection of trends is fostering **new ground for competition** and leading to the emergence of new business models and focus areas. Areas include asset-light telcos with reduced cost basis that leverage technology and machine learning to increase operational efficiency.

5. The **ability to participate in a digital ecosystem will become critical** as consumers and enterprise customers require specific choices from an array of providers across the value chain.

As this convergence of trends comes to a head, supporting customers in siloed BSS/OSS systems becomes increasingly challenging. Introducing new processes to improve the customer experience within various systems for sales,

Exhibit 2 - Total Number of Device Connections (Incl. Non-IoT)



Note: Data as of November 2020. Non-IoT includes all mobile phones, tablets, PCs, laptops, and fixed line phones. IoT includes all consumer and B2B devices connected. See IoT break-down for further details.

Source: IoT Analytics Cellular IoT & LPWA Connectivity Market Tracker 2010-25

service and billing requires complex and expensive integrations. Such integration often requires expensive custom development, increasing the total cost of ownership and time to market. The complexity and legacy of the portfolio hinder the operator, making new developments difficult to implement.

At the same time, legacy organizational capabilities, culture and mindset encourage the status-quo, leaving telcos exposed to cannibalization.

Telcos will need to make critical decisions regarding how to manage the upheaval of an industry that will look very different in the next decade. In times of great change, industry leaders have to ask difficult questions and work hard to reinvent. In the process, two determinant success factors have emerged: (1) an integrated approach to change and (2) the right transformation archetype.

An integrated approach

The primary reason for transformation failures is the lack of a sustained and integrated approach. Transformations are often based on, or devolve into, solving localized problems rather than systemic imperatives and behaviors. Change occurs in silos without sufficient integration and alignment of business strategy, commercial strategy, technology investments and operating model changes.

An integrated approach to succeeding in digital transformations involves structure and planning along five key axes (**Exhibit 3**).

Exhibit 3 - A Successful Transformation Approach

Exhibit 3 A successful transformation approach integrates five key axes: 1) customer-centric experience design, 2) modern technology, 3) data investments, 4) a digital first organization and 5) an operational processes to support the business strategy.

1. **Business strategy:** Alignment on strategic vision, where to compete and how to compete is critical. Will the business model focus on providing more tightly integrated services or on pure-play infrastructure? Which is better, an asset-light approach or focusing on a digital platform play with specific competencies such as edge and IOT computing? Outlined trends will require companies to rethink their business model; merely applying a digital Band-Aid on the old-world approach would be a missed opportunity.

2. **Technology and data platforms:** The legacy OSS/BSS systems are the single biggest impediment to allowing telcos to deliver on their future imperatives. In the early 2000s, the big-box retailers were simply not equipped technologically to withstand the onslaught of digital natives like Amazon- and Shopify-enabled challenger brands. The largest investments made by the successful legacy retailers left standing and thriving in 2021 have been in completely overhauling their technology and the surrounding operating model. A similar trajectory will unfold in telecom, requiring investments in a model digital front end with a decoupled and modularized back end, allowing for a flexible deployment of services at a fraction of the time it takes today.

3. **Stakeholder experience:** Today's customers require ease and simplicity, as do the employees who service them. Customers' expectations have been shaped by the digital consumer products and services around them. They are often confounded when dealing with telcos and what they feel are either antiquated processes, indifference or both. This is not merely a function of digital experience but everything from simplifying business complexity (e.g., simple, easy-to-understand plans) to personalized customer service and connected experience (e.g., digital service tracking).

4. **Agile organization:** Transformations require a fundamentally different way of rewiring an organization's DNA, from cross-functional teams and aligning teams around customer needs and journeys to relentlessly design products and services for improving their experience. One staging pattern (discussed below) is to start with a dual-speed organization, with a digital-first team moving fast to incubate new technological paradigms and ways of working.

5. **Intelligent operations:** Advances like sensorization and machine learning/artificial intelligence (ML/AI)-driven augmentation of workflows and processes across a wide array of use cases are important to success. For instance, anomaly detection and predictive maintenance to churn prediction and network design in a way that improves speed and effectiveness for both customers and employees could be a determining differentiator for the telco of the future.

Selecting the right archetype for change

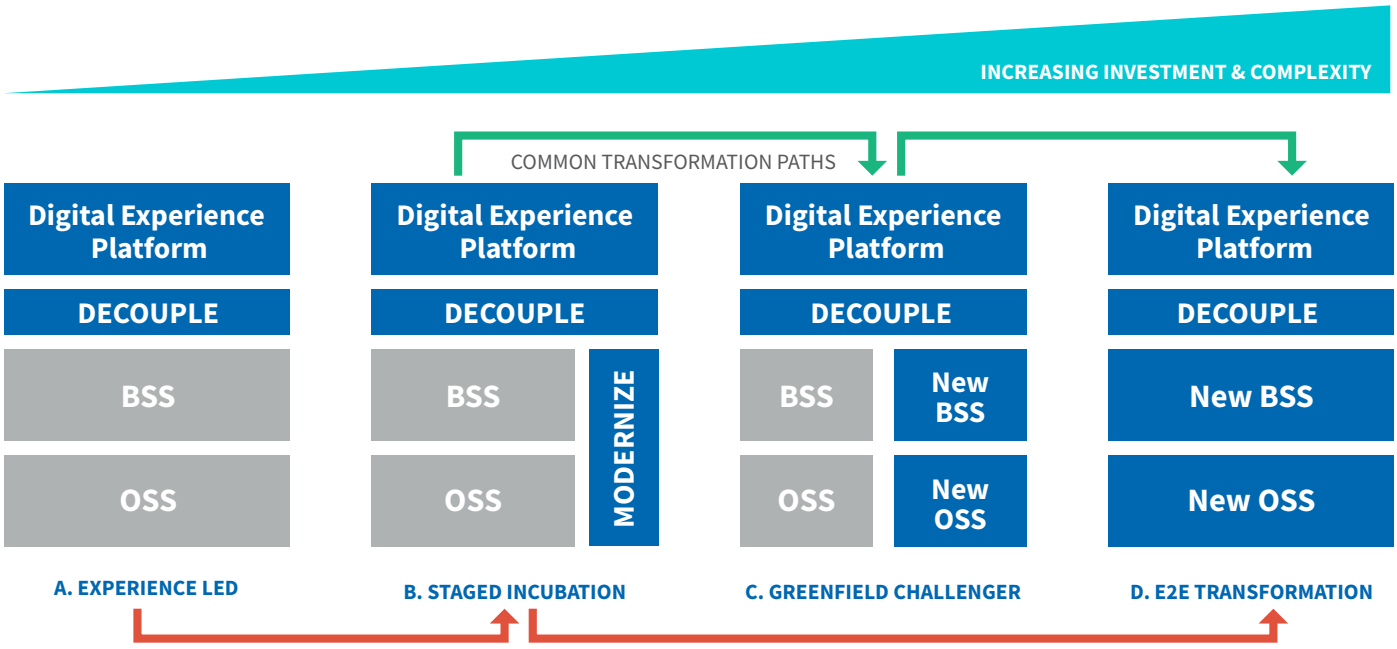
Executing on transformations requires forethought and making pragmatic choices that acknowledge that things may not go as planned. A critical aspect of successful transformations is to combine the integrated approach and key levers described above with an archetype for the journey that aligns with the telco's risk environment, business strategy, operating model and technology imperatives. A common theme in transformation narratives involves fear tactics or adopting a heroic posture that transformations cannot be incremental and are do-or-die battles. There is no doubt that change journeys require boldness and vision, but they can also be staged and executed with method and structure.

Some common entry points and transformation paths are identified below (**Exhibit 4**). The first two are popular starting points that impact customer experience and capture business results with a relatively short runway while allowing the organization to incubate new technology and ways of working, gradually building upon successes and giving the larger organization the flexibility to chart a course for adoption. The last two require more abrupt overhauls with significant investments, typically when entering new markets or executing into significant business pivots.

A. Experience Led

This archetype starts with a relentless focus on improving customer satisfaction and the experience of all employees involved in that service. This process requires that

Exhibit 4 - Transformation Archetypes for Telecom Companies



Source: FTI Consulting, Inc.

employees be able to sell digital effectively, improve the lead and demand generation processes, and automate the sales funnel with such tasks as enabling smart cart, reminders, prompts and guided navigations to complete pending transactions. The experience can then evolve into a full omnichannel digital self-service with frictionless engagement (e.g., Where's My Tech?) and enabling intelligent CRM capabilities that anticipate and target customer needs in a way that's helpful but not intrusive. The archetype also includes implementing smart tech support enabled with machine learning–based resolution and recommendation systems.

A large part of this journey can be accomplished by investing in a sophisticated digital experience platform and an application programming interface (API)/microservices application layer underneath, which decouples it from the legacy back-end systems. The telco is then able to evolve into an agile product-based operating model focused on improving customer experience with great velocity and focus while also addressing the longer-term path for modernizing legacy systems.

B. Staged Incubation

This archetype is a variation of the first and is typically undertaken when certain business functions and underlying technology need to be overhauled. Instead of being treated as a specific IT project, the process is marshalled as an incubation for a transformative agenda by standing up a semi-autonomous digital-first team and modern technology architecture in a startup-like fashion. The remit is to not only modernize the specific technology and function but build the muscles to jumpstart transformation throughout the organization.

Similar to the first archetype, this has the benefit of staging the change by allowing teams a safe place to incubate new technology and ways of working. Once it matures into a future-state operating model, it can incrementally be transferred to the rest of the business.

C. Greenfield Challenger

In some instances, a challenger model might make sense with the right business conditions and investment theses.

For example, emerging business lines such as the rapid penetration of fiber-to-the-home (FTTH) require companies to rethink their entire business and service model and systems, often justifying the investment in a greenfield build-out of a modern ecosystem that challenges the legacy infrastructure. This allows the company to invest in and mature greenfield on new, rapidly growing business lines and migrate legacy over time to a fully modernized and integrated stack.

D. E2E Transformation

The end-to-end (E2E) transformation of the service and operating model and the technology ecosystem is a goal of the different transformation paths. Some circumstances may require a "big bang" approach with a complete end-of-life scenario of large parts of the business or the more obvious scenario of establishing a new company. A key feature of a fully transformed state is a cloud native architecture built on modern technologies, completely modularized with decoupled interaction layers — including a sophisticated customer-experience layer and an operating model that consists of agile customer-facing product teams focused on customer and top-line business metrics. At the same time, agile operational product teams can focus on operational and bottom-line business metrics.

Telecom operators have a unique opportunity to dominate the business landscape for this coming decade as increasingly essential service providers to businesses and consumers. This will require executives to make bold but rigorous choices around their future business model and strategic direction while aligning together the most critical aspects of running a modern digital business to fulfil that direction, from customer experience centricity and modernizing technology assets to digitizing operations and rethinking the organizational structure to support the business.

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