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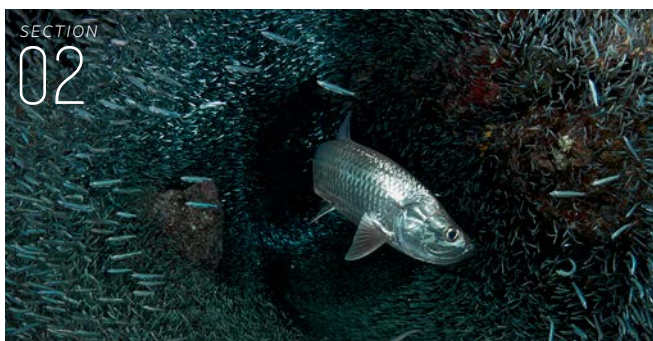


telco.nxt

The telecommunications industry is at a crossroads, and companies have a decision to make about their future: Remain utility providers, or evolve into comprehensive digital-service suppliers.

WRITTEN BY BALAMURALI THEKKEDATH & STEPHANIE OWYOUNG

TABLE OF CONTENTS: telco.nxt



2

EXECUTIVE SUMMARY

Power to the connectors

6

A BRAVE NEW WORLD

Telcos provide the constant connectivity that fuels innovation.

16

THIS IS YOUR INDUSTRY DISRUPTED

New offerings from over-the-top players like Netflix will continue to dramatically increase network traffic, breaking traditional value chains and challenging telcos to offer customers more diversified and customized services.


28

CONCLUSION

Digital evolution means survival of the fittest



POWER TO THE CONNECTORS



Telcos provide essential connectivity
but are looking to escape relegation
to utility status.

What role will telcos play in the connected world of tomorrow?

Connectivity is no longer a luxury; it's now an integral part of our lives and a critical tool of virtually every industry. Its value will only increase as mobility reshapes commerce and culture worldwide.

Pervasive connectivity creates three imperatives for industry leaders:

Maintain constant contact. The rising tide of smart devices and smart places such as Wi-Fi-connected airports, malls, parks and even entire cities is forging a world where all aspects of business, government and personal life are constantly connected. Telcos must ensure they remain at the core of those various connections.

Assess and leverage the true value of connectivity. The value of connectivity has increased with the success of mobile-based business models such as Uber. Yet many telcos have failed to profit from this trend.

Seek revenue opportunities in new connection points and data sets. Advances in mobility, smart machines and the Internet of Things (IoT) present fresh opportunities for telcos

to diversify, build robust ecosystems and compete in the new normal.

Now is the time for telcos to determine what role they want to play in this highly digitized, hyperconnected world: Function as a utility service, or offer something more. The successful telcos of the future will not only facilitate connectedness but also extend into value-added services.

Whether they aspire to become full-fledged digital service providers or focus primarily on providing connectivity, telcos must accelerate innovation, agility and efficiency to meet high customer expectations. To do so, telcos around the world are seeking to make their infrastructures more programmable and elastic, and their operations more automated so they can deliver more personalized, user-driven services.

What part will your business play in the hyperconnected world of tomorrow? Now is the time to decide. ■

“A digital transformation without new, agile methodologies is like trying to ice-skate on tennis shoes.”

*DAVE SLITER
VICE PRESIDENT & GENERAL MANAGER,
COMMUNICATIONS & MEDIA SOLUTIONS,
HEWLETT PACKARD ENTERPRISE*





01

A BRAVE NEW WORLD

Telcos provide the constant connectivity
that fuels innovation.

The death of disconnecting

A torrent of connected devices and smart places has transformed “logging off” and “shutting down” into vestigial phrases from a dead language.



A deluge of connected devices is revolutionizing telecommunications. Industry leaders are proving their dedication to transforming networks and pursuing IoT and [Big Data](#) analytics opportunities with major investments and strategic partnerships. As of today, China Mobile, Vodafone, AT&T, Verizon, China Unicom, SoftBank/Sprint and DTAG can all claim more than 10 million machine-to-machine (M2M) connections.

At the same time, telcos are making substantial investments in additional network capacity to address escalating demands and anticipate new use cases. This strategy is manifesting as growth

intensifies in LTE network capabilities and the emergence of 5G network standards and trials. New IoT use cases will continue to emerge while existing ones (such as connected cars and home-monitoring solutions) mature and spread. To keep up with this new technology, telcos must change how they do business.

Meanwhile, telcos must also run the existing networks on which global communication relies. Telcos have billions of dollars invested in existing networks that are expected to be in service for many years to come, so it will take time to implement wholly new network infrastructures and operating

capabilities. This means telcos won't be able to rely completely on revamped approaches to drive appreciable cost and agility benefits. Instead, they will need to retrofit existing networks and apply new operations and management tools in order to manage costs and enhance the agility of their services.

Telcos can no longer rely on past models to guarantee future success. Whether or not connectivity is eventually treated as "just another utility," the industry will always be highly regulated. For the foreseeable future, telco leaders will need to balance innovation and compliance. ■



Connectors without borders

Telcos can help future travelers enjoy seamless connectivity through smart locations.

More than 100 cities around the world are currently implementing some kind of smart solution within their public transport infrastructure. Smart locations offer telcos fresh opportunities to provide customers with the convenience of seamless connectivity in transit and through various smart zones, such as airports, train stations and hotels. Telcos can use their awareness of customer location, movement, personal preferences, usage profiles and more to provide value-added travel information.

Government organizations in cooperation with “smart enablers” and other IT consultants will be able to aggregate information to enable

powerful cross-vertical use cases.

Telcos can enter this horizontal service space not only as connectivity providers but also as purveyors of new platforms and capabilities. To do this, they will likely need to partner with other players, including telco competitors and OTT providers, to form joint ventures that offer services throughout various smart cities, creating a seamless, borderless experience for travelers and customers alike.

As data volumes swell, advanced analytics creates new opportunities. By capturing and analyzing data, telcos can create increasingly personalized experiences for their

customers and streamline their own business processes for maximum efficiency. They will also discover opportunities to help enterprise customers deliver experiences to their end users. For example, telcos can deliver wireless shopping experiences to big-box stores. However, privacy and security concerns will complicate the pursuit of opportunities built on customer data. ■

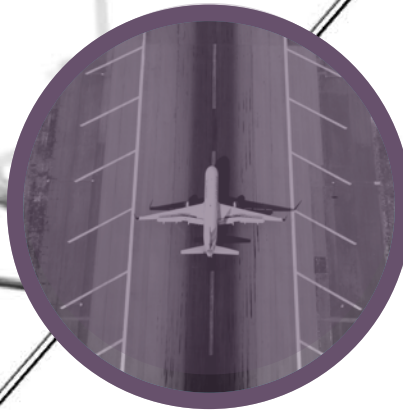


TIME TRAVELERS

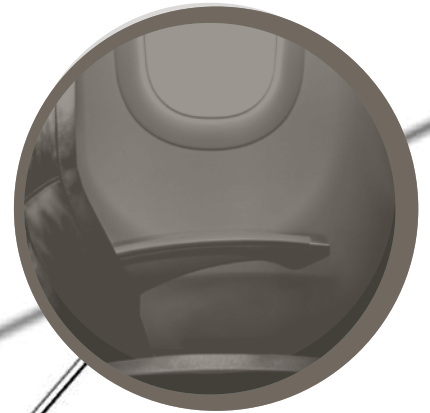
Imagine the amount of time and energy tomorrow's typical business traveler could save by using the smart solutions of a hyperconnected world.



**LEAVE
SMART HOME**



**ARRIVE AT
SMART AIRPORT**



**TRAVEL IN
SMART PLANE**

- Smart thermostats, security systems and other devices make necessary adjustments

- Connected car finds the best long-term parking option
- Smartphone automatically checks in for flight

- Traveler consumes customized media options (podcasts, e-books, etc.)
- Bio-connected alarm-clock app goes off at the optimal time based on flight arrival and traveler's sleep cycles



ARRIVE AT SMART AIRPORT

- Traveler receives alert from smart luggage when baggage is ready for pick up
- Ground transportation automatically requested when bag is retrieved



ARRIVE AT SMART HOTEL

- Smartphone automatically facilitates room check-in
- Virtual room key enabled on hotel app



AFTER THE TRIP

- Travel preferences stored for the next trip
- Data booked and expenses automatically aggregated for relevant reporting

01

NOW
TO
NEXT

A Brave New World

Connectivity is a constant. The rising tide of connected devices and smart places has revolutionized the way we live and conduct business. Such breakthrough technology presents telcos with the opportunity to offer a suite of new, customized services, cementing themselves as an invaluable part of our increasingly digital lives.

To learn more about how smart technology can help telcos meet rising customer expectations, read our [**Technology.nxt report**](#), particularly section one, “Machine Intelligence,” section four, “Security, Privacy and Ethics” and section five, “Digital Planet.”

Next:

More than 100 cities around the world are currently implementing smart transportation infrastructure solutions. Telcos must position themselves to deliver seamless connectivity and customized offerings to customers wherever they are. This approach requires partnering with government agencies and other tech providers — even telco competitors.

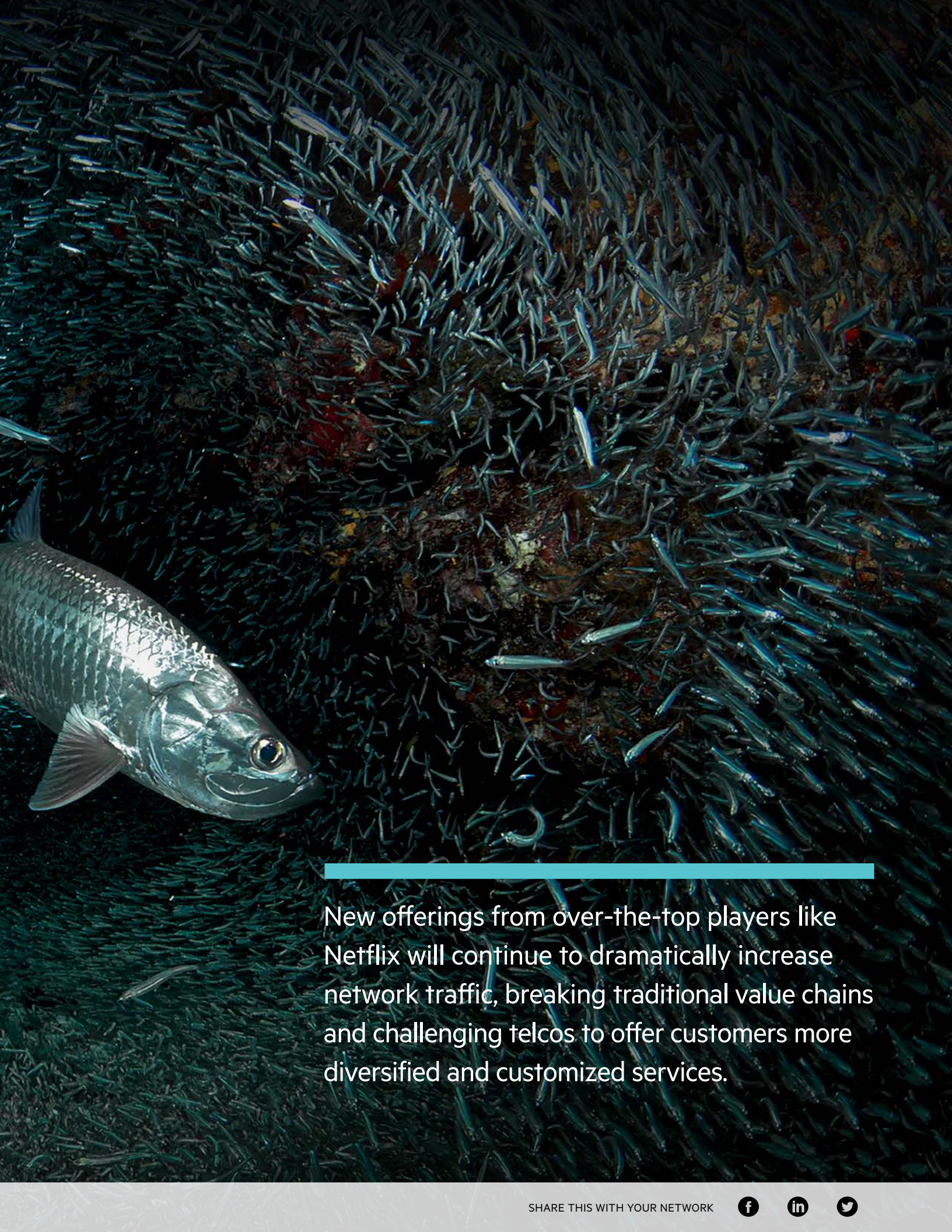
Most telcos will continue to invest in additional network capacity to address escalating demands. Maintaining current networks while looking ahead to the future is a delicate balancing act. If they can manage their networks efficiently enough to be profitable, even as utility providers, telcos will gain the freedom to invest in diversification opportunities.

As connectivity becomes more pervasive and more valuable, regulations — along with privacy concerns and other challenges — will put pressure on telcos to update their business models.



02

THIS IS YOUR INDUSTRY DISRUPTED



New offerings from over-the-top players like Netflix will continue to dramatically increase network traffic, breaking traditional value chains and challenging telcos to offer customers more diversified and customized services.

Gratification on demand

Today's consumers want personal, customized experiences from all media. Telcos must meet these high expectations while planning innovations to please customers of the future.

Pervasive connectivity and the explosion of on-demand services are driving increased customer expectations for instant gratification and interactive, customizable experiences across all media. To stay relevant, telcos must provide services in a paradigm aligned to the latest expectations and the push for instant gratification.

The simple truth, however, is that telcos aren't optimized to meet customers' current wishes because their infrastructure and business models were built for reliability rather than agility. In the current landscape, telcos can no longer take 18 months between ideation and implementation. By the time they finish, the technology — and

the customers — will have moved on. To stay in the game, telcos must rethink their go-to-market strategy and brand relevance, tear down silos and rebuild business structures horizontally, not vertically, to offer a customized, on-demand experience for customers and keep up with the latest technological advancements. ■

WI-FI ROLLOUT

In a 2015 survey, 90 percent of international mobile network operators and 70 percent of multiple-system operators said they planned to deploy Wi-Fi calling by 2020.

TOP 5 REASONS FOR DEPLOYMENT

REDUCE CHURN

FILL VoLTE GAPS

REDUCE TOTAL COST OF OWNERSHIP

IMPROVE INDOOR COVERAGE

ATTRACT ENTERPRISE USERS

OPTIONS AND OPPORTUNITIES

As Wi-Fi-enabled airports, malls, parks and even cities proliferate, and LTE networks spread across every nook and cranny of the globe, Wi-Fi calling, messaging apps and other new means of communication are the latest ways to connect people near and far.

Despite the common misconception that “no one talks on the phone anymore,” voice remains a dominant form of communication. In fact, voice revenues still account for almost half of global mobile operator revenues. However, spotty mobile coverage is still a problem in many areas. In a recent global survey, 74 percent of consumers said they’d be willing to switch operators for better coverage at home and in the office, and 61 percent of IT decision-makers said their business doesn’t have reliable coverage.

When texting became a popular alternative to voice, many were skeptical of its value. Now, messaging apps, including WhatsApp, Facebook Messenger and WeChat — with special features like mobile payment and “stickers” for in-app purchases — are making traditional texting look quaint and old-fashioned by comparison.

Although many telcos still view Wi-Fi calling and messaging apps as a threat to voice over LTE (VoLTE) and traditional text messaging, others are embracing the opportunity to offer these services as complements that can help deliver a more seamless customer experience.

Keep friends close, competitors closer

Over-the-top (OTT) players are disrupting the telecommunications industry, creating a new landscape. To meet this challenge, telcos should consider joining forces with their traditional rivals.

In recent years, OTT players have reshaped how consumers think about telecommunications by offering competing services that bypass traditional distribution methods. Most notably, OTT instant-messaging services have contributed to the decline in traditional text messaging. The WhatsApp messaging app leads the pack with 44 percent of the global market, followed by Facebook Messenger with 35 percent and WeChat with 28 percent. WeChat is especially dominant

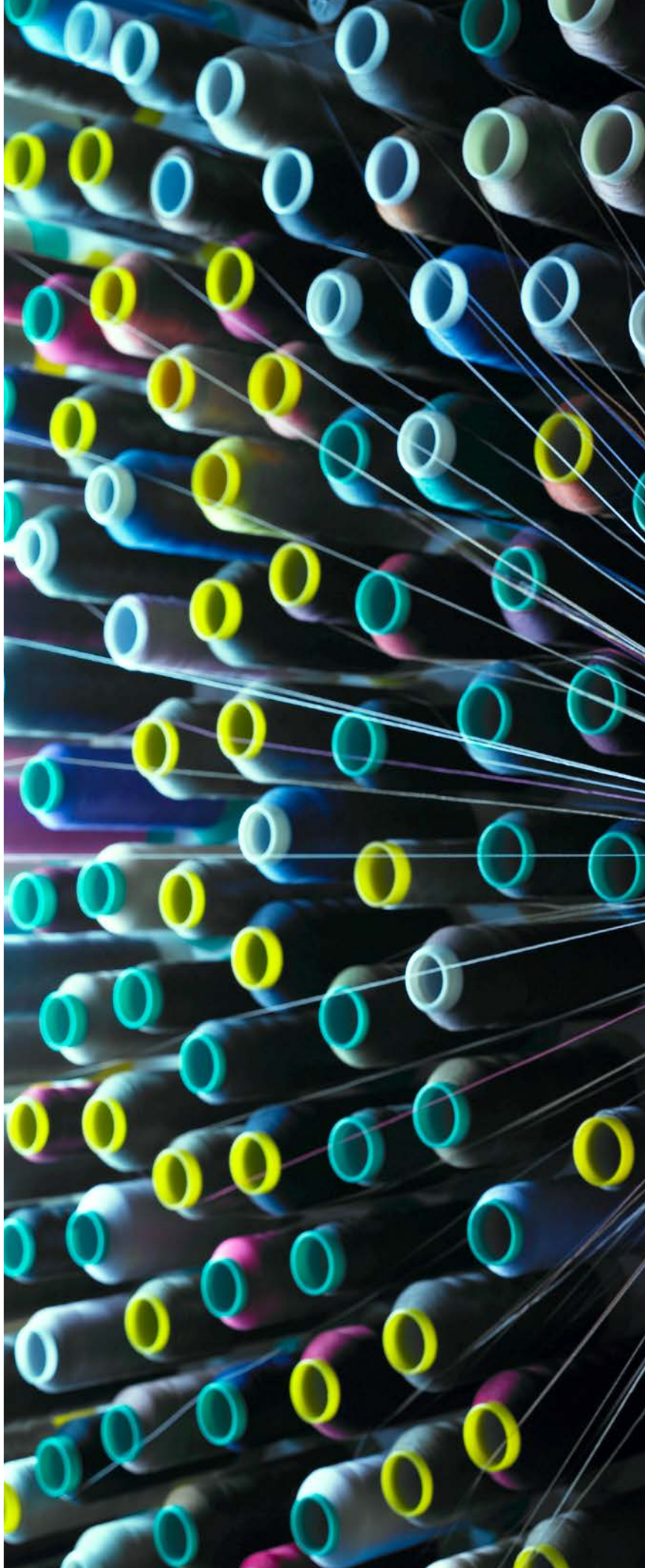
in China, where it holds 93 percent of the market. Many telcos feel pressured to compete with OTT players but don't know how. Some industry leaders wonder if they can meet rising customer expectations for instant gratification and interactive, customizable experiences across all media without compromising the integrity of their current systems.

Over-the-top providers have reshaped how consumers think about telecommunications by offering competing services that bypass traditional distribution methods.



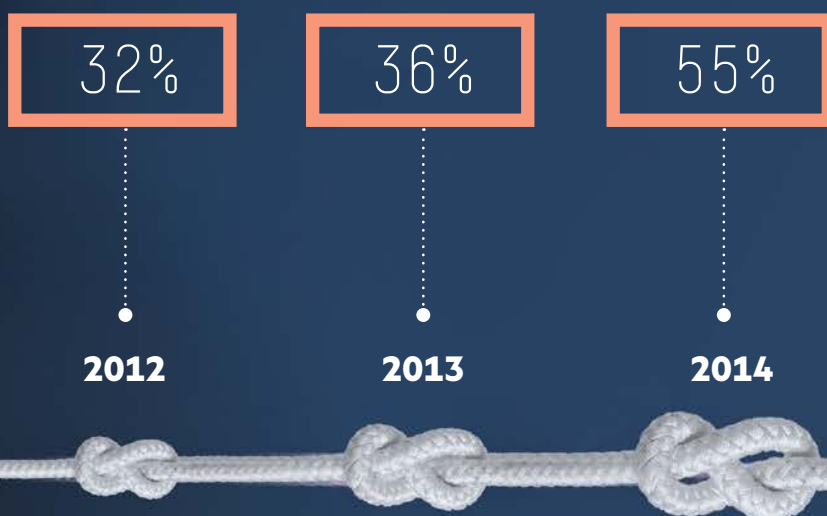
The answer may be found in a surprising place. Strategic partnerships, including those with OTT contenders and other competitors, are a valuable tool for telcos looking to leverage their incumbent strengths and diversify their offerings. Consider, for example, Facebook's Telecom Infra Project (TIP), which is based on the idea that TIP members — Intel, Nokia, Deutsche Telekom and SK Telecom, to name a few — can work more collaboratively to expedite the expansion of wireless networks in underserved areas.

A global survey of mobile network operators (MNOs) found that WhatsApp, Skype and Facebook Messenger are seen as the biggest OTT challengers, with WhatsApp being the top service MNOs said they'd like to offer to their customers. The vast majority (80 percent) of MNOs surveyed believe they can generate revenue from OTT services; and 71 percent think partnering with OTT players will improve customer loyalty. ■



ALLIED POWERS

Mobile network operators are increasingly interested in partnering with over-the-top competitors.



**MNOS THAT HAVE PARTNERED OR WOULD
PARTNER WITH OTT PLAYERS**

REVENUE IS THE BEST REVENGE

Driven by the popularity of OTT instant-messaging apps, messaging traffic is expected to double by 2019, according to a recent global industry forecast. However, as traffic doubles, revenues are projected to fall by USD \$600 million. Although many telcos see OTT messaging platforms as a threat, the fact is OTT contenders still haven't determined how best to monetize their services.

Attempts to monetize through advertising have been unpopular with users, particularly in Asian markets. OTT players are now attempting to monetize through in-app purchases (such as "stickers") and by diversifying their offerings with additional services. For example, Facebook Messenger, LINE and Snapchat have recently entered the mobile payments market. Even so, forecasters report that, in 2019, each OTT message will generate less than one percent of the revenue as SMS and MMS messages.

MOBILE PAYMENTS MADE SIMPLE

Many customers find mobile payments to be a convenient option. Despite the hype around near-field communication (NFC) and cloud-based wallets, direct carrier billing (DCB) is by far the most popular method in use today, and there is still plenty of room for telcos to grow revenue in this developing market.

DCB is an especially useful service for customers who don't have access to bank accounts or credit cards. According to Gallup, two billion adults worldwide remain "unbanked." That's nearly half the adult population. Unbanked adults are especially prevalent in South Asia, where they make up 31 percent of the adult population, as well as in East Asia and the Pacific, where they account for 24 percent.

Mobile phone users

4.6 billion

Bank account owners

3.5 billion

Credit card owners

2.1 billion



02

NOW
TO
NEXT**This Is Your Industry Disrupted**

Today's consumers — and those of the future — have different needs than the ones that telco business models were built to serve. Meeting people's high expectations for instant gratification and ultra-personalized services will mean restructuring business operations to speed up sales cycles and keep pace with changing technologies. Telcos should consider how partnering with OTT players and other competitors can enable them to offer the diverse range of services their customers expect.

For another example of enterprises partnering with digital disruptors, read section one, "One for All, All for FinTechs," of our **Banking.nxt report**.

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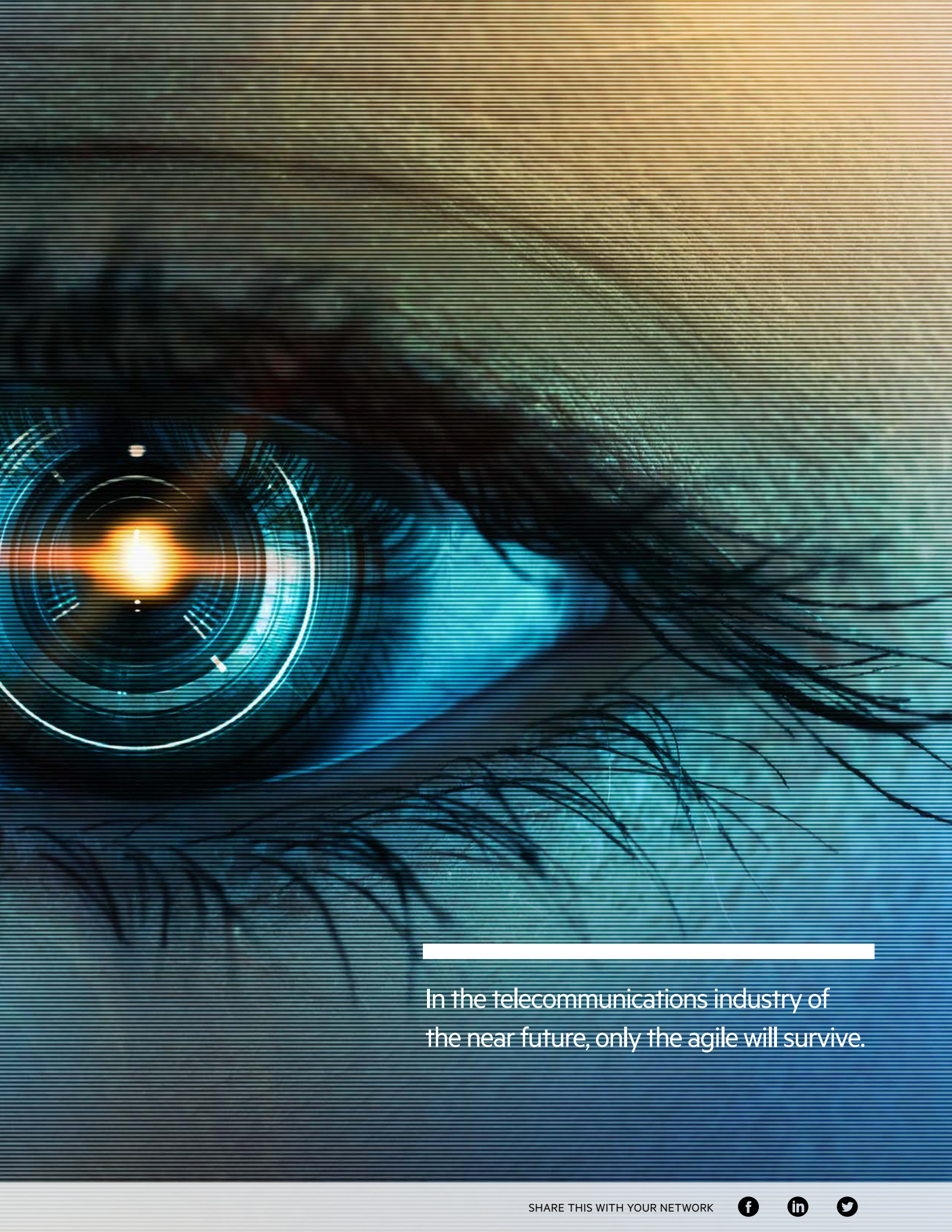
Wi-Fi calling, messaging apps and other services have emerged as the latest ways to stay connected. Although many telcos once saw these options as a threat, they are now thinking about how to incorporate them into their current offerings to provide a seamless customer experience.

Mobile network operators (MNOs) name WhatsApp as their biggest OTT challenger. They also named it as the service they'd most like to offer their customers. To compete in this changing climate, many telcos have decided to keep their friends close and their competitors closer by seeking mutually beneficial partnerships to bolster their offerings.

The telco business models of the past weren't built for the current market. To keep pace in today's world, telcos will need to tear down silos and rebuild business structures horizontally, creating a more agile structure that can flex and respond to customers' changing demands.

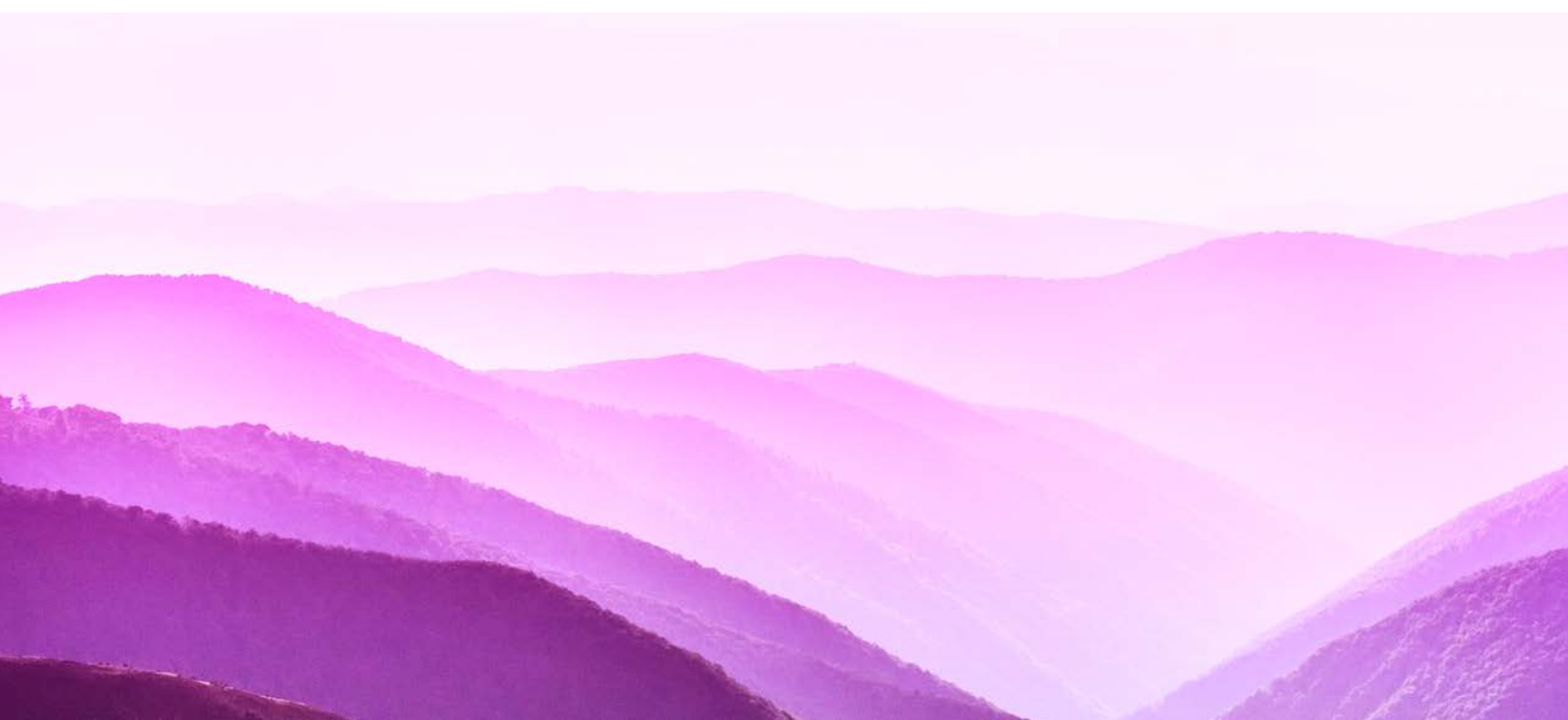
Despite their popularity, OTT messaging apps still haven't found the best way to monetize their services. This means that although OTT messaging traffic is expected to double by 2019, revenue is likely to fall. Telcos and OTT competitors can both benefit from strategic partnerships that enable telcos to offer customers ultra-personalized suites of all the services they desire.

DIGITAL EVOLUTION MEANS SURVIVAL OF THE FITTEST



In the telecommunications industry of
the near future, only the agile will survive.

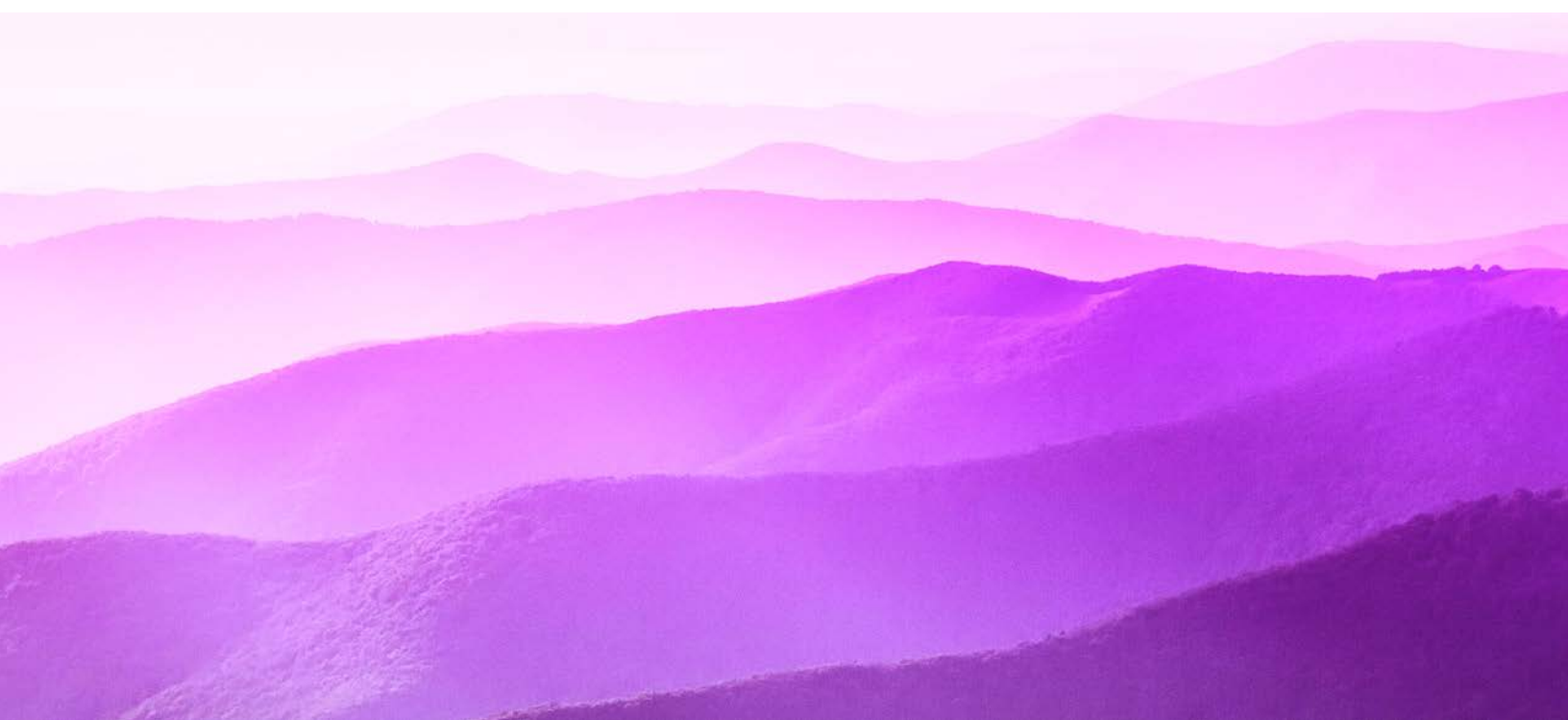
Riding the telco tectonic shift



It's true that the telecommunications landscape has changed significantly in the last few years. It's also true that telcos are under significant pressure to change their operating models in the face of digital disruption. But it's not true that telcos must necessarily be left behind as their industry evolves. In fact, digital disruption presents a huge opportunity for telcos to expand their capabilities and provide the services consumers want.

Most telcos understand why digital transformation is necessary, but how to go about executing such a shift is a more complex challenge. In many cases it will require acquisitions and strategic partnerships with competitors. In fact, many telcos will need to partner with OTT competitors to become effective providers of digital services.

To keep pace with those changes, telco leaders can take a number of steps to make digital transformation as smooth and successful as possible. First, telcos should make full use of their incumbent position as connectivity providers in the digital economy. They can leverage their rich relationships and intimate knowledge about customer preferences to offer new services and partner with OTT providers to enable uniquely customized digital experiences.



They can also leverage advanced data analytics to create better customer experiences. By using analytics to identify customer behaviors and preferences, telcos can provide relevant new services and identify areas of the business that they need to change.

In parts of Africa, for example, telcos provide banking services to customers and offer enhanced services based on data collection. In India, telcos help consumers pay for parking and digitally exchange money with friends and family. These are both examples of telcos investing to understand their customer data, identifying an unmet need and then satisfying that need. Telcos can apply the same principle to virtually any service in any market, working with a variety of partners.

The IoT presents another rich opportunity for telcos. Before long, the IoT will be omnipresent, as smart cities and connected devices become mainstays of modern life. Industry-specific IoT use cases will require tailored connectivity solutions and flexible service platforms, which telcos are well positioned to deliver.

In order to provide personalized services that target specific market opportunities, telcos will need to do more than just harness data analytics and the IoT. They must also create the operational flexibility and organizational agility they need to work with competitors, “co-opetitors” and customers. Telcos will need programmable, flexible infrastructure to meet ever-changing customer expectations and regulatory requirements while accelerating the process of bringing innovative services to market. This includes fast-fail service launches and higher levels of automation.

Telcos must stay focused on business outcomes as they pursue digital transformation initiatives. The key is to determine where the business should live on the spectrum between traditional communications service provider and full-fledged digital service provider. This will help telcos avoid IT initiatives that are not tightly linked to clear, achievable business opportunities. Instead, they can gradually shift service delivery to new platforms while maintaining the viability of existing deployments.

In addition to aligning digital transformation with business outcomes, telcos will need to drive a shift in their internal corporate cultures. Embracing streamlined operating models and organizational structures will increase agility and create a culture that embraces iterative approaches.

When ecosystems change, they create opportunities for evolution. As in the natural world, only the fittest survive. Telcos will survive and thrive to the extent that they view the changing telecommunications landscape as a chance to build on their strengths while experimenting with creative new offerings and solutions.

Hundreds of thousands of years ago, our ancestors learned to control fire. This innovation ignited rapid social progress that led to the civilizations we know today. If telcos can learn to control and channel the power of ubiquitous connectivity, they can help trigger another wave of progress that will change how we live our lives. ■

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3090

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DIGITAL TRANSFORMATION BENCHMARK: COMMUNICATIONS, ENTERTAINMENT, MEDIA INDUSTRY

HPE surveyed leading enterprises about their path to digital transformation. The results show that when compared to most other industries, the communications, entertainment and media industry is a leader in terms of understanding the importance of digital transformation and what priorities to focus on to ensure it happens.

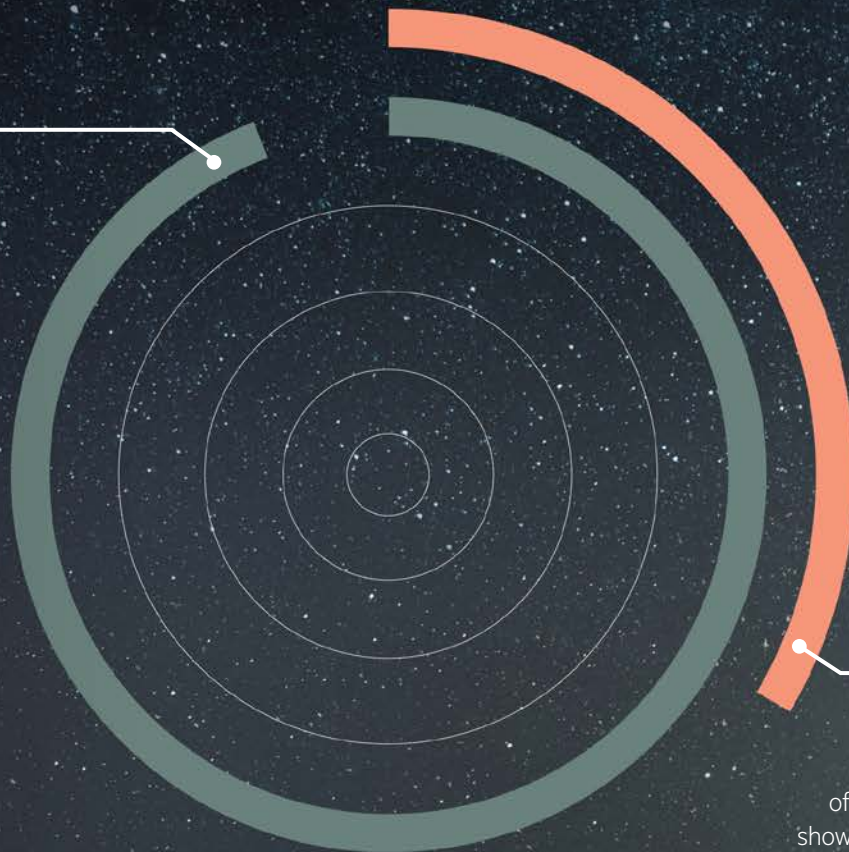
How does your enterprise compare?

Learn more about where you are in your transformation journey compared to others in your industry.

Visit HPE.COM/DTI

95%

of communications, entertainment and media enterprises are undertaking some form of digital transformation.



36%

of these enterprises are showing the most success. We call these companies "assertive leaders."

SURVEY RESPONDENTS REPORTED THESE PRIORITIES

1. Develop new processes or approaches to fundamentally change how business is conducted.
2. Deliver net-new digital customer experiences never before seen in the industry.
3. Create net-new products or services intended to disrupt the industry.
4. Gain a better understanding of customers.
5. Take friction out and increase the speed of the customer experience.

STRATEGIC DIRECTION OF TELCO TRANSFORMATION

Assertive leaders focus most predominantly on transforming their business operations — 81 percent report they are undergoing efforts to transform their operations, products and services, and customer experiences. While 10 percent plan to remain simple connectivity providers, the other 90 percent are moving toward a more diversified portfolio of services.

31% DIGITAL SERVICE PROVIDER

25% DIGITAL SUPPLIER

18% DIGITAL ENABLER

16% CONNECTIVITY + PROVIDER

10% CONNECTIVITY PROVIDER

Source: Coleman Parkes Research.

RESOURCES

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An abstract, flowing stream of bright blue particles, resembling a digital signal or data stream, moves diagonally from the bottom left towards the top right. The particles are concentrated in the lower half of the image, creating a sense of motion and energy against a dark background.

**Learn more about where you are in your transformation
journey compared to others in the communications, media
and entertainment industry.**

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Read more about the trends shaping the
telecommunications industry, and get the tools you need
to accelerate your transformation from now to next.

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