OLIVER WYMAN

THE OLIVER WYMAN CMT JOURNAL

VOLUME 3

MARSH GUY CARPENTER MERCER OLIVER WYMAN

MARSH & McLENNAN COMPANIES

EDITORIAL

Welcome to the third edition of the Oliver Wyman CMT Journal. The eight articles in this edition represent some of our latest thinking on the opportunities and challenges in this exciting industry.

The first section of the journal focuses on how telecoms operators can change to remain relevant for their customers in a digital world. We contend that most operators' customer experience, and the business model supporting it, is rapidly becoming obsolete when compared to how people now watch movies, get a cab, catch up with friends, book a table, listen to music, pay for something, find their way around, buy a book and, in a word, live. To retain their customer relationships, operators need to become digital, and radically so. Our lead article discusses what this implies and how operators might think about the journey. The following article underlines the nature of the next-level customer experience inherent in digital, accentuating how individualising experiences will be a key success factor for the industry.

In the second section we look at how operators can create a value proposition that is sufficiently differentiated to mitigate the ill effects of a commoditising market where one easily comparable service – internet access – rises high above all others. Our three thought pieces describe how such differentiated value propositions can be built to become the driver for investments in next-generation networks and innovation, from the point of view of wireless as well as converged operations.

In the third section of this journal, we turn our attention to the telecoms network and how it is likely to change fundamentally in the future. The article on network virtualisation points to several emerging opportunities for operators, which should place them in a position to not only increase efficiency and save costs but also introduce new functionality. The subsequent article presents a new but already proven approach to realising efficiency and margin gains: by developing lean-network target pictures, rather than running iterative cost-cutting rounds, operators can define targets in a more systematic, long-term and sustainable way.

In the final section we share our views on how the ecosystem is changing, focusing on roaming this time. We explain why the present disruption to the international roaming market could well become a tsunami for the industry, potentially changing the dynamics of competition in almost every domestic market.

I hope you will find the CMT Journal inspiring and thought-provoking. Please do not hesitate to contact me or my colleagues to discuss further.

Best regards,

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Digital companies are adopting a very different mindset to ride the wave.

THE DIGITAL TELECOM OPERATOR

AN INDUSTRY AT THE VERGE OF A NEW PARADIGM

Despite the fact that telecoms companies are providing the very fabric of the digitisation wave currently disrupting many industries, most are themselves standing aside from the action. One consequence of this is that the telco customer experience is rapidly becoming obsolete. The same is true of the FMCG-inspired business model that has formed the foundation of the industry since the late 1990s – monolithic brands, massive distribution and bold public promotion are increasingly old hat. While some telcos continue to wait or embark in broad, slow transformation efforts, digital companies are adopting a very different mindset to ride the wave.

Digitisation is a wake-up call for the telecoms industry. The cards are now being dealt for a new game – one in which competitive stability is no longer the norm and where the most agile companies, those that are able to shift their mindset, will outsmart the rest.

TELCOS ARE LOSING THE RIGHT TO SELL

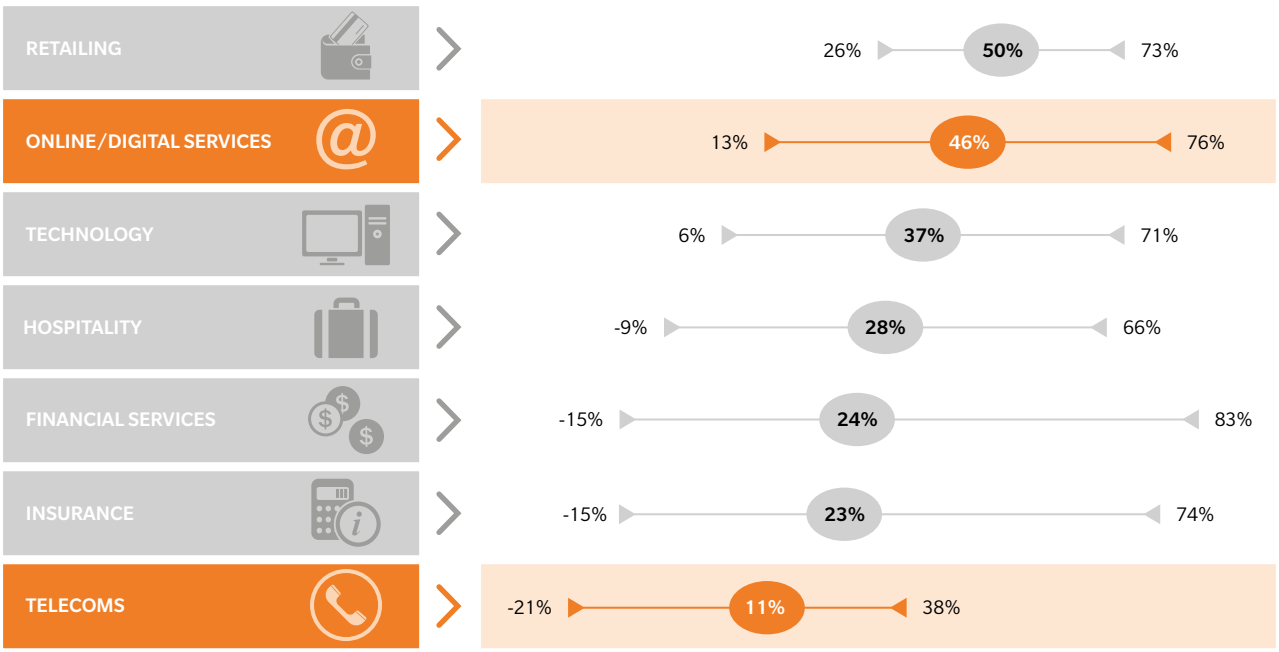
Telcos have long been sitting pretty. Historically, their ownership of licenses and access to spectrum and capital have given them the right to operate. Regulation has by and large matched this right with the right to sell to their customers. However, the right to operate and the right to sell are not the same thing.

This difference becomes readily apparent when looking at how customers see things. Customer satisfaction surveys indicate that most telcos score only low to moderate marks. Digital companies such as Airbnb, Amazon, Apple, Google, Netflix, Skype, and Uber are placed well above them in the ratings. Telcos often come towards the bottom of the list in NPS benchmarks, for example (see Exhibit 1). Why? In our view, these low ratings reflect the fact that most telcos provide an obsolete customer experience, sell a range of services that are needed less and less, and are interchangeable in the eyes of consumers.

This is not to decry telcos. Telecoms operators continue to be robust, large and strategically important companies. They provide one highly relevant service – internet access – which continues to be vital and high growth. A few, though not many, can also afford to play the content game, thereby gaining an edge in terms of differentiation.

All this has in fact been enough to extend the life of the telco's current business model and to provide a false sense of comfort to many in the industry. Nonetheless, big questions

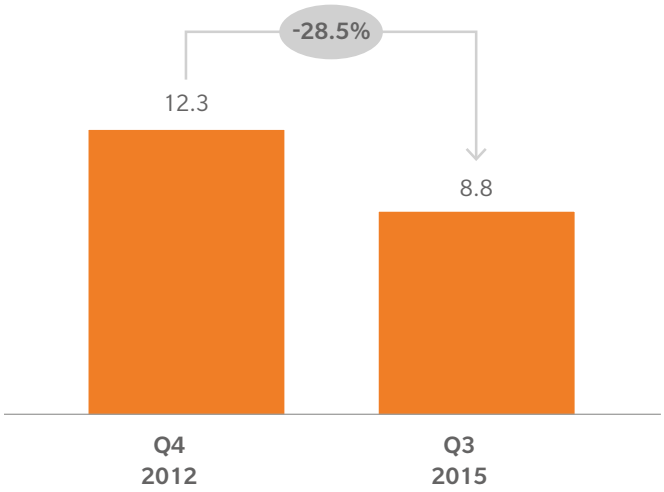
Exhibit 1: Industries ranked by Net Promoter Score (NPS)



Source: SatMetrix data

Exhibit 2: Impact of voice and SMS ARPU

VOICE & SMS ARPU



Source: Large Western-European operator public statements. Entire base. Currency withheld

TELCO CUSTOMER LOYALTY

"1-in-3 customers are thinking about switching mobile operator at any time"

Source: WDS Mobile Loyalty Audit 2014

remain. Many traditional telco services are losing their relevance for customers, and while they do provide one vitally important service, this is inherently undifferentiated.

Added to this is that the way telcos deliver and sell these services is increasingly obsolete in the eyes of customers, as the gap between their experience of the telcos and that seen elsewhere grows ever larger. This threat is compounded by the introduction of regulation and the advent of new technology that opens avenues for increasing disintermediation. Already some of the digital companies (the companies with high user satisfaction) are starting to sell telco services to their consumers. In such conditions, how long can the telcos remain relevant for their customers and retain the right to sell?

If they lose this right, others will undoubtedly take their place. Large mobile OS makers, social media companies, messaging app providers, search engines and other prominent owners of phone-screen real estate already have equivalent, if not better, brand permission to provide internet access – in fact, they are often the very reason why customers need access to the internet in the first place. With the support of some regulators and new technical developments like eSIM, companies such as these will get many more opportunities to "out-retail" relatively stagnant telcos, relegating them to the status of wholesalers of bandwidth.

These threats have not gone unrecognised by the telco industry. A few players (notably but not exclusively MVNOs that have no legacy operations to worry about) are trailblazing a digital telco path, some are already achieving impressive results. FreedomPop, free and GiffGaff are examples of successful businesses that have characteristics distinctly different to the established telcos. While this success should not be overstated – after all, these companies are often seen as marginal innovators that appeal only to specific, small segments – the question remains: is there a way for mainstream players to go digital too and, if there is, what does this entail?

THE DIGITAL TELCO CUSTOMER EXPERIENCE

The digital question can be put another way: just how radical do telcos need to be when going digital? This question is at the heart of what the industry is currently wrestling with. By now, most telecoms executives are moving their companies towards digitisation. Online channel offers have been around for a while. Mobile apps for self-care are common and are improving rapidly. Lots of work is being put into streamlining customer processes. And yet – the actual telco customer experience has so far changed little – certainly when compared to how customers now watch movies, get a taxi, stay in touch with friends, book a table or a place to stay, listen to music, pay for something, find their way around, or buy a book.

With customer habits and expectations changing so quickly, merely continuing to digitise customer processes is insufficient. It pays to think further ahead and formulate a vision of the company's future digital business model, all the way from the customer experience up.

Starting with the experience, Exhibit 3 highlights the major elements of our own vision of how a digital telco can work for the customer. Adopting such an approach will help telcos regain relevance and ensure they are competitive, both against other telcos as well as newer digital companies.

It is quite reasonable that some industry executives will be sceptical about a number of the features highlighted in Exhibit 3. Releasing control to the customer has often been viewed as ARPU dilutive, for example. In addition, there are fears that making disconnection easy could increase churn.

Though there is some validity to such concerns, the early experience of those that are implementing such ideas shows that when the customer experience is implemented well consumers can actually use their newfound freedom to boost their consumption: customers feel more at ease, less threatened and less constrained than when they were sold operator packages. Also, once disconnection and reconnection is made easy, customers might actually become more loyal to the experience and less prone to disconnecting. This highlights that going digital is as much about a brave, radical shift in business mindset as it is about making the experience more digital.

If a new business mindset is needed, then, telcos face a double challenge: not only will tomorrow's customer experience need to be fundamentally different, but so will their business model.

Merely continuing to digitise customer processes is insufficient.

Exhibit 3: Elements of the digital telco customer experience

		TYPICAL TELCO CUSTOMER EXPERIENCE	FUTURE DIGITAL TELCO CUSTOMER EXPERIENCE
1	REAL-TIME ACTIVATION	Customers are sold and provisioned services through a mix of physical and online channels, often requiring paperwork and implying significant lead times.	Physical channels used for hardware distribution, but users buy and activate most services and connections (except for new physical lines that require installation) on their device in real time, with flexible configuration and payment options and no paperwork.
2	USER CONTROL & FREEDOM OF CHOICE	Customers largely subscribe to fixed tariffs that are structured around pricing plans designed by the operator. Changing these requires human interaction and is subject to rigidities set by operator rules.	All services (even third party ones) can be bought, configured, suspended or cancelled at any time by the customer, in real time and without human interaction (customer app talking directly to operator systems). Tariff plans may exist as an optional construct for convenience and savings.
3	TRANSPARENCY, SIMPLICITY & BEAUTY	The emphasis is on features and price. Though customers have less options and variants than in the past, those on offer are still sufficiently complex to prevent them picking the best one for them. Nor can they be sure that this continues to be the right one as their needs evolve.	The emphasis is on form, design and elegance, as much as on the proposition itself. Customers use simple, intuitive and beautiful graphic interfaces that allow intuitive configuration from many possible combinations. The interface provides immediate transparency in terms of price/service trade-offs. This ensures their own offer provides exactly what they want (and want to pay for). The offer is modified as their needs evolve.
4	CUSTOMER CENTRICITY	Customers feel their operator remains in control. There are continued rigidities in the offer design, including limitations to the changes that can be made to plans in terms of duration, penalties and so on.	Customers are – and feel – in control of their experience. They can decide to upgrade, use and spend more, if they so choose, because the experience proves worth it.
5	LOW NEED FOR SUPPORT	Customer support enquiries are directed to the operator, most of which require call centre interaction. Operator actions (e.g. commercial campaigns) prompt users to call for support more often than would otherwise be necessary.	Customers feel less need for support (given the level of transparency and user control), and the majority of enquiries are responded to by others in the community. In return, those offering help receive credit. Operator support is mainly around technical issues, handled through online interactions or call-backs – and very rarely initiated by incoming calls, except in emergencies.
6	CONTEXTUAL MARKETING	Customers receive operator offers and campaigns that are designed by marketers based on off-line behavioural research and which are pushed out to specific user segments through SMS, outgoing calls, and e-channels.	Customers receive promotions from intelligent bots that are tailored in real time. The promotions are non-intrusive, contextually relevant, solve real problems and can be accepted onto the device with a single click.
7	EASY DISCONNECTION	Disconnection is cumbersome and difficult. The process is often linked to a payment default. Reconnection is a lengthy process.	Disconnection and reconnection are as easy as an on-screen flick of a switch. Due to the combination of prepayment, transparency and real-time control, large payment defaults are relatively rare.

THE DIGITAL TELCO BUSINESS MODEL

While it is difficult to be definitive in prescribing what tomorrow's digital telco will look like, through our extensive work with global telecoms executives on this concept we see a series of themes emerging – collectively these themes paint a very different picture to the one seen today.

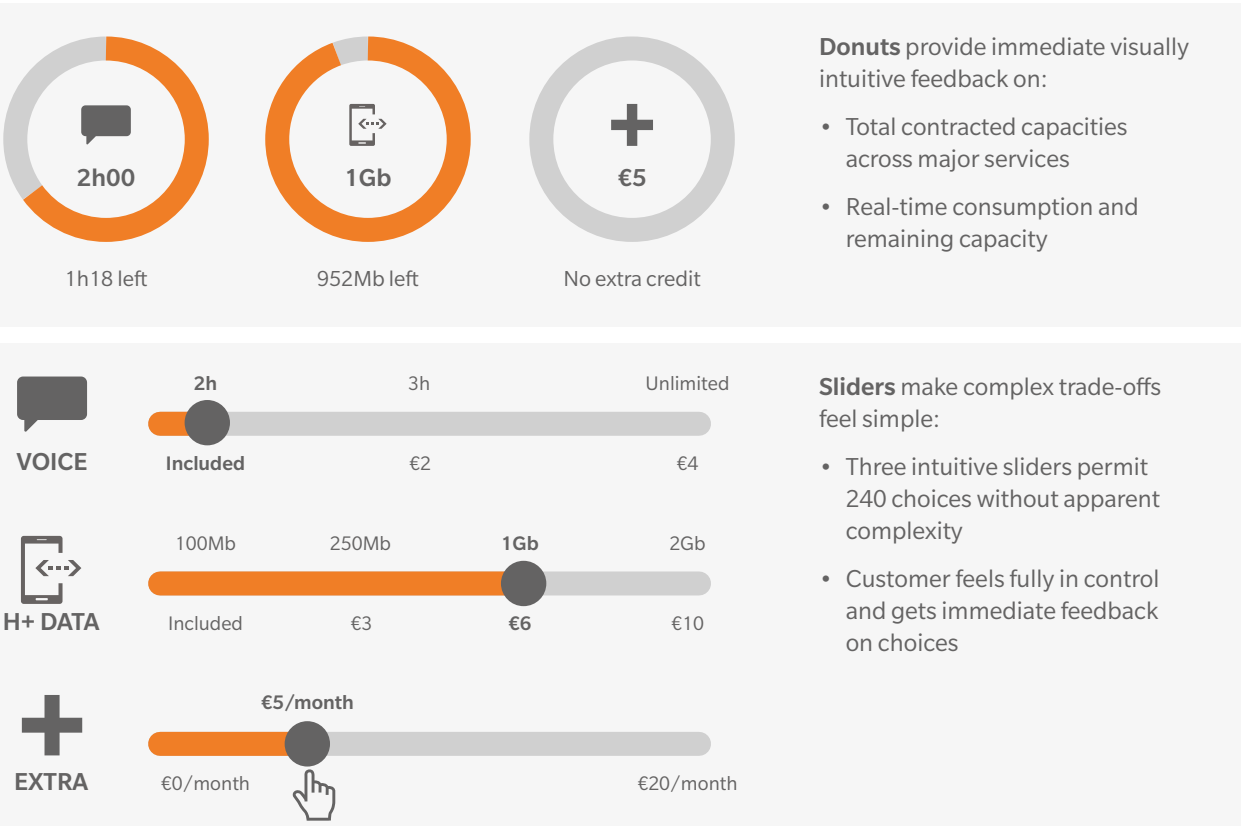
LEANER AND SIMPLER

We expect tomorrow's digital telco to employ under half today's headcount. Strong headcount and external cost savings can be expected from digital operating models in multiple areas, especially marketing and service development, sales and retention, customer care, billing and collection, and overheads – the latter notably including support activities currently embedded within other functions, such as commercial administration, logistics, commercial and support back offices. IT will change too, but here we expect the efficiencies from simplification to be counterbalanced by significantly increased expenditure on more advanced customer-facing functionality.

KNOWLEDGE POWERED

Telcos will become maths houses – and competitive advantage will be built on this capability. Data – coming from multiple sources, including direct, always-on tracking of client behaviour – will be an even more differentiating asset than network infrastructure for the digital telco. Significant investment will go into developing and exploiting this asset. Other related areas for priority investment will include the

Exhibit 4: App-centric customer experience



computing power and advanced machine-learning techniques needed to turn data into knowledge. This investment will enable better managerial decisions as well as automatic decision making: for example, the launch of an impulse data, top-up promotion for a specific customer.

NEW TALENT MODEL

Besides demanding a smaller workforce, tomorrow's digital telcos will require very different talent profiles. Traditionally, telcos have employed scores of call centre and back office agents, shop clerks, salespeople, marketeers, product managers, controllers, and pricing specialists. All these groups and others will shrink significantly. At the same time, as the mix of operator activities changes, demand will surge for software engineers and developers, data scientists, machine-learning specialists, UX/UI experts, digital marketeers, content and social media experts. Consistent with this, we expect the average cost per employee to rise.

CUSTOMER-FACING IT

Current operators manage IT as an important enabling function, though fundamentally a back-end one: this is widely apparent across the organisation, not only in terms of the talent profile but in terms of the power of the function itself, as well as in the cultural perceptions with regard to IT. In tomorrow's digital telcos, IT will touch the customer more directly: customer interfaces will speak directly to operator systems without human intermediaries, IT developers will directly shape the experience and functionality of the digital operator front-end, and improvements in the customer services experience will derive more from their digital interaction than from the connectivity services themselves. In other words, IT will become a customer-centric and customer-facing function and will need to be managed as such.

REAL TIME

Digital-age customers expect real-time responsiveness in terms of continuous transparency with regard to consumption, immediate activation, modification and deactivation of services, time-sensitive promotions, and instant feedback on user actions. Such features are key elements of the customer experience. To meet these goals, systems and processes will need to be rethought wherever customers are affected, avoiding batch processes and eliminating lead times.

COMMUNITY SUPPORTED

In contrast to today's operators, the best of tomorrow's digital telcos will nurture vibrant user communities. In such communities, satisfied users will support each other, reinforcing satisfaction and recommending services in exchange for benefits. The focus will not be on the telco "feeding" the community in order to keep it active but, rather, on keeping the right balance of incentives, recognition, member-recruit-member schemes and events that encourage the community to work spontaneously for the telco.

A DIGITAL CULTURE

Perhaps the biggest difference between tomorrow's digital telco and today's will be in their culture. Employees will be more data driven, discussions more analytical. Digital telcos will need to be more meritocratic organisations in order to be better able to compete for top talent in the high tech marketplace. Their change programmes will target 10X improvements rather than incremental ones: why reduce the back-office load if it can be eliminated altogether? And the focus of such innovation will shift from providing new services to enhancing the user experience and improving industrial design and workflow, while the timeframe for such initiatives will shorten significantly.

HOW OLIVER WYMAN IS HELPING TELCOS TO CREATE A FULLY DIGITAL CUSTOMER EXPERIENCE

Oliver Wyman is helping a number of operators to incubate digital telco start-ups. The new entities are to be launched either as digital MVNOs, second brands or as new offers. The digital start-up helps the telco to gain time to market, bypass its legacy and accelerate its transition to pure digital. Though creating such a digital customer experience is only one part of the journey towards becoming a fully digital company, creating a start-up usually proves a no-regret move for most telcos.

The approach builds on our historical "start-up in a box" expertise, with which we have previously launched nearly 40 operations. The new approach combines business, commercial and operational expertise with the technology necessary to create a new offer that provides a fully digital customer experience.

We have seen first-hand how complex, costly, time-consuming and risky it can be to upgrade legacy systems in order to deliver a digital vision. The focus of our approach is therefore on overcoming the major technological challenges that stand in the way of enabling a digital telco offering. Unless the technological complexity deep within the operator's OSS/BSS is addressed adequately, customers will continue to require extensive help in the form of manual intermediation, thus destroying the digital experience.

To address these issues, Oliver Wyman has secured access to the technology assets required to build the digital telco experience from the ground up. The heart of this is a digital BSS that plugs straight into (rather than integrate with) the core operator assets, such as provisioning and IN platforms. This technology is able to handle all the relevant aspects of the customer experience in a simple, elastic cloud-based solution. This lets the operator's current systems do the heavy lifting of real-time rating, while the digital platform takes care of the intelligence required to facilitate the customer experience and desired scalability.

In implementing this approach, we work with "digital native" customers to co-design and fine-tune the offer structure, the experience and the look and feel of the digital environment. This ensures that the customer's digital experience is comparable to that of using their favourite apps. We then deploy the necessary resources and expertise to create a process that is fully integrated into the telco's business, prior to bringing the concept to market.

Rapid prototyping and trial-and-error approaches will gain ground, displacing today's emphasis on mega-projects that require detailed and long-term planning.

GOING DIGITAL

The number one question for almost every telecoms executive is, what is the best way to go digital? While all agree that they want to digitise their companies, only a few truly embrace the radical nature of the required change. Frustration is common: today's telcos are encumbered by substantial legacy in operations and customer base: achieving the radical change required to develop a truly digital model is a big stretch.

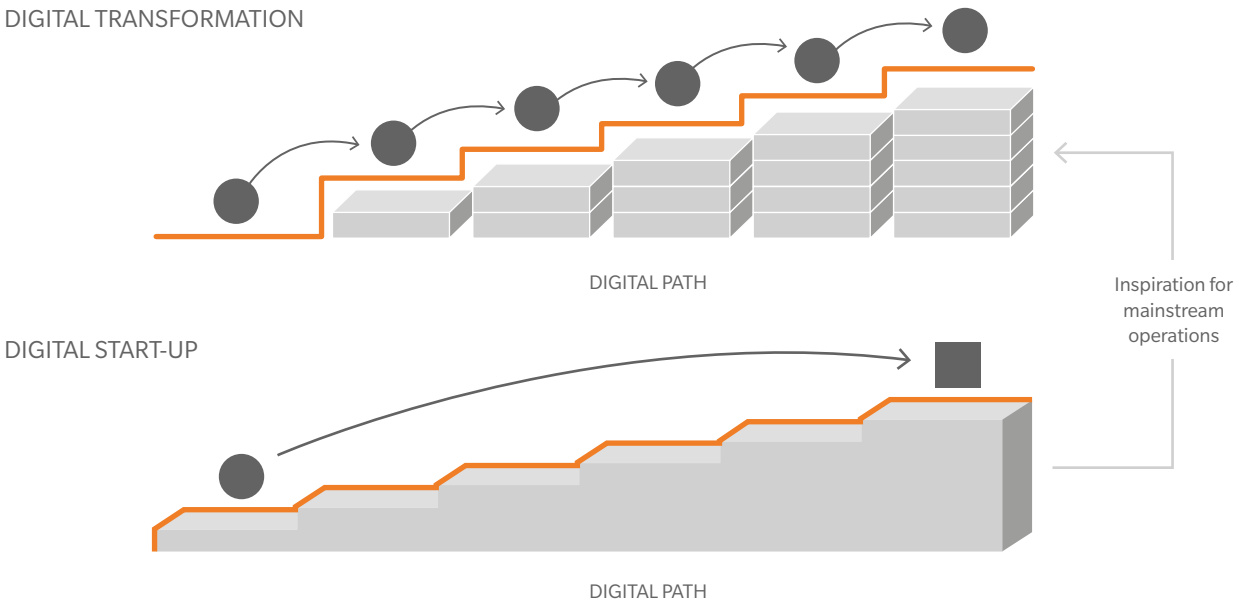
Though there is no easy answer to such questions, companies are by and large exploring one of two change strategies: wholesale digital transformation or the creation of a digital start-up (see Exhibit 5).

DIGITAL TRANSFORMATION

Many telcos have adopted programmes that aim to progressively install the elements required to build a digital customer experience and business model. These efforts include such initiatives as launching product apps, pushing customer service into self-care, improving big data capabilities, simplifying the offer, and renewing IT.

Such initiatives are not necessarily incremental in nature: for instance, a number of operators are deploying completely new IT stacks. These programmes can prove difficult, time-consuming and expensive to implement, as they not only require retooling large and complex operations but also demand wrestling with the telco's legacy, while protecting customer pricing and its market position and at the same time shifting the mindsets of thousands of employees to a completely different model. Despite these challenges, transformation programmes are vital in that they hold the promise of moving the dial by truly transforming the entire company.

Exhibit 5: Digital transformation and digital start-up combination



DIGITAL START-UP

An alternative route is to create what in effect is another telco – a purely digital one. This entity is created "on the side", typically as a segment-oriented flanker brand or product line, possibly even mimicking the mainstream brand for new customers. If successful, the "new" telco will progressively gain weight in the P&L. The idea behind this approach is that it enables the operator to immediately put in place the ideal model for its digital operations and to then use the new entity either to migrate its legacy customers and activities towards the new operation, or to import the digital experience and processes from its new operation onto the old.

In either of these approaches, it is crucial that the operator puts in place a clear governance setup vis-à-vis its existing operation: this needs to be endowed with sufficient empowerment to secure the resources and focus required for the project to succeed. The logic of the start-up approach is threefold. Firstly, it enables operators to go digital quickly – this can often be achieved in a year or even less, compared to the multi-year timeframes demanded for a full transformation journey. Secondly, since the new entity is independent of the legacy operation it allows the operator to take a more radical approach to digitising. This is critical since, to be fully realised, "going digital" is much more than merely digitising existing services. Thirdly, this approach enables the telco to manage risk better – if the venture fails, the original operation is not dragged down with it.

An alternative route is to create what in effect is another telco – a purely digital one.

Both the transformation and start-up approaches clearly have advantages. And, handled rightly, both can be compatible. This has led some operators to explore both avenues simultaneously. Doing so enables them to do the groundwork required for making the long-term transformation towards digital, while also enabling them to launch digital services relatively quickly, without having to wait for all their operations to conform to the new pure digital experience. Taking this dual path approach can achieve immediate impact, bypassing many of the problems associated with migrating legacy operations and customers.

The question remains, of course: how to bridge both paths? Even accepting that a digital start-up has a vital role to play, there are numerous hurdles to overcome. Developing a path that successfully migrates customers from the legacy operation to the digital start-up is clearly a far from straightforward task. The start-up will need to be grown to sufficient scale to be able to absorb the majority of the telco's legacy customers and activity prior to the telco making the final migration and switching off of its legacy operation. Likewise, in the alternative approach, that of developing a path that transfers capabilities and activities from the digital start-up to the legacy operation, the digital entity will need to be capable of helping to accelerate the telco's transformation, not just of functioning on its own behalf. This will include transferring apps, the offer structure, customer data and knowledge, real-time promotions, and community-based support. Both these approaches demand that the telco's digital business model and its vision for its digital customer experience tallies with those of the start-up.

CONCLUSION

Telcos need to be clear about all their vision, chosen business model and the route they will take prior to any attempt to go digital. While getting these things right might not be simple, in our view, launching a digital start-up is likely to be a no-regret move for many a telco. Over the next eighteen months, we expect to witness a significant increase in activity as a growing number of telcos launch digital operations.

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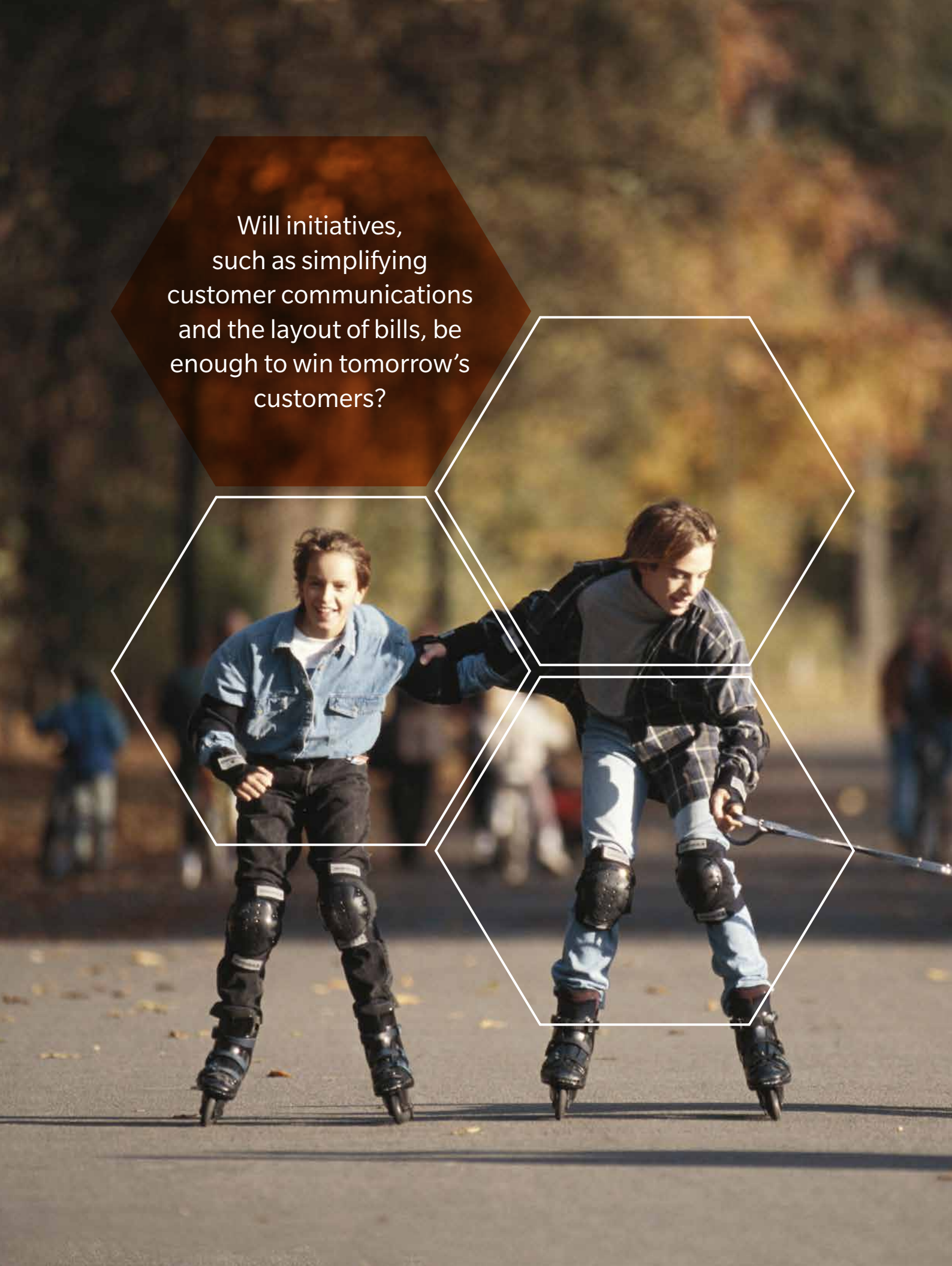

Will initiatives, such as simplifying customer communications and the layout of bills, be enough to win tomorrow’s customers?

NEXT-LEVEL CUSTOMER EXPERIENCE

AVOIDING HASSLES IS NOT ENOUGH

The importance of great customer experience is unquestioned in the telecommunications and cable industry. However, to date the provision of customer service has in practice been dominated by firefighting customers' day-to-day frustrations and concerns – their "hassles". A long list of improvement opportunities has often led traditional telecoms operators and cable companies to follow a tried-and-tested approach. They collect "pain points", map customer feedback along the customer journey and draw "customer hassle heat-maps". Then they put forward initiatives, such as simplifying customer communications and the layout of bills, reducing the amount of small print, and improving self-installation procedures. But will this be enough to win tomorrow's customers?

Various customer experience-related Key Performance Indicators (KPIs) have been developed and applied. Though focusing on measures that reduce customer effort may seem the right thing to do, this is unlikely to take telecoms operators and cable companies to the next level of customer experience for two reasons:

1. These efforts often get operators bogged down in fixing the existing business model in order to solve the problems of today's customers. This prevents them from reinventing themselves structurally to meet the expectations of tomorrow's customers. For example, the 14-year-olds of today who already spend considerable time on social media will expect even more as adults.
2. They are addressing only one driver of customer experience, namely, customer effort.

In contrast, advanced firms are starting to apply a broader definition to customer experience. To capture this trend, we developed a customer experience equation that provides a more comprehensive approach (see Exhibit 1).

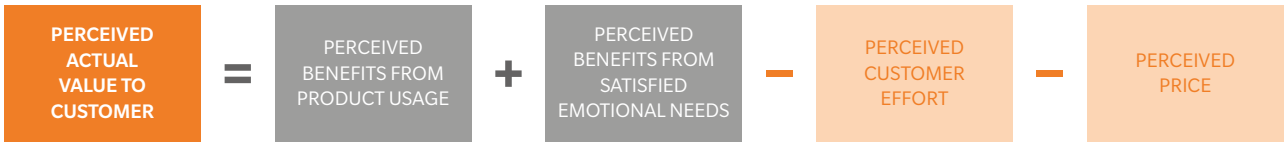
We have observed that the value perceived by a customer cannot be increased merely by reducing perceived effort. In addition to focusing on the perceived price, companies could also focus on increasing the perceived benefits to be gained from using the product and satisfying emotional needs. So far, only a few companies are addressing this systematically (see Case Study 1, page 24).

LINKING THE CUSTOMER EXPERIENCE EQUATION TO ACTIONS AND CUSTOMER PREFERENCES

The three performance (or non-price) variables of the customer experience equation are turned into possible actions by relating them to the underlying dimensions of customer experience (see Exhibit 2). Telecoms operators and cable companies can only improve customer experience in a sustainable way if they improve performance on all these dimensions. We should acknowledge that, in each dimension, customer preferences vary. For instance, a middle-aged "offliner" might perceive a 24/7 hotline as providing great customer service access, whereas a 14-year-old "digital natural" might prefer a searchable internet community or WhatsApp interaction with an agent. Specialist players like GiffGaff (see Case Study 2, page 24) have tailored their business models to address the preferences of very specific customer segments.

Established players will have to find new ways to individualise customer experience, or risk losing out to these segment specialists. In a world where we increasingly expect individualisation, classic segmentation that lacks data about customer preferences will no longer be sufficient. One approach is to start asking (prospective) customers explicitly for their preferences: "Which would you prefer: a 24/7 hotline; or our community/app, and pay less?" This will require flexible, streamlined, and integrated back-end processes and systems.[1]

Exhibit 1: The customer experience equation



1. Read more about this in our report *"90% of an iceberg is underwater. For breakthrough customer experience, start with back-end simplification"*

PROGRESSING TO THE NEXT LEVEL OF CUSTOMER EXPERIENCE

To achieve success with tomorrow's customers, operators typically develop in three stages, gradually broadening their focus and level of sophistication regarding the customer experience equation's drivers (see Exhibit 3).

STAGE 1: GET THE BASICS RIGHT

This stage focuses on reducing customer effort. The corresponding initiatives will have a positive impact on effort scores while seeking to limit the number of detractors. In terms of the customer experience equation, the outcome of mastering Stage 1 will be an actual value perceived by the customer that is greater than zero, commonly called "good customer experience".

Staying at this level typically yields a higher return on investment than going beyond it, as the incremental costs of increasing average customer loyalty through better customer experience rise with the loyalty level (see the left-hand chart in Exhibit 4). Many companies have achieved this stage and our experience reveals cost-reduction opportunities of up to 50% for specific areas, such as complaint management.

STAGE 2: CREATE SMART, EMOTIONAL, "WOW" OPPORTUNITIES

This will not only require creating a "hassle-free" customer experience but a "wow" factor too. Referring to the customer experience equation, this means an actual perceived value to the customer greater than the expected perceived value.

The "wow" should not come at any cost but should be achieved in an economically sustainable way. This means looking for "smart wow opportunities": the classic cost-benefit relationship in customer experience design does not apply here since marginal costs are low (see the right-hand chart in Exhibit 4). These opportunities might, for example, arise from the creative actions of customer-facing employees. They can be easily replicated and tend to create attention in social media, but usually do not last long. The continuous search for such ideas and the creation of a climate that incubates them presents a challenge to companies that wish to reach Stage 2.

STAGE 3: INDIVIDUALISE THE EXPERIENCE

At this stage, customer experience design needs to be able to address the preferences of individual customers while at the same time creating a win-win situation for both the customers and the operator (vs. today's business model). While established players can reach Stages 1 and 2 by fixing or modifying their current business model, Stage 3 will

Exhibit 2: Dimensions in the customer experience equation

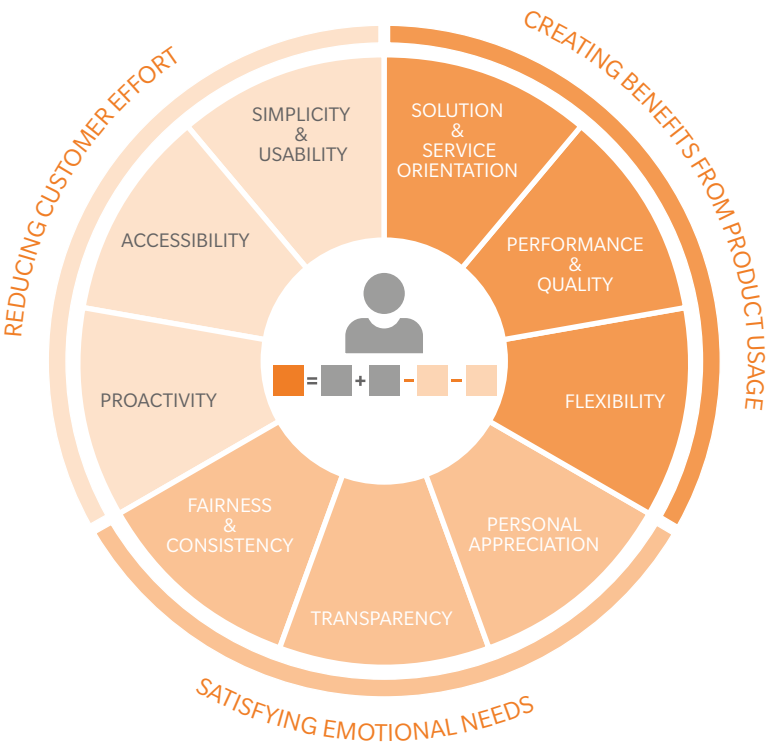
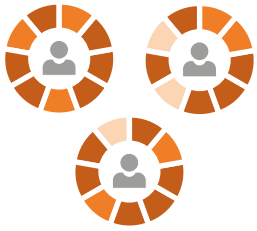


Exhibit 3: Three stages to the next level of customer experience

STAGE 1 "GET THE BASICS RIGHT"	STAGE 2 "CREATE SMART, EMOTIONAL WOWs"	STAGE 3 "INDIVIDUALISE THE EXPERIENCE"
FOCUS ON REDUCING CUSTOMER EFFORT AND CREATING BENEFITS FROM PRODUCT USAGE	ADDITIONALLY, SATISFY EMOTIONAL NEEDS	INDIVIDUALISE THE EXPERIENCE
		
Create positive perceived value for most customers	*Create perceived value greater than expected value for most customers*	*Create perceived value greater than expected value for each individual customer*
• Avoid customer frustration • Focus on eliminating hassles and pain points to improve the experience	• Address emotional needs by creating benefits from product usage • Find "smart WOW opportunities" to turn customers into promoters in a cost efficient way	• Provide a customised experience; not every experience appeals to everyone • Better understand customer preferences and give them the power to choose

TRADITIONAL APPROACH, TYPICALLY WORKS WITHIN CURRENT BUSINESS MODEL

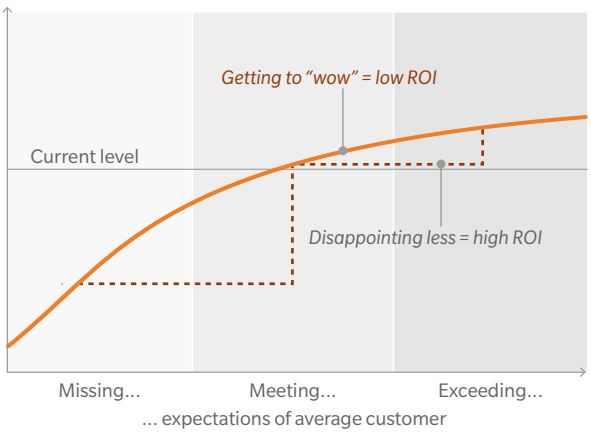
REQUIRES (RE-)INVENTION OF BUSINESS MODEL

Experience: Entry level Advanced Customised

Exhibit 4: Cost-benefit relationships in customer experience design

CLASSIC COST-BENEFIT RELATIONSHIP...

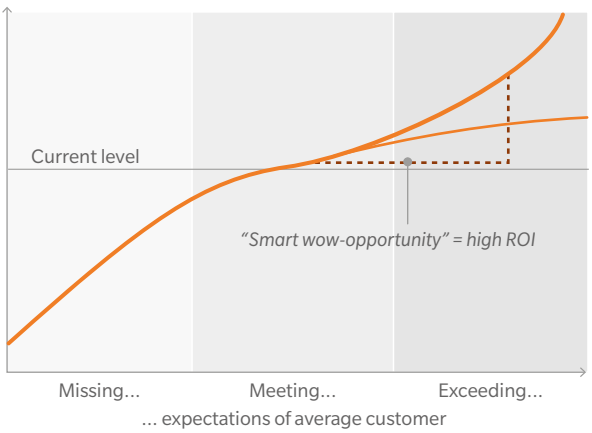
AVERAGE CUSTOMER LOYALTY



CUSTOMER EXPERIENCE EFFORT/COSTS

... TURNED AROUND WHEN FINDING "SMART WOW-OPPORTUNITIES"

AVERAGE CUSTOMER LOYALTY



CUSTOMER EXPERIENCE EFFORT/COSTS

require serious (re-)invention. As models like GiffGaff's only work for customers with very specific preferences, established operators will need to emphasise customer experience individualisation, which could lead to a segment-of-one approach.

Let us look at a typical GiffGaff subscriber. The subscriber's increased loyalty resulting from GiffGaff's extra effort in customer experience (for example, longer helpline opening hours) is near zero, given that an online community is available to offer help. This implies that, at Stage 3, operators should allow users to customise their experience according to their preferences and should reflect lower customer requirements in lower prices (for example, by allowing a digital natural to deselect the free 24/7 hotline in return for a reduced monthly bill). The potential complexity this results in could be partially offset by self-service options. If, for instance, a customer chooses the online community, this eliminates a call to the hotline but requires flexible pricing so that part of the cost benefit can be given back to the customer.

REDUCING CUSTOMER EFFORT

INTRODUCE SIMPLICITY AND USABILITY AT EVERY STEP

What more can be done to reduce customer effort? Operators that have got the basics right in terms of simplicity and usability have done so by drastically reducing the number of tariffs and options and removing one-off fees. They have also removed one-month terms, bearing in mind that unhappy customers locked into long contracts can become detractors on Twitter. Some operators have shortened their small print, rewriting it in plain language. Fewer have achieved a simple, consolidated, fixed-mobile bill that shows a single total (e.g. monthly charges, plus VAT, minus discounts). Still too many customers are confused by billing, random credits, loyalty schemes and lack of clarity. The result is more calls to customer service centres and long queues at retail outlets – which do not add value.

While most of these aspects only help to achieve an entry-level experience, there are some wow opportunities. Many of today's customers can still be surprised by a zero-configuration experience. And even tech-savvy members of Generation Y can be delighted by a mobile app that, while guiding them through a video-based troubleshooting process, connects them live to a well-informed agent.

BE PROACTIVE IN SOLVING CUSTOMERS' HASSLES

Being proactive benefits both sides. For example, telling customers about planned maintenance means reduced effort for businesses (fewer calls to help lines) and less dissatisfaction for customers (less time spent in call queues or troubleshooting the problem themselves). A Latin American operator decided to remotely reboot its set-top boxes in the early morning to avoid accumulating errors, degrading TV video quality and additional calls from customers.

Progressing to an advanced experience requires operators to go further than providing information. They need to resolve issues in ways that are convenient, friendly, and proactive, for instance: "We noticed your internet connection is down. While we fix it, please use mobile phone tethering, which you can find in our service app. As you frequently use VoD, we activated our mobile VoD service for you, free of charge, to watch your favourite series for the next 30 days." Some operators already take the first steps to implement such proactivity, as in the case of a European operator who monitors effective broadband throughput and opens a ticket internally as soon as it drops below 80% of the customer promise.

CASE STUDY 1: NETFLIX CREATES EMOTIONAL BONDS WITH CUSTOMERS

Some business-to-consumer companies have mastered the art of addressing basic emotional needs, like personal appreciation, to create exceptional customer delight and emotional bonding in interactions customers would otherwise regard as commonplace.

Customer experience leader Netflix is a good example: with a Net Promoter Score (NPS) of +54 and a history of "engaging with people like people", it builds strong relationships, as the following anecdote illustrates. When a Netflix subscriber, Norm, used the online chat to contact customer service about his problem with a video, the service rep responded by introducing himself as "Captain Mike of the good ship Netflix".

"Lieutenant Norm" got into the role, replying as an officer from sci-fi series Star Trek. The ensuing conversation continued in Star Trek style as they solved the technical issues. Norm then shared a screenshot on social media, which created considerable buzz and certainly did no harm to Netflix's NPS.

CASE STUDY 2: A CROWDSOURCED MOBILE PROVIDER AND "TRADITIONAL RADICAL"

GiffGaff in the UK is known as the first Mobile Virtual Network Operator (MVNO) that not only relies fully on an online community for customer service but that has also established the community as a central part of the company, being "the mobile network run by you".

To incentivise community participation, GiffGaff credits members with points if they make valuable contributions. Points can be converted into Airtime Credit (for calls and texts), cash, or charity donations. GiffGaff also crowdsources marketing, PR, sales, and product development. As the company has no distribution channels or significant advertising budget, it relies on community users to promote its products. It discusses product ideas from the community in weekly management meetings and gives feedback to the community. Community members engage in (and get points for) viral marketing, advertising video production, and app development.

GiffGaff consistently achieves customer satisfaction ratings of 85-90% and an NPS in the mid-70s, on par with Apple (albeit limited to a smaller customer segment).

CASE STUDY 3: CABLE COMPANY VISION FOR CUSTOMER EXPERIENCE

Based on the conviction that a pain-point-by-pain-point elimination initiative would not generate the required customer experience uplift, Oliver Wyman worked with a US client to develop a customer experience vision that can serve as a "target corridor" for all ongoing and upcoming efforts.

Key themes such as "relationships within the household", "multi-device self-installation", and "proactive content recommendations" have been underpinned by target processes and illustrated to convey the vision across the organisation. Based on this, the underlying enablers, such as a modular product catalogue, and a flexible customer data model have been derived and planned for realisation.

To deliver the desired future customer experience requires a range of inputs that span a broad range of domains, from system enhancements (such as revised customer or household data models) to product and offer design (such as invitation-only product trial offers).

Another strategy might include predicting forthcoming customer questions (for example, when the customer is likely to face an abnormally high bill), preparing agents to reach out directly to customers. A revolutionary approach would be to offer automatic migration to the latest tariffs, eliminating customer hassle (switching) while reducing operator effort (maintaining legacy portfolios). This is an ambitious objective that would require regulatory compliance, especially in markets where the regulator closely monitors pricing evolution.

IMPROVE ACCESSIBILITY THROUGH SEAMLESS INTERACTION ACROSS PREFERRED CHANNELS

Accessibility has great potential to offer advanced and personalised customer experiences, using a model based on seamless, omnichannel customer interaction. Operators who want to coax a wow out of tomorrow's customers need to make switching between channels trouble-free. The customer's entire interaction history should be available at every touch point (thereby enabling, for example, an in-store sales rep to see what a call centre agent has promised). The continuity of interaction is also important: for instance, allowing a customer to talk to the same agent after a dropped call to a hotline.

Omnichannel experience not only means seamless switching but also smart channel integration, such as using interactive voice response in a mobile app to support customers when they are unable to solve a problem and ensuring proactive follow-up when promised response times are exceeded. Information should flow effortlessly between the physical and digital world: for example, allowing customers to scan a QR code on a device or on printed communication.

A key to wowing customers, while also delivering differentiated service levels according to Customer Lifetime Value (CLV), is to identify the customer and their context (for example, through voice recognition). The family of a high-value business customer may have high expectations, so it is also important to recognise the customer as having a high household lifetime value. A customised experience in accessibility requires all of this but in an even more flexible way. Operators should guide customers real-time into channels, based both on their preferences and the current usage of each channel. This could be achieved, for example, by using a service app that displays the expected waiting times and, after a certain time, recommends either a chat or a call back.

Furthermore, operators need to prepare for a more diverse and changing channel landscape, as social media platforms first gain and then lose popularity. Some advanced operators use Twitter (with about 300 million active users in July 2015) as an inbound service channel. However, WhatsApp is still relatively untouched[2] even though it has more active users (about 800 million in April 2015) who use the service more frequently (70% return daily). Future interactions with customers could be managed by identifying those who are in effect subject-matter experts responding to service requests on the operator's behalf.

2. The Dutch airline KLM started a trial to use WhatsApp for customer service in March 2015

CREATING BENEFITS FROM PRODUCT USAGE

START WITH THE CUSTOMER EXPERIENCE AND WORK BACK TO THE TECHNOLOGY

In the words of Steve Jobs, "You've got to start with the customer experience and work back to the technology – not the other way around." However, most telecoms operators are still making technology offers, for example, providing 2GB of mobile data over a 4G/LTE connection at up to 50Mbit/s for €20 a month. This approach is problematic for two reasons.

Firstly, it does not reflect what customers consciously want or unconsciously need, namely, such things as, "to be online on Facebook and WhatsApp 24/7" or "to watch YouTube videos uninterrupted while I'm on the train". Technical specifications may seem important to operators but do they satisfy the wants and needs of customers?

Secondly, it limits the operators' ability to use key assets such as their fixed and mobile access network to improve customer experience. For example, since most operators take steps to provide for the predicted maximum load in order to avoid local congestion at peak times, their networks are often underused during off-peak periods. Though some operators limit data volumes or block applications (like file sharing) at times of heavy usage, most typically focus on data volume as their main differentiator, regardless of when the data is used. Better use could be made of networks by tailoring the offer: for instance, "Watch as many videos as you like, we set the optimal resolution." This approach may also provide opportunities to offer a superior experience at minimal cost at times when there is spare network capacity, for example: "Make free mobile HD video calls for the next two hours." In order to offer a customised experience, operators should not only make good use of current assets but also sell comprehensive services and solutions, including hardware and connectivity.

FOCUS ON QUALITY AND PERFORMANCE MORE THAN TECHNICAL SPECIFICATIONS

Advanced operators already focus on customer service performance and quality. They closely monitor and manage possible degradations in customer experience (such as dropped calls and poor video or sound quality) by using Quality of Experience (QoE) features in their networks, Operational and Business Support Systems (OSS/BSS), and customer devices.

Most operators, however, need to do more to show they care about customers' perceptions. One example would be to develop a mechanism to automatically compensate customers for poor experiences even before they complain, turning potential dissatisfaction into a wow. Operators could also change their business model to selling a customer-specific QoE, instead of data volume and bandwidth.

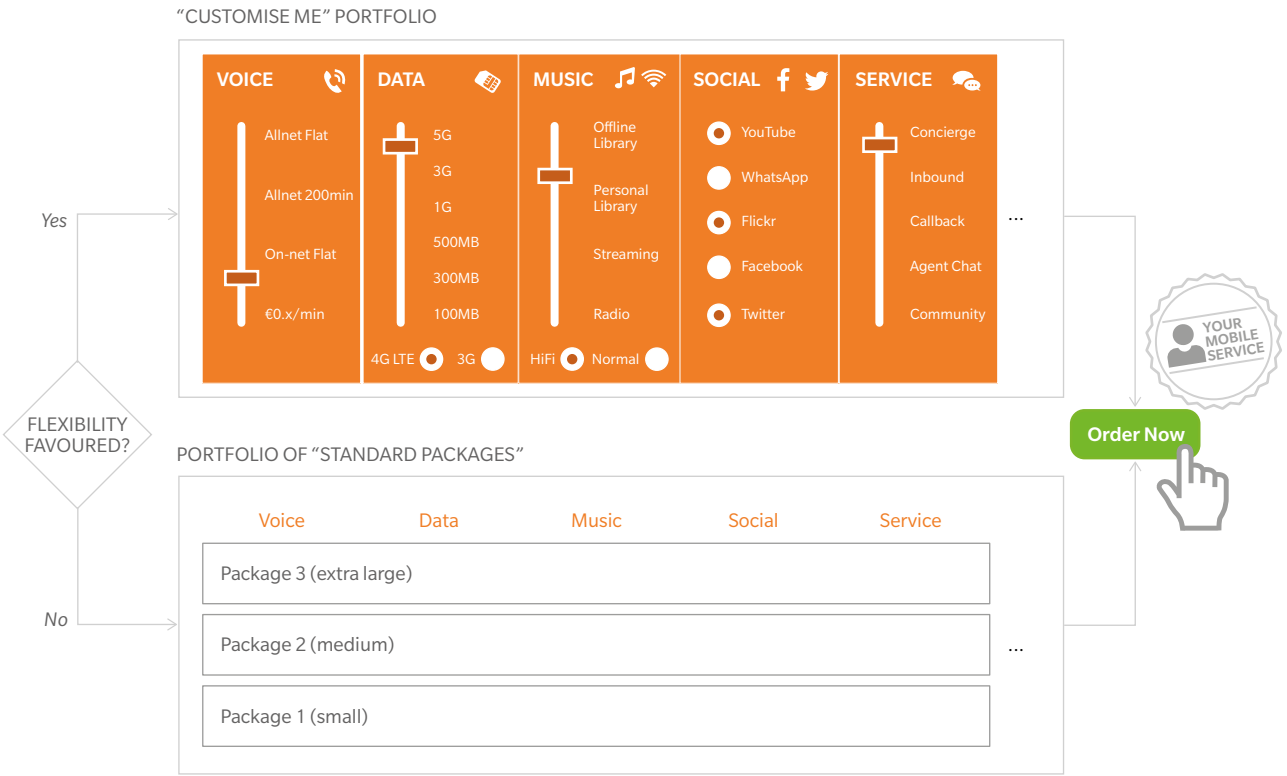
As network capacity is constrained and customer usage (and consequently network congestion) is hard to predict, QoE-based pricing needs to be dynamic to achieve better use of the network and market equilibrium within it. The latest research proposes various pricing methods, such as real-time congestion-based pricing, automatic auction mechanisms, and lottery-based fixed rewards for users who are willing to shift their usage times. Day-ahead, time-dependent pricing has already been applied in electricity markets.

PROVIDE FLEXIBLE SERVICES THAT DO NOT LOCK IN CUSTOMERS

Customers increasingly expect the services they purchase to be adjustable, flexible and individualised. Cloud or Software-as-a-Service providers, such as Amazon Web Services, Google, and Rackspace, allow customers to change service features in real time without the worry of fixed-term contracts, out-of-bundle costs, or unused quotas. Some companies offer products with greater flexibility than the usual tiered bundles. For example, Virgin USA (in cooperation with Walmart) launched Data Done Right: this plan allows customers to share data volume on multiple lines. It offers "one-touch" options that extend voice and data volumes quickly and flexibly and that can exempt apps like Facebook or Spotify from data charges. The Australian provider Yatango Mobile offers a slider configurator that gives customers flexibility when choosing voice and data volumes (see Exhibit 5). Yatango Mobile also recommends beneficial changes that customers can make to their plan, based on actual usage, with no fixed term.

Allowing customers to configure their product or service means no legacy tariffs or marked-up out-of-bundle charges. By adjusting service unit prices for all (not just new) customers, operators could minimise reconnections of existing customers, saving on Subscriber Acquisition Cost (SAC). In this scenario, in order to limit the dilution of the base Average Revenue Per Unit (ARPU), operators need to put in place a compensatory upsell strategy. One example would be to adjust all sliders for existing customers to keep them on the same ARPU, then let them choose to "pay less" or "get more".

Exhibit 5: A service offer based on slider and checkbox options optimises network usage



SATISFYING EMOTIONAL NEEDS

FAIRNESS AND CONSISTENCY ARE CRUCIAL HYGIENE FACTORS

Customers who feel they have been treated unequally are likely to leave: looking after such "hygiene" factors helps reduce customer churn. Ensuring that there are identical offers for existing and new customers, eliminating small print, and adhering to service promises should be undertaken as a matter of course. An advanced experience, increasing the perception of fairness during the sales process, might include cash-back guarantees or a one-click "try before you buy" offer.

Being consistent need not mean being narrow-minded. Service agents, for instance, should be able to take the initiative and make exceptions.

TRANSPARENCY SATISFIES THE BASIC NEED FOR SAFETY AND BUILDS TRUST

Customer service divisions of leading telecoms operators and cable companies provide full transparency about the current state and expected processing time of service cases. A leading European operator, for instance, developed a mobile app to display the status of a customer's enquiry, greatly reducing inbound calls. BT, Google, and Skype all display the technical status of services on their websites. Where an offer or service is highly customised, it is important for customers to see their own CLV-based status, the service level they can expect and the features or services they might have to pay for.

PERSONAL APPRECIATION IS THE ULTIMATE CUSTOMER EMOTION

Netflix established a customer-centric culture and empowered its agents to interact with customers in an appreciative and individual way. This has led to wow experiences that have helped to deepen its customer relationship.

Operators need to connect with and learn about their customers. For instance, by connecting with its customers on Facebook, an operator might enrich its own CRM data and enable its agents to relate to a customer's personal life (where appropriate) more accurately (with knowledge about hobbies and interests, reference to recent holiday photos, etc.). Both the hotel chain Starwood and the German curated shopping service Outfittery have specially trained agents who build relationships with their customers and gradually create full personal profiles.

To offer a customised experience, operators should be able to participate at any level on the personal appreciation scale – from 0% in anonymous web communities run by customers to 100% in personal service models for high-value customers.

CONCLUSION

Telecoms operators and cable companies have focused on reducing customers' hassles. Great customer experience, however, is also driven by creating benefits from product usage and by satisfying emotional needs. Operators who aim to win tomorrow's customers need to exploit all these elements.

Customer experience is dependent on customers' individual expectations. Many experts claim that novel approaches only work in a specific segment, but tomorrow's challenge will be to provide a customised experience for all of your customers, across all segments, their entire lifetime value and that accommodates all individual preferences. This level of advanced customer experience is desirable in itself, but it also yields immediately realisable and tangible benefits: by decreasing the number of calls or customer complaints it reduces costs. To join the ranks of companies recognised for their exceptional customer experience requires much more than simply adding another project to the list. It calls for reinvention across many elements of the business model, driven by the belief that a superior experience is a key lever for future market success.

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Now is the time for carriers to innovate once again in the pricing of their core products.

WIRELESS VALUE PROPOSITION

MAINTAINING DIFFERENTIATION IN A COMMODITISING WORLD

The wireless industry is well known for the many innovations it has brought to pricing – and the complexity this has resulted in for customers. Over the past few years, operators have considerably streamlined their portfolios of offers but, by the same token, have oversimplified the way the industry is selling (think unlimited or large data caps and handset decoupling). This has left little room for differentiation in a commoditising world. The pendulum may have swung too far and this is now the time for carriers to innovate once again in the pricing of their core products, potentially looking to other industries for inspiration.

THE EARLY YEARS
MARKETING INNOVATION SPURRED GROWTH BUT ALSO A LOT OF COMPLEXITY FOR CUSTOMERS

Who did not hear complaints about the complexity of wireless pricing in the early years of the industry? As the appetite for mobile services grew around the world – and as new operators continued to emerge – carriers used myriad pricing options to appeal to different segments and grow consumption (at that time, voice services and texts).

In the early 2000s and until recently, the typical arsenal of a carrier included:

1. Different counters and triggers – peak/off-peak, in/out of network, Friends & Family and other closed user groups, and spend-triggered bonuses and perks
2. Handset subsidies (flat or tied to offer tiers) with different contract terms, lengths, and early cancellation policies
3. "Walled gardens" where different carriers would offer their own data experiences (including access to differentiated content)
4. Aggressive "marketing programmes" to differentiate the company from its competition: loyalty schemes and special benefits (such as Orange offering 2-for-1 movie tickets on certain weekdays, or O2 providing special access to events with its rewards programme)
5. Discounts for wireless bundled with other products (typically, with fixed internet or TV)

Part of this creativity was prompted by need. In a world of heavy capital investment (deployment of 3G then 4G networks), operators had to come up with pricing differentiation that allowed them to make the best of their cost structure (including off-peak, in-network calling, and so on) and assets (such as scale or wireline). This creativity also resulted from the need to stimulate additional penetration and consumption: the necessity of convincing evermore people to use evermore services. Marketing innovation resulted in richer options being available to consumers – and ensured new profit streams for carriers.

Orange, for instance, created its Optima product to reassure customers who might be worried about overpaying due to usage overage. For three euros a month, customers were guaranteed to be placed on the best available tariff plan for that month. This gave customers peace of mind and ensured additional profits for the operator: as most subscribers' usage varied only slightly in reality, the three euros more than compensated for the re-price resulting from adjusting plans in months where their usage varied significantly.

Similarly, O2 introduced O2 Refresh to capture the benefits (in customer awareness of the handset's value, and delayed upgrades) of handset decoupling, while keeping the marketing power of subsidies (taxing customers for their willingness to pay a little upfront, steering acquisition and retention volumes more finely, and so on). It started differentiating subsidy levels depending on the upfront amount a customer was willing to put down for their handset and the chosen tariff plan. In doing so, O2 was able to use its subsidies more efficiently, subsidising de facto the less cash-constrained and less price-sensitive customers, while communicating better rates in its tariff plans.

Finally, many carriers across the globe also offered zero-rated in-network calls, using their scale to create resilient network effects within their base. Some, such as Orange UK, even went as far as offering tenure-based, zero-rated Friends & Family numbers to create further loyalty.

WHERE WE ARE TODAY
SIMPLE DATA METERING COEXISTS WITH HANDSET FINANCING SCHEMES

The pricing innovation of these early years has come to an end over the past five years. Firstly, customers started complaining about the complexity of options offered to them: they often felt confused by the non-transparent and intricacy of mobile pricing and terms. A study by the United States Government Accountability Office in 2009 found that 86% of US wireless users were dissatisfied with their mobile service: billing, terms of the service contract, and carriers' explanation of their service were cited as top reasons for frustration. Nothing exemplifies this better than the much-derided, non-concomitant expiries on wireless pricing contracts for a family: as long as one phone on the account was on a contract, the entire family was de facto locked into a contractual relationship with their operator. Attackers, such as T-Mobile in the US or Free in France, seized the opportunity to launch offers with very simple terms, an approach that incumbents eventually had to adopt, too.

Secondly, a surprisingly significant portion of carrier profits started to be derived from "bad revenue": overages, phone upgrade charges, plan change fees, and so on. That is, revenues were being created by "tricking" customers rather than by engaging them in a sustainable, loyalty-building relationship. In some countries, regulators stepped in to force carriers to abandon some of these practices. In most places, they did not, yet many operators started to end these practices because of the customer backlash.

Thirdly, new pressures from Over-The-Top content (OTT), for example, from Skype, WhatsApp, and iMessage, and the willingness of operators to get a fast return on their 3G and 4G network investments, encouraged them to pivot their rate card structure. This included providing unlimited calls and texts for customers who would be ready to pay for the new currency (data).

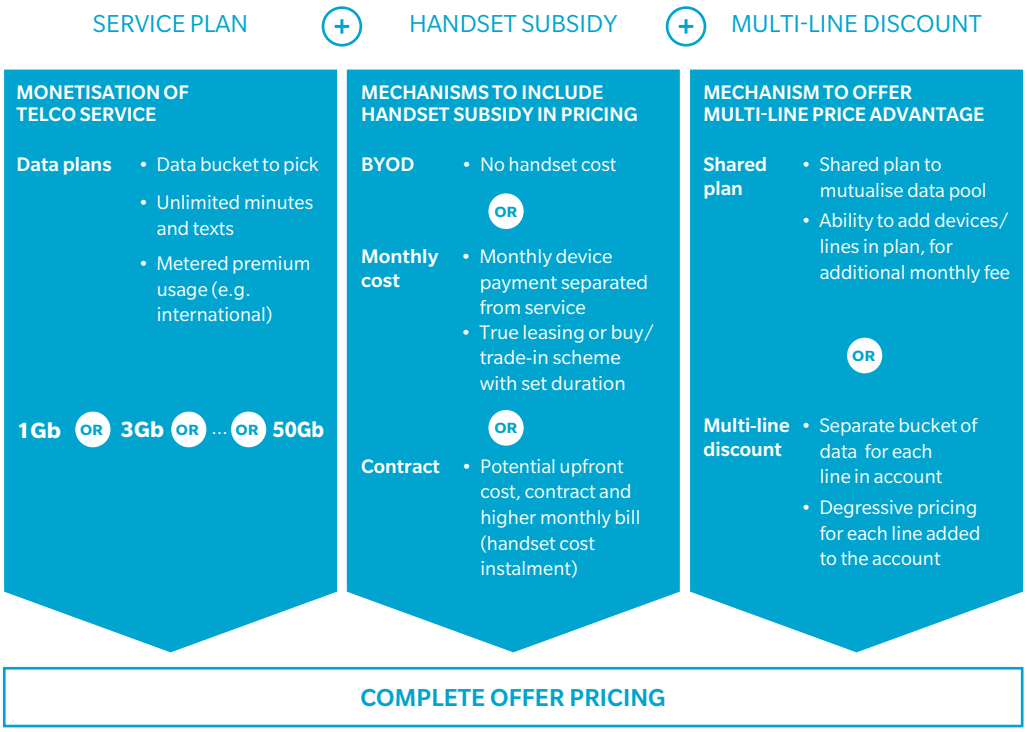
Fourthly, the prices of handsets increased dramatically with the rise of smartphones. Operators previously used to charge high bills to their customers, with a hefty portion going to Apple or Samsung through handset subsidies. Many operators chose "handset decoupling", making the cost of the handset more transparent on the monthly bill.

As a result of all these factors, many operators now have very similar tariff structures, as illustrated in Exhibit 1.

This simpler, flatter model has often benefited price value attackers (usually the number three or four operators in a particular country), which typically choose to position their offers around value and simplicity or straightforwardness.

Customers often felt confused by non-transparent, intricate mobile pricing & terms.

Exhibit 1: Typical pricing structure today



Source: Oliver Wyman analysis

For instance, in the USA, T-Mobile US regained momentum with its "Uncarrier" strategy (based on no contracts, no overage, handset financing or leasing, accelerated upgrades, and so on, as well as a good dose of buzz marketing) growing from 42 million (after its merger with Metro PCS) to 59 million subscribers in less than three years – in a market with no overall growth.

In France, Iliad's Free entered the wireless market as the number four operator with a radically simple offering and value proposition based on cheap calls, unlimited text messages and a large data allowance. By launching at a 60-70% discount on the previously prevailing prices, Free gained rapid momentum (achieving 16% market share within three years from its launch).

This trend towards simpler industry pricing does not leave much space for premium carriers (typically incumbents) to maintain differentiation or to continue to justify their price premium over competitors. The recent struggle of Verizon Wireless to differentiate its premium pricing from attackers highlights the difficulty that incumbents have in marketing anything beyond "small to super-sized" data options. Simply put, the lack of differentiation drives margin pressure for many incumbents.

WHAT OTHERS HAVE DONE

MOBILE OPERATORS COULD LEARN FROM OTHER INDUSTRIES

In the past, the wireless industry was often looked to for its pricing and the inventiveness of its marketers. It may now be time to look to other industries for inspiration. Across a broad spectrum of industries (ranging from consumer finance to travel, energy utilities, and others) companies are rethinking and expanding the definition of what it is that they are actually selling – and how they are selling it – in an effort to thwart commoditisation.

Consider consumer finance, for instance, and how payment and credit cards have evolved over time. Initially, credit cards were merely defined as a combination of interest rates (APRs), payment terms, and various kinds of fees. Industry leaders – like Capital One – were able to win share by offering the most attractive combinations of those terms that would still address the underlying risks of particular customers.

Following the Credit Card Accountability, Responsibility, and Disclosure (CARD) Act of 2009, however, the industry found itself restricted in the types of fees that could be charged and how interest rates on existing balances could be changed. This impacted pricing creativity, particularly in regard to subprime customers, the segment targeted traditionally using fee-based products. As a result, the credit card business model became more commoditised, with the interest rate remaining the main adjustment variable. In turn, the industry placed more focus on boosting transaction volume (and transaction fees), the model historically favoured for prime customers and used in payment cards, such as American Express' Gold and Platinum cards.

Today, most card issuers offer a broader portfolio of options that cover a number of very different customer segments using unique value propositions that go beyond APR and payment terms, such as points, cash back, charge cards, or perks. Some, in particular, the private networks American Express and Discover, are redefining themselves as offering broader experiential benefits. These include:

1. Exclusivity and prestige, with access to differentiated experiences (such as reserved seating at sports or entertainment venues, and access to high-end hotel perks)
2. Peace of mind, with features like 24-hour card replacement, extended purchase insurance, theft protection, and ID security

In doing so, not only does the card issuer encourage a higher volume of transactions but also increasingly monetises some of its customers' underlying needs, such as the willingness to pay a premium in order not to have to worry about losing their card.

Let us now think about how Disney has evolved the marketing of its parks, from ticket sales to building an entire customer experience around the parks as destinations.

That experience is based on four premises:

Expanded offering. Different theme parks have been juxtaposed, creating local destinations for weeklong vacations rather than one-day or two-day visits. To accommodate longer visits, significant hotel and food capacity has been created, often under the Disney brand itself.

Customisation. Disney can cater to differing levels of expectation and budget within the same park, offering hotels that range from economy lodges to luxury five-star properties, along with additional enhancers (such as Disney character meals and fast passes) that can be purchased à la carte, enabling each customer to build a unique experience based on their own preferences.

End-to-end experience. The Disney experience starts at home, with a website that allows families to plan their vacation day by day ("My Disney Experience") and that seamlessly links travel, hotel, restaurant, and park reservations. And this experience ends back at home, when the family checks the photos taken at the park and orders prints and merchandise based on them.

Customer-friendly technology. Examples include FastPass, a system that, by avoiding long queues, smoothes demand for the most popular rides while enhancing customer experience; MagicBands, which customers use to enter parks, unlock hotel rooms, and pay for services; smartphone apps that provide real-time information about the parks, the shows, and the waiting times at different venues. Disney technology is perceived to enhance the customer experience; for the company, it also optimises the parks' economics.

The airline industry provides a further example of innovation. For the most part, consumers buy airline tickets today the way they were buying them ten years ago: on price and the convenience of route. If anything, the explosion of comparison websites has made these factors ever more relevant for tourist travellers. The reality, though, is that for many airlines profits are generated not from these casual, one-off customers but rather from the repeat business of professional travellers who pay high fares. In redefining its offering over the past five years, Delta Airlines deliberately focused on providing much better service to these high-margin clients (while improving its overall value proposition). It achieved this through:

1. Superior perks and benefits for very frequent travellers – from premium economy seating and first-class upgrades, to more gimmicky offerings, such as Porsche Cayenne rides from gate to gate at busy airports
2. Improved transparency on processes – allowing travellers to understand where they stand in the pecking order and why, and reinforcing their desire to move to the next tier
3. Consistent, easy experience – from rejuvenated planes to seamless reservation handling (including a redesigned, easy-to-use app)

What do these examples have in common? Each case is about reinvention, embedding the core offering (payments, parks, flights) into a set of valuable, segmented experiences. This, in turn, has allowed these players to better monetise their core assets through rejuvenated and easier-to-understand value propositions for customers.

SO, WHAT NEXT FOR WIRELESS?

There is no shortage of possibilities for wireless operators (and, more broadly, converged operators) to move away from the current, undifferentiated position as providers of buckets of data. For instance, the American Express example could be followed by wireless carriers, focusing more on peace of mind, restructuring their value proposition around a promise of hassle-free communications. This might include such features as:

- Guaranteed handset availability – by systematically bundling handset insurance, the storing of all handset data on the operator's cloud, and leveraging of the operator's retail footprint to propose pick-up locations for loaned handsets
- Network and handset-based cyber threat monitoring – systematically adding anti-virus and anti-phishing software, and monitoring (and protecting against) all threats targeting mobile phones
- Premium technical support – providing for the entire connected life of customers (from guiding customers on which connected devices to use, to how to connect them and how to manage them)

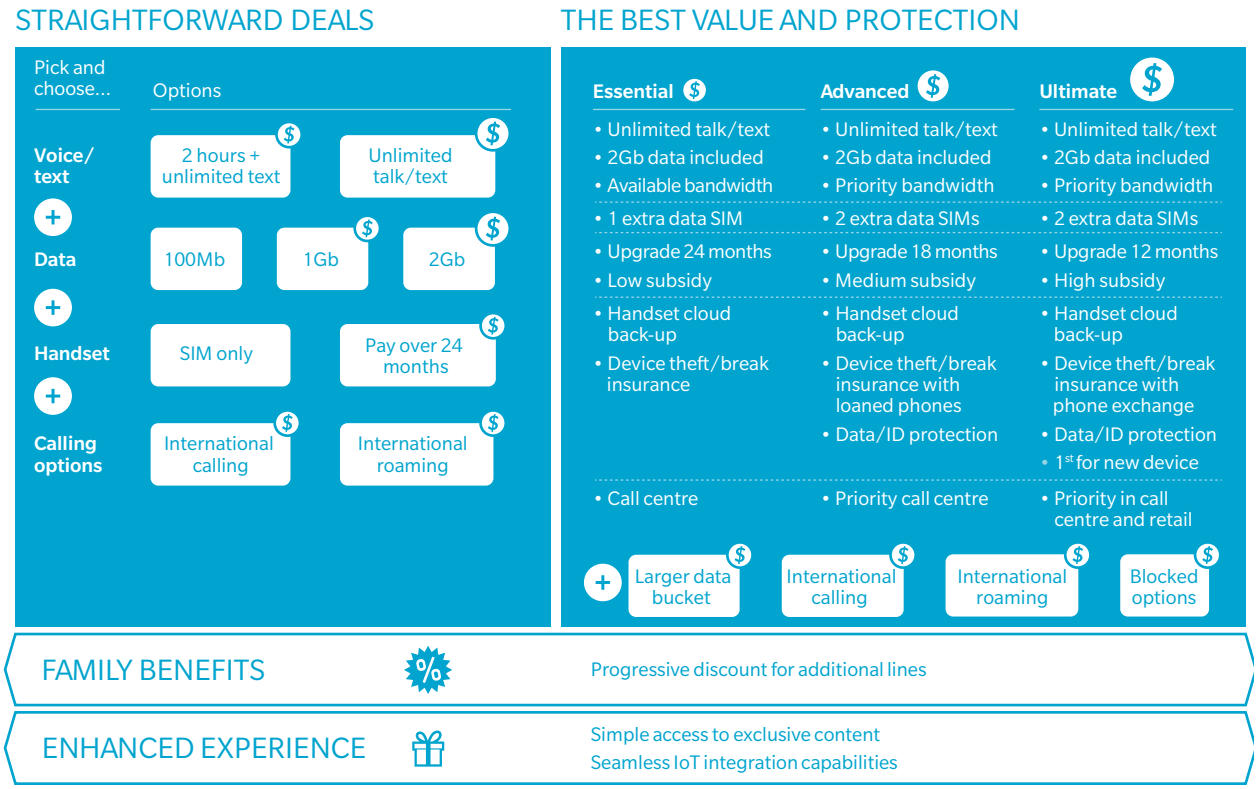
The Delta Airlines experience illustrates how operators could more clearly segment core services, focusing on the most demanding customers (and those willing to pay). This could include:

- Network access prioritisation – operators could propose different priorities (and guaranteed levels of service) for access to the network: the highest plans would grant priority access to the fastest network available, while the lower plans would only provide access to older-generation networks at times when capacity is constrained
- Care segmentation – the highest-value customers could be provided priority access to all channels (retail, care, and so on), while lower-value segments would be directed to lower-cost self-care or community-based care options

Finally, should they want to follow Disney's full experience, operators could develop broad value propositions that provide customers with a set of unique, integrated experiences. Focusing on what is typically consumed over wireless (such as video) or connected through wireless (like wearable or household devices), wireless operators could develop value propositions that would:

- Simplify access to the best content – by using their size and negotiation power to give customers access to more à la carte content (rather than the packaged variety often offered by pay-TV) or by providing customers with solutions that access premium content at a reduced price (caching the content most likely to be viewed or appreciated on their customers' handsets when they are connected to Wi-Fi or at off-peak times)
- Orchestrate the mobile ecosystem – by providing differentiated and relevant connection services for the Internet of Things (IoT) (such as priority access and geo-localisation for health monitoring) or by offering the ability to add lines for in-home smart appliances. Through their existing business-to-business role as a connection operator for IoT service providers, their direct link to handset-integrated or locally connected sensors and, in the case of converged services, their direct link to home hubs, wireless operators are ideally positioned to play an important role in this area

Exhibit 2: Illustrative examples of alternative pricing structures



Source: Oliver Wyman analysis

Exhibit 2 illustrates the wide range of possibilities carriers face when evolving their pricing. Each operator is likely to combine different elements of these themes in order to produce a unique, differentiated, value proposition.

Whatever the most relevant themes end up being for different carriers, they represent an opportunity for the wireless industry to reinvent its value proposition and to avoid an otherwise looming utility business model, where the basis of competition is largely driven by efficiency. Doing so will allow carriers to sustain EBITDA levels that will enable them invest in next-generation networks over the long run and to continue their history of bringing innovation to consumers.

CONCLUSION

The wireless industry is at a turning point. The radical simplification of pricing around the world is leaving little room for differentiation between carriers in a commoditising market. It does not have to be this way, however. As has happened in other industries, there is ample room for mobile operators to rethink entirely the way they are pricing their core products and the experiences they can deliver to consumers.

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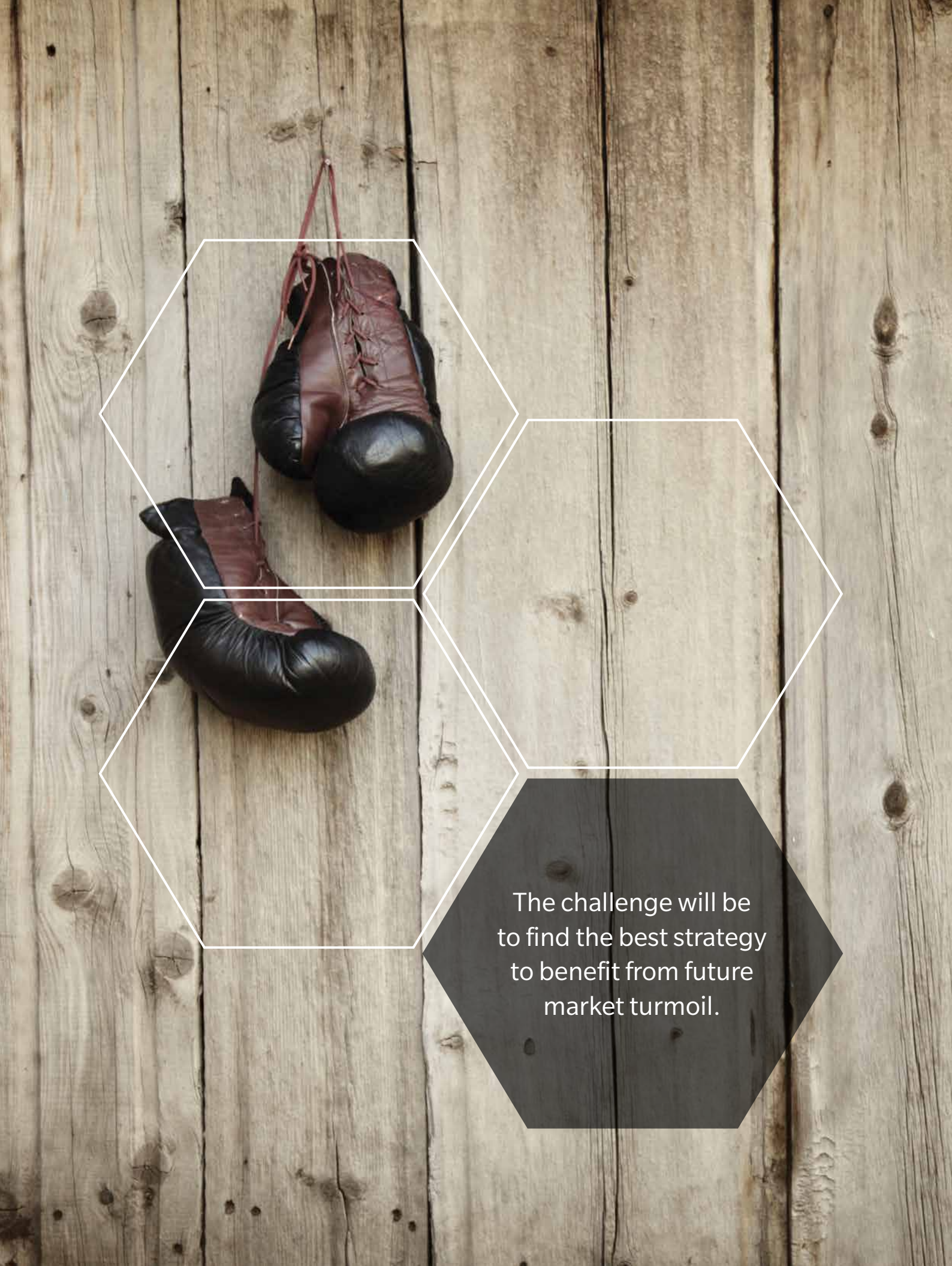


The challenge will be to find the best strategy to benefit from future market turmoil.

FIXED-MOBILE CONVERGENCE AS A COMPETITIVE WEAPON

THERE WILL BE WINNERS AND LOSERS

Fixed-Mobile Convergence (FMC) has long been a hot topic in telecommunications but is only now becoming a reality in some European markets. We expect it to spread across the globe, to all markets where the right conditions exist. While FMC can generate significant value, it can also harm some players, so the challenge will be to find the best strategy to benefit from future market turmoil.

Fixed-Mobile Convergence has finally become a reality in some European markets. In France, Belgium, and Spain operators have been able to consolidate their customer base by moving clients from fixed bundles and mobile contracts to FMC packages. They have done so within a very short timeframe. Germany is also moving in this direction. We think that the natural position of most markets is to become convergent if certain conditions are present, namely the existence of integrated fixed-mobile operators and asymmetries in market share.

The concept of FMC is not new and has been analysed from many perspectives. Three of the more relevant are:

1. Convergence as a competitive weapon – operators try to maximise the share of their customer bases made up of converged clients, increase their share of each household's or company's spending, reduce churn, and use convergence to gain market share.
2. Convergence of client-related operations – operators unify all customer-related processes (marketing, sales, activation and provisioning, and customer care).
3. Convergence of back-end services – operators look for integration in, for example, networks, systems, platforms, and content rights.

This paper considers the first perspective, convergence as a competitive weapon, which has proved to be a driving force for shaping the industry and has triggered a new wave of consolidation that has already altered the market structure in Germany, the UK, Belgium, France, and Spain. We review the current routes to convergence and the outcomes, the opportunities and risks faced by operators in a convergent market, strategies for decision-making, and the possible actions operators can take.

BEWARE, THERE WILL BE WINNERS AND LOSERS

For more than a decade, FMC has been a buzzword in the telecoms industry. High-speed internet, voice services and video all soon became integrated in the fixed-line world into a single line of products, enabled by a common access network: dual and triple play became the norm for most telecoms and cable companies across the globe. Fixed-line operators used this strategy to reduce customer churn, justify higher ARPU through more product penetration and to differentiate themselves from or repel "pure players" like video or VoIP providers.

Although the logical next step was for mobile telecoms to join the movement towards convergence, for a long time end users saw little change. Existing mobile operators integrated their back-end systems (fully or at least partially), platforms and processes, and some elements of their networks, but convergence did not become a competitive weapon.

This situation started to change around 2012. Very aggressive FMC market strategies were launched in France, Spain, and Belgium, disrupting the markets and triggering a consolidation process in these three countries as well as in Germany and the UK.

So why are operators now starting to use FMC as a competitive weapon? Perhaps, because, as markets become more mature and competition increases, FMC is proving very effective in acquiring and retaining customers. On one hand, converged customers show a much lower churn rate (up to 50% less) compared to non-converged customers. On the other hand, there is great asymmetry between fixed and mobile users in becoming convergent: the evidence shows that mobile users are three to five times more likely than fixed-line users to transfer to converged services. Hence, FMC is a powerful tool to capture mobile customers from competitors (see Exhibit 1).

THE STATUS OF CONVERGENCE IN THE MAIN MARKETS

SPAIN

Though the LLU ADSL company, Jazztel, was the first mover in Spain in 2012, the launch of Movistar Fusión (with a discount of about 30% over standalone products) proved the real trigger. Convergence was sustained initially by price cuts and mobile multi-line plans (see Exhibit 2). This situation has unleashed a consolidation process, with Vodafone and Orange acquiring the main broadband challengers, thereby concentrating the market. Despite being a first mover, the benefit for Movistar of this process is uncertain.

FRANCE

The move to FMC started with the launch of Free Mobile. Competition was met by mimicking fixed-mobile bundling offers with aggressive discounts and the launch of low-cost brands, such as Sosh, which offer FMC packages. Convergence has driven significant value destruction and consolidation. After several years of FMC, the main players have achieved a high mobile penetration (over 60%) within the fixed broadband base, not only reducing the likelihood of upselling but also the risk of churn.

BELGIUM

Though Proximus was a pioneer in selling convergent packages, the convergence battle actually started in 2012 with Telenet's launch of mobile services at significantly discounted prices. Since 2012, the market has identified convergence with "internet (and TV) access everywhere", using Wi-Fi hotspot infrastructure. Proximus has had to continuously defend its mobile-only base and cross-sell mobile to its fixed-line base. Other mobile operators (such as Mobistar and Base) have been the most negatively affected. More recently, FMC has triggered consolidation in Telenet's acquisition of Base.

GERMANY

Convergence is expected to be one of the main market growth drivers, together with the evolution of high-speed services. Most exposed players have made M&A deals (Vodafone-Kabel Deutschland, O2-E-Plus), both to avoid missing out and, in the case of Vodafone, to achieve a better cost position than the one provided by ADSL. None of these moves has created a strong fixed broadband base. Deutsche Telekom (DT) is the most secure player (despite being threatened by cable technological advantage): about 70% of its mobile base uses DT broadband and it has significant upselling potential. Vodafone has little overlap in its mobile and broadband bases, which leaves room for cross-selling but also creates the risk of mobile churn. O2-E-Plus is the most at risk, as most of its mobile base has broadband as a competitor.

UK

After previous attempts, convergence is today at an incipient stage in the UK. Virgin Media launched quad play in Q2 of 2014 with only limited success. Preparations for FMC are underway, with the merger of BT and EE. Today, Vodafone is the operator most at risk, with about 40% of its mobile base using BT's fixed broadband. O2 and Three could be the next most vulnerable. Virgin Media may have an important convergent growth opportunity through mobile cross-selling, if its FMC solution is well executed.

US

Several attempts at convergence have been launched with only limited success. These include cable initiatives to enter the mobile arena that have failed due to poor execution and lack of regulation. Verizon and AT&T launched offers in 2010 with mobile discounts but did not promote them aggressively. The only truly convergent solution currently in the market is the combined Comcast-Verizon proposition, though the only benefit it offers is a discount voucher and access to Verizon hotspots for "TV on the go". Wi-Fi solutions or moves by cable companies could be the trigger to get FMC moving.

There have been two main routes to convergence so far, and a third is emerging:

Firstly, as a new entrant – possessing a good position in Fixed Broadband (FBB, comprising internet, voice, and video) and a Mobile Virtual Network Operator (MVNO) agreement. The operator launches very aggressive FMC bundles, rapidly transforming its fixed broadband customer base into a converged one. Examples of this route are Free in France, Telenet in Belgium, and Jazztel and Ono in Spain.

Secondly, as an incumbent – faced with a high churn rate, very likely with a high price premium compared to the market, the operator launches highly discounted bundles for its customer base and the wider market, heavily supported by Above-The-Line (ATL) advertising. The best example of this is Telefónica in Spain.

Thirdly, also as an incumbent but executed in a much more subtle way – realising it has a clear strategic advantage in the market, the operator launches a convergent but not greatly discounted offer, leveraging go-to-market execution in telesales platforms, first targeting its own customer base and then that of competitors. DT appears to be following this approach.

What have been the results of these different routes to convergence? In general terms, the main winners of FMC have been consumers. The massive transfer of surplus from operators to users, with steep price reductions, has damaged the industry as a whole. There have also been a number of winners among the operators. Challengers such as Free in France, Telenet in Belgium, or Jazztel and Ono in Spain have very successfully played the FMC card to increase their market shares and their market value. For example, in the consolidation process in the Spanish market, Vodafone paid €7.2 BN for Ono while Orange paid €3.3 BN for Jazztel, which was 10.5 and 18.1 times their Earnings Before Interest, Tax, Depreciation, and Amortisation (EBITDA) respectively.

What about the incumbents? Here the outcome is not entirely clear. Until now, the incumbent that has been boldest in taking the lead in FMC strategy has been Telefónica in Spain. While Telefónica registered a significant decrease in churn, its ARPU dilution has been very high, mainly due to a massive migration of clients within its base (see Exhibit 3).
In Germany, DT is playing a more subtle game

Exhibit 1: Convergence as a competitive weapon

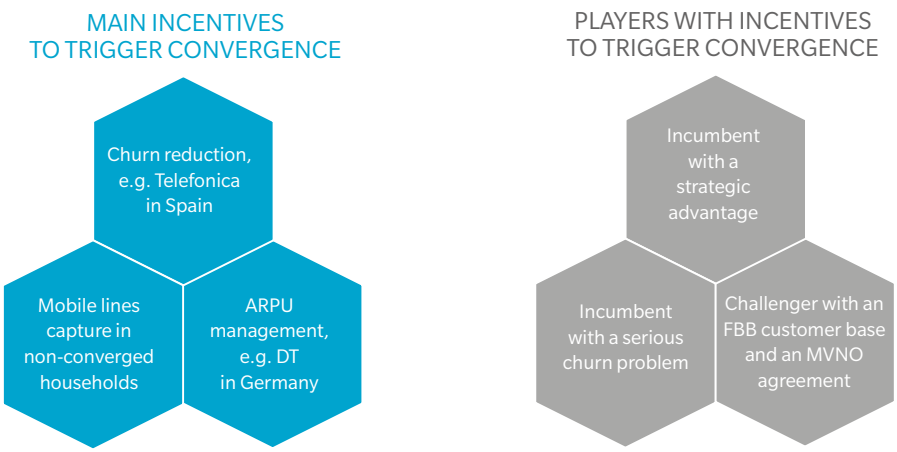
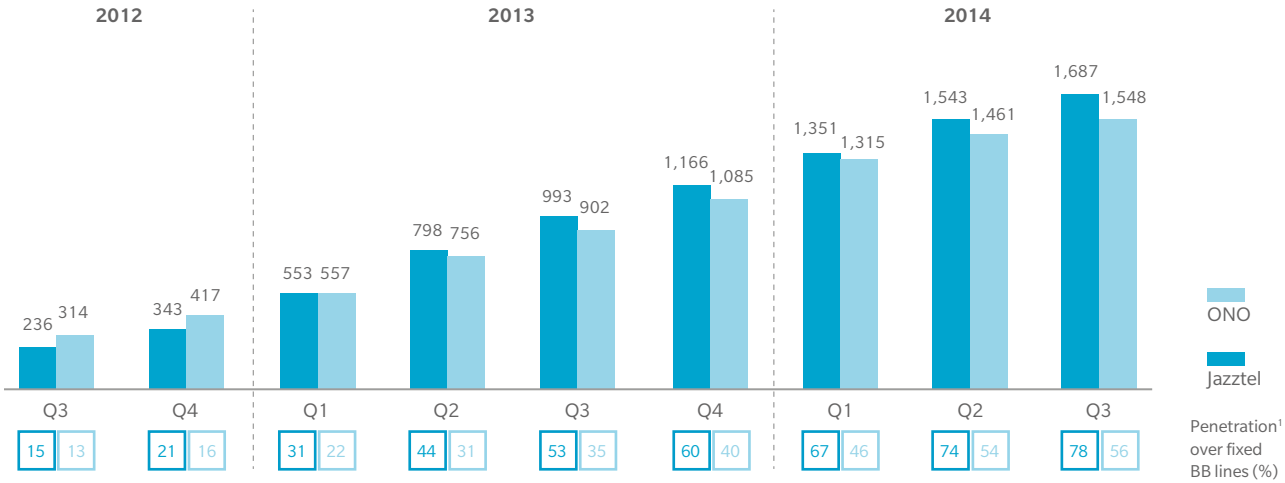


Exhibit 2: Mobile portability in the Spanish market

EVOLUTION OF MOBILE SUBSCRIBERS AND PENETRATION OF CONVERGENCE

THOUSANDS OF SUBSCRIBERS. Q3, 2012–Q3, 2014

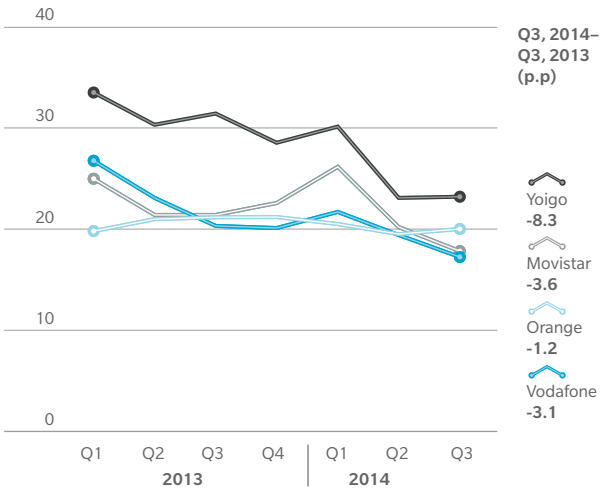


1. Customer penetration – excludes additional mobile lines

Exhibit 3: Churn and ARPU evolution in the Spanish market

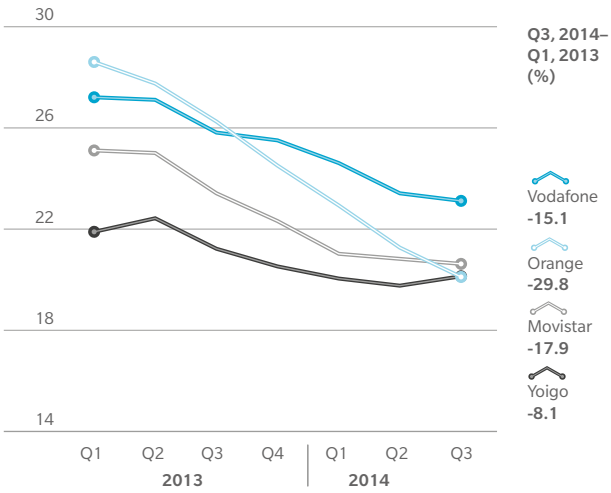
POSTPAID ANNUALISED CHURN RATE

Q1, 2013–Q3, 2014 (% AOP)



POSTPAID ARPU

Q1, 2013–Q3, 2014 (€)



- Convergence has positively impacted churn figures of all MNOs since it generates higher customer stickiness
- Movistar states that "Fusión" has increased customer value by extending lifetime (2.2x FBB standalone and 2.5x mobile contract standalone)

- All operators have suffered a notable regulatory impact in 2013 (- 60%[1] drop in termination rates on July 1st)
- ARPU decline is stronger for Orange and Movistar who exhibit the highest convergent penetration:
  - Orange: 77% of FBB (better market share performance at a cost of higher ARPU dilution)
  - Movistar: 61% of FBB

1. From €c2.76/min to €c1.09/min

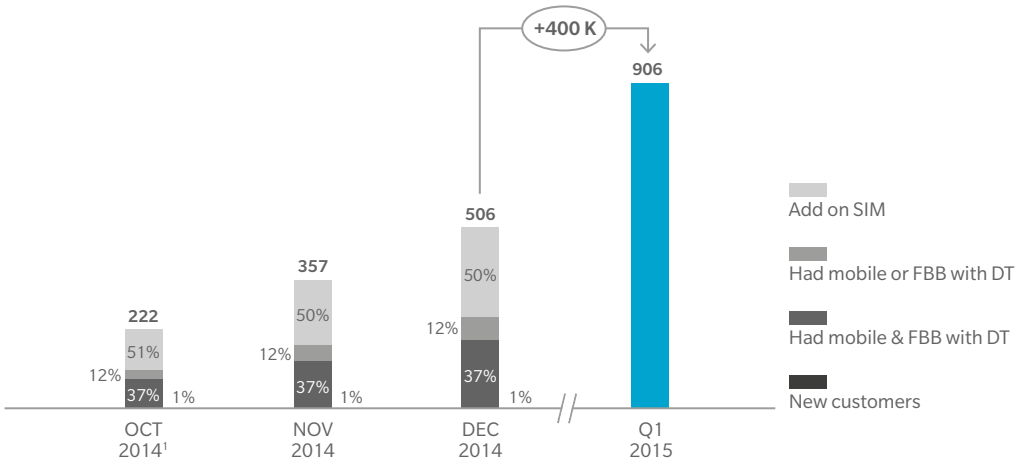
Sources: Operator quarterly report, Oliver Wyman analysis

with MagentaEINS, targeting its customer base, firstly, to manage the effects of price changes and, secondly, to upsell and cross-sell. The German operator reports close to a million converged customers, but this time with much lighter ARPU dilution when compared to Telefónica in Spain (see Exhibit 4).

Exhibit 4: Deutsche Telekom's MagentaEINS results

MAGENTAEINS CUSTOMER BASE

THOUSANDS OF SIM CARDS; ~2 SIMS PER HOUSEHOLD



- MagentaEINS ended 2014 with ~250k convergent customers (households), and already had ~450k in Mar'15 (approx. 2 SIM cards per household)
- The current MagentaEINS base has been achieved through Cross/Up-selling among existing DT subs. (99% of MagentaEINS subs. in Q4, 2014)

KEY TAKEAWAYS SEVEN MONTHS AFTER LAUNCH (SEP 2014)

QUAD PLAY SHARE (FIX + BROADBAND + MOBILE + TV)	Around 50% of MagentaEINS subscribers in Q4, 2014 and 40% in Q1, 2015 chose MagentaEINS with TV.
GROWTH IN SIM CARDS PENETRATION	Households in MagentaEINS demand ~2 SIM cards (1 additional mobile line is added to the pack).
IMPROVEMENT IN CUSTOMER LOYALTY	75 loyalty index[2] points per convergent customer (+25% vs. avg. in 2014 for all products).
ARPU IMPACT PER HOUSEHOLD	€10 ARPU erosion vs. no convergent pricing, of which two thirds (Q1, 2015) are compensated through add-ons[3] upsell.

1. Minor deviations in totals are due to rounding
2. TRI*M index: Customer retention model between 0 and 100 points
3. MagentaEINS add-ons: Additional SIM cards, TV option, BB speed

Sources: Deutsche Telekom, Deutsche Telekom Capital Markets Day 2015; Deutsche Telekom Q1/15 Results

IS CONVERGENCE HERE TO STAY?

Despite convergence not having so far been a clear value-generation lever for the industry as a whole, we are convinced that it is here to stay and that most markets will follow the convergence path. We base this conviction on our analysis of the strategies of the different telecoms markets. Specifically, we think that most markets show marked asymmetries among players, and these asymmetries generate enough incentives for some of the players to begin convergence. There are three main asymmetries:

1. An integrated incumbent, with a strategic advantage in the fixed broadband network (coverage or speed, or both). This type of incumbent can try to use its superiority to, a) consolidate its customer base and b) to capture mobile lines from its competitors. BT (plus EE) in the UK or DT in Germany enjoy this position.
2. A fixed broadband player with an MVNO agreement, and with very little to lose in the mobile space. Such a player will try to capture as many mobile lines as possible in its household footprint.
3. A mobile-only player, or an integrated player with little overlap in its fixed line and mobile customer bases. This mobile player is vulnerable in its mobile base, which generates an incentive for its competitors to capture as many of its mobile customers as possible.

We think that at least one of these asymmetries exists in most markets. In the USA, Wi-Fi is likely to play a material role but, from a client perspective, we expect to see a dynamic similar to the one witnessed in Europe.

A number of factors will help to catalyse the three main asymmetries:

- Cost reduction and efficiency improvements: while cost cutting was not high on the convergence agenda of most groups and there were plenty of improvements to be found in other areas of the business, cost cutting through convergence is the natural next step.
- Technology development: the evolution of technology makes convergence a reality, which, in turn, puts pressure on all telecoms operators and is lowering the barriers to market entry. For example, Wi-Fi penetration could enable cable operators to disrupt the mobile arena and the advent of 5G could open up opportunities for mobile players to enter the video business.

Clearly, convergence will materialise in most markets. What is less clear is exactly how convergence will disrupt each market, as this will depend on several factors. Firstly, while the available technology, such as 4G and fibre, will boost convergence, Wi-Fi hotspot networks could also be used by telecoms operators and technology players as a disruptive asset. In the USA, for instance, Wi-Free could easily be used by players to disrupt the mobile market. Secondly, the regulatory framework may encourage real competition in both mobile and fixed services. Finally, the operator that makes the first move will influence the outcome: how other operators react, or overreact, could define market profitability in the long term.

THE FMC SRATEGIC CHESSBOARD

Many telecoms and cable operators are discussing their convergence strategies. Beyond corporate strategies, when confronted with convergence in the competitive arena the two main questions are, "Should I attack, or wait and see?" and "How aggressive should I be?" To answer these questions, each operator needs to consider the following:

- What is my mobile churn risk? In the context of convergence, how many of my mobile customers use the broadband of a competitor that could offer them a convergent solution?
- What is my mobile cross-sell potential? How many mobile lines are in households that also use my fixed broadband, which could be brought to my convergent solution?
- What is my customer base re-pricing risk? If I launch a convergent offer, what would be the dilution effect caused by my clients migrating to it?

Mobile churn risk and mobile cross-sell potential are both relevant in deciding whether to take the initiative or to wait. In decisions regarding the degree of price aggressiveness for a converged proposition, re-pricing risk is more important. Exhibit 5 shows some opportunities and risks in decision-making about convergence.

Based on these opportunities and our experience in convergent markets, we identify five types of players. When addressing convergence, each type faces a different reality with different optimal actions.

On one side, there are operators with high cross-selling potential and low churn risk: they should be the first to go on the attack and push heavily for convergence. On the other side, we see operators with significant churn risk and limited or no cross-selling potential: they will need to focus their efforts on defending their customer base and should postpone their emergence in the convergent market.

Exhibit 5: Decision-making: attack or defend?

Given my market situation, and my position in it, is FMC an opportunity or a threat? Should I take the initiative or react if others take it?

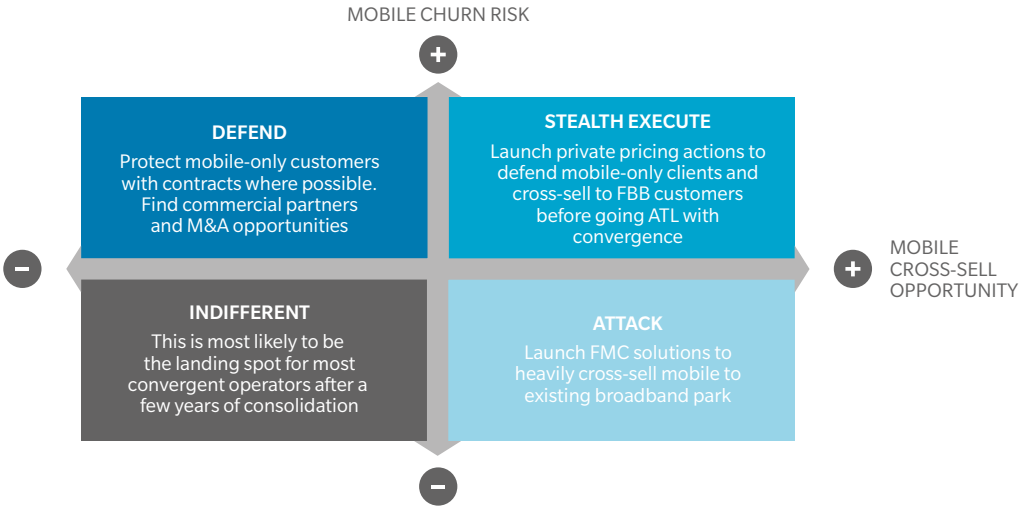


Exhibit 6: Strategies associated with five types of operators

TYPE OF OPERATOR	DECISION	RISK OR OPPORTUNITY
Mobile only	DEFEND: All of their mobile base will have broadband competitors	• High mobile churn risk, needs to be managed • Significant re-pricing risk in competing in the market; much-needed retention campaigns increase the risk
Mobile share greater than broadband share	DEFEND: Most mobile-only operators have broadband competitors, and most of their broadband subscribers are already mobile (low cross-sell potential)	• High mobile churn risk, needs to be managed • Significant repricing risk to enable them to compete in the market; much-needed retention campaigns increase the risk • Reduced opportunity for mobile cross-sell given the reduced fixed broadband footprint
Balanced shares (fixed broadband and mobile); non-overlapping customer base	STEALTH EXECUTE: High stakes because, while there is significant room for cross-selling, there is also a significant mobile base at risk; SRC and SAC budgets will be high	• High mobile churn risk, needs to be managed • Re-pricing risk to the customer base will emerge rapidly, and will be very difficult to manage even if using BTL campaigns • Major mobile cross-sell opportunity, but with an acquisition cost
Balanced shares (fixed broadband and mobile); overlapping customer base	INDIFFERENT/ATTACK: A significant share of mobile customers are already fixed broadband customers but, given the fixed broadband footprint, there is room for cross-selling	• Re-pricing risk is the name of the game but, if properly managed, these operators could increase their market share (through mobile cross-selling) and accelerate market consolidation
Fixed broadband share significantly larger than mobile share	ATTACK: A large fixed broadband customer base, which can be used to cross-sell mobile Maintaining credibility as a mobile operator is important, and value for money is key	• Limited or marginal mobile churn and re-pricing risk • Significant mobile cross-sell opportunity, if operator retains a credible mobile service • Opportunity to weaken a mobile incumbent's competitive and financial position

SO WHAT SHOULD I DO?

We think all operators should plan for a convergent market environment and begin by defining their strategy for convergence as discussed above. The following checklist may help in this process:

- Assess the situation. What incentives do the industry players have to trigger convergence in the market?
- Assess your own position in the context of convergence. What are the opportunities? What is at risk?
- Decide whether to attack or defend
- Decide on your specific course of action. Will your convergence be based on:
  - Bundling and pricing
  - Cost
  - Product innovation or
  - Customer experience?
- Decide the level of aggressiveness in the convergence approach
- Design a plan to manage internal migrations within the customer base
- Plan your operations

As the famous architect Mies van der Rohe said, "God is in the details". This well-known quotation can readily be applied to convergence. Operators should not only define a sound strategy but also take care of operational details: executing a convergence strategy is extremely complex.

The main elements of the process are as follows:

- Development of a household (or enterprise) view of the market: the atoms of the convergent dynamics are households. Without looking at this market through convergent glasses and designing the value propositions and the go-to-market using them, the execution will be a failure.
- Good and careful management of the customer life cycle: knowing when to launch a converged offer to the customer base and ensuring an excellent customer experience will be the key to successful convergence. It is also important to appreciate that customers often become convergent in more than one step.
- Value preservation: operators need to consolidate the customer base while minimising ARPU and margin dilution. This calls for the careful planning and implementation of one-to-one customer targeting, relying on private prices.
- Preparation of processes and systems for a converged operation: careful implementation is required, especially in commercial channels and customer care platforms.

CONCLUSION

Operators need to define their convergence strategy now and should be ready to anticipate FMC disruption to the market. To succeed, it is essential that operators secure their mobile-only customer base and ensure adequate overlap of their mobile and fixed broadband capabilities. Those that do not plan sufficiently in advance, or underestimate the impact of failure, will face an uphill struggle – and risk being too late.

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The experience that consumers go through when they enjoy products or services is much richer than the products or services themselves.

EXPERIENCE-BASED CONVERGENCE

THE ULTIMATE CUSTOMER-CENTRED APPROACH

There was a time, not that long ago, when soft drinks companies sold refreshing and sparkling drinks, haute cuisine restaurants sold carefully cooked food, car companies sold elegant and powerful cars, and leisure companies sold specific entertainment services. Then, in the early 1970s, this all started to change. Coca-Cola began selling a totally different thing, in fact "the real thing": an experience of kinship, peace, and selflessness. Car companies followed some years later, as they started to sell the enjoyment of the driving experience or the sense of adventure. Restaurants now offer multi-sensory super-sophisticated dining and leisure companies promote the experience of living a different life for a week or two.

This turnabout was based on one of the deepest insights in the history of marketing: the experience that consumers go through when they enjoy products or services is much richer than the products or services themselves, so why not emphasise the experience when creating marketing campaigns?

Focusing on customers' experiences also provides a substantial opportunity for telecoms operators. This goes beyond most operators' usual understanding of the term "customer experience improvement". It means grasping how telecoms services can be marketed as rich experiences. Convergence offers the greatest opportunity for achieving this. If telecoms operators succeed in marketing customers' experiences, they will be in a much better position to reach some of their strategic goals and to reposition themselves within the digital ecosystem.

A BARREN DECADE

Following a period of rapid growth from the 1990s through to the mid-2000s, life has not been easy for telecoms operators. They thought they would have a prominent position in the digital ecosystem but in many ways they find themselves displaced and on the periphery. They have witnessed customers falling in love with new players, whether vendors of handsets and devices or digital companies selling Over-The-Top (OTT) content. At the same time, customers showed indifference, or even a negative attitude towards operators. And in some countries, especially in Europe, changes in regulation and technology disrupted the prevailing economics, forcing markets to become more competitive.

In consequence, other digital economy players have massively outperformed telecoms operators in terms of value creation for shareholders and perceived utility creation for customers and societies. Despite showing healthy P&Ls, the past ten years have been as tough for telecoms operators as crossing the desert.

In this context, operators have devised and communicated strategies to achieve three main goals (see Exhibit 1):

Reconnect with customers. Telecoms operators have sought to reverse the current perception that they behave as oligopolies and are neither transparent nor loyal to customers. They seek to establish relationships that are more than transactional by reaching customers' emotions.

Escape the curse of commoditisation. Operators in the most competitive countries have sought to avoid prolonging ongoing price wars, which have, in some cases, lasted for up to five years. This price-based competition has destroyed a significant part of the revenue base and the margin of most competitors in Europe: it threatens to do the same in other geographies, as their markets mature.

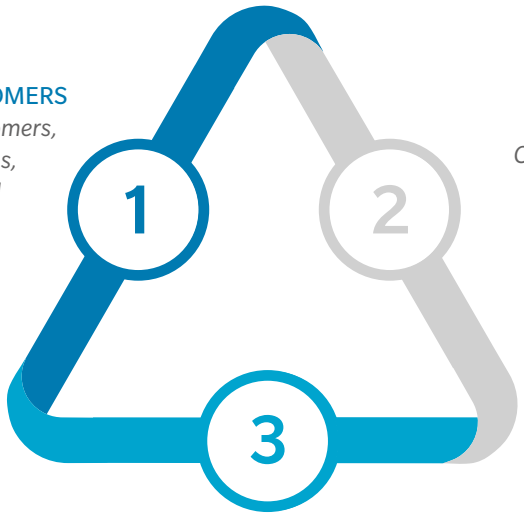
Find a comfortable place in the digital ecosystem. Other digital players have designed and marketed innovative and successful services that use the telecoms network infrastructure and have done so without sharing the resulting value with those who own (or pay for) the network.

Operators have pulled different levers to achieve these goals. The value proposition offered to customers is one of them, but often this does not contribute to the operator's strategic aims. On one hand these value propositions are marketed on the basis of functional features and seldom talk to customers' emotions or emotional needs. Despite operators' claims about building lasting relationships with consumers, their value propositions are still too transactional: "you give me X, in return I give you Y". On the other hand, operators have designed value propositions that might appear to fight the price battle by selling a price (especially in the mobile sector): "5GB in return for $10". This makes value propositions more easily comparable and steepens the slope of the commoditisation curve.

Offers for video content follow similar schemes: "three channels for €30". But many other value propositions are based on connectivity. This appears to reflect that some operators have accepted that they have lost the battle for customers in the digital space. So the question seems to be, "If value propositions must be redesigned, how do we do it?"

Exhibit 1: For years, telecoms operators have been pursuing a number of strategic goals, some of them proving hard to achieve

SOME KEY STRATEGIC GOALS OF THE TELECOMS INDUSTRY



RECONNECTING WITH CUSTOMERS
Being liked and trusted by customers, connecting to their emotions, satisfying their needs, and being part of their lives

ESCAPING FROM PRICE-DRIVEN COMPETITION
Crafting value propositions that emphasise attributes other than price, and escaping from price competition and the growing commoditisation trend of connectivity

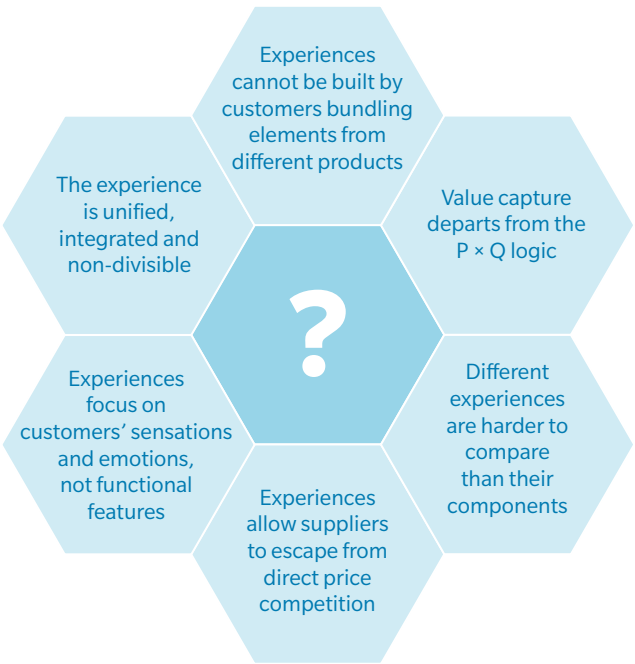
FINDING A COMFORTABLE PLACE IN THE DIGITAL ECOSYSTEM
Trying to keep as much value as possible within the digital ecosystem, especially in the digital home environment

FROM SELLING PRODUCTS TO SELLING EXPERIENCES: EXAMPLES IN OTHER INDUSTRIES

Other industries have not only designed and marketed value propositions that directly target customers' emotions but have also succeeded in building emotional links between supply and demand, thereby escaping direct price competition. Let us look at some examples.

Among the first moves in this direction was Coca-Cola's brilliant "the real thing" campaign in 1971. Before that, the company marketed its drink by emphasising its functional benefits: refreshing, tasty, sparkling. But from that moment on, Coca-Cola focused on marketing the vast array of feelings and emotions that consumers have when drinking Coca-Cola in different settings: kinship, peace, love, and so on.

Exhibit 2: What do experience-marketing approaches have in common?



For many years, car makers sold the functional traits of their cars: safety, power, speed, comfort, equipment, durability, and so on. More recently, they have been marketing a very different set of benefits: such things as the joy of driving, the excitement of being an explorer, being trendy and cool, and standing out from the crowd.

Another powerful example of this change in value propositions comes from the world of haute cuisine. Restaurants used to offer the best-cooked food created from exclusive raw ingredients combined with a top selection of wines and luxury table settings. Now they offer a comprehensive experience designed in its entirety, the components of which cannot be unbundled by customers. There might not even be a menu and no choice of starters, main courses, or desserts. And the dining room might be multi-sensorial, with elements that play on customers' sense of smell as well as the visual spectacle, for example.

The leisure industry provides a further showcase of this trend. Theme parks are no longer a collection of attractions but rather "experience spaces" in which to trigger thrilling emotions. When offering tourism packages, leisure companies market the experience of living a different life for days, weeks, or more.

Exhibit 2 summarises the points these experience-based marketing approaches have in common, and we can observe some remarkable characteristics:

- There is an emotional connection between companies and their customers.
- Value propositions are far more differentiated and difficult to compare.
- Experiences cannot be unbundled: for example, a customer cannot order an Audi R8 with an A4 engine and A6 brakes, since an R8 has been designed for a certain experience and each element is required to deliver it.

- Value capture mechanisms are designed to address customers' budgets rather than to manage unitary prices: the price of each component is not visible because what matters is the price of the experience itself.

A COPERNICAN SHIFT IN MARKETING

Moving from selling products or services to selling experiences represents a Copernican shift in the way these industries think about marketing. It was based on a powerful insight:

- The experience customers have when they consume a product or service is a different thing from that product and service in itself.
- The experience is much richer than the product or service because it involves an array of emotions, feelings, and sensations that come not only from the product or service but also from the context in which customers consume them.

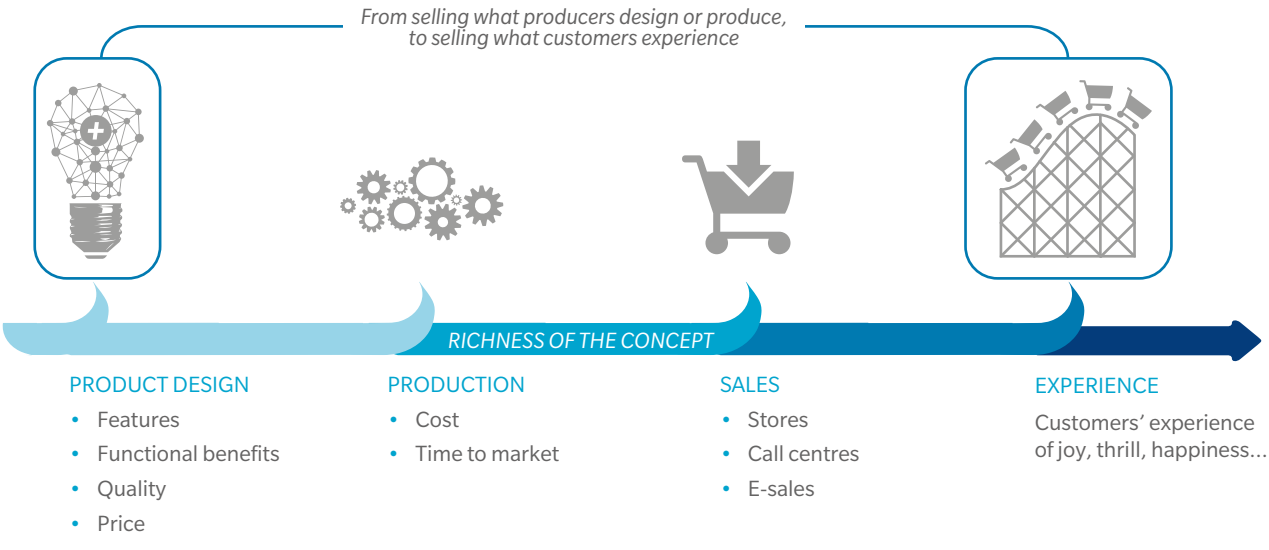
The experience of drinking Coca-Cola with friends involves friendship. The experience of driving a BMW promotes feelings of empowerment, distinction, exclusivity, or success. And the experience of trekking in an exotic destination triggers the emotion of discovery and feeling of adventure. So, if experiences are much richer and more powerful than the products and services that enable them, why not shift the emphasis from marketing products and services to marketing experiences?

This change in perspective is the true, ultimate, customer-centred approach. Radically, it starts from what people feel, not only when looking at the interactions between the company and its customers but also when designing the value proposition itself. But is experience-based marketing a worthwhile route for telecoms operators to follow?

EXPERIENCE-BASED CONVERGENCE

Most telecoms operators' value propositions have so far been based on their products and services. They still use the approach depicted in Exhibit 3 (starting from the left-

Exhibit 3: A Copernican shift in approach: marketing experiences



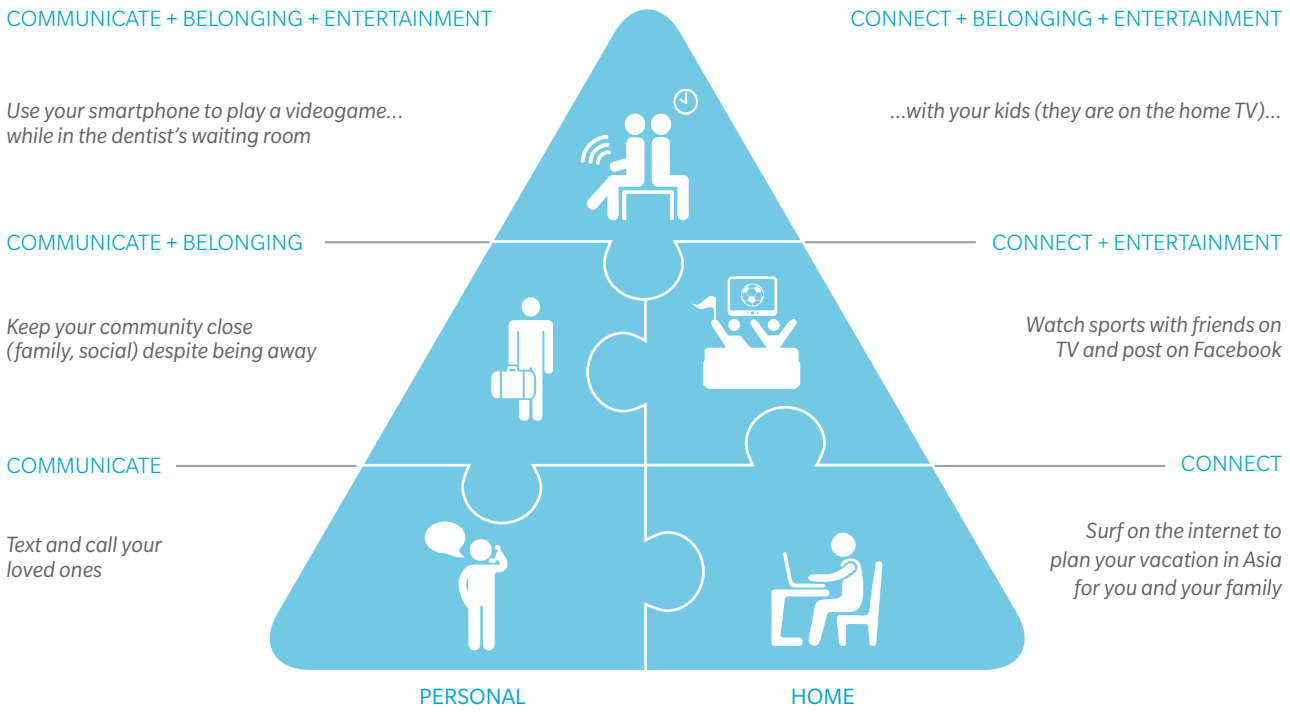
hand side of the diagram). Not surprisingly, convergence value propositions have mostly been bundles of standalone elements provided at a discounted price. We believe there is an alternative, based on what other industries have done successfully, namely, marketing the experience. Some of our recent fixed-mobile projects have already taken this approach.

A convergent value proposition could be conceived, not as a bundle of standalone products, but as three intertwined layers of experiences, which cannot be found in isolation or unbundled by customers: connectivity, content, and service. Converged offers provide the sort of connectivity that cannot be found elsewhere because the rich and accessible content is, as a whole, qualitatively different from the individual parts.

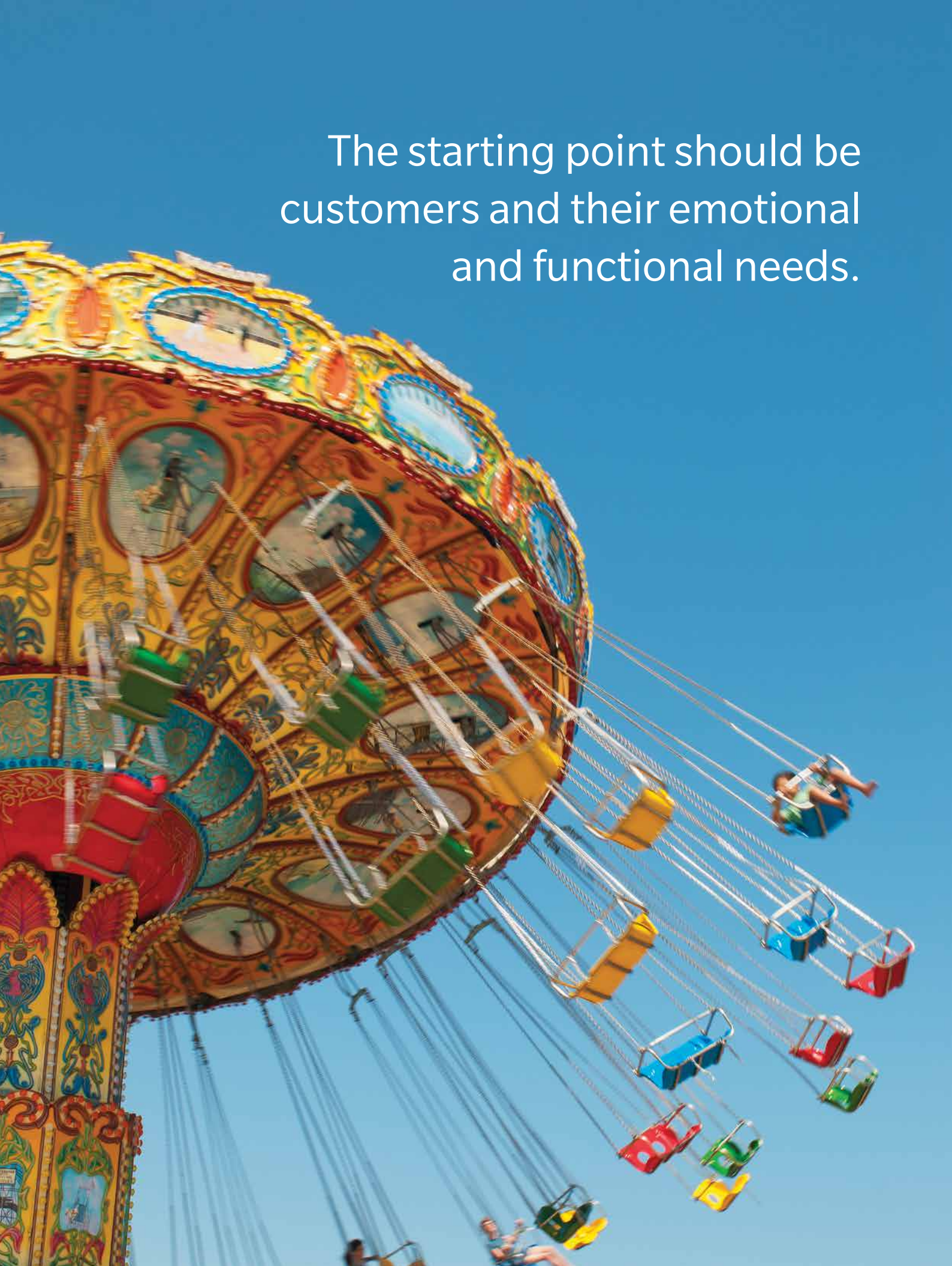
However, the question remains, "What are the emotional elements of this hypothetical value proposition?" To find an answer, telecoms operators could start by trying to understand the kinds of emotions and feelings that come into play when customers use their services, such as getting in touch, belonging, enjoying, and taking care of loved ones. Exhibit 4 shows a potential model for classifying these sentiments.

Let us think about how this works in practice. A teenager messages dozens of friends at the same time on their smart phone. A parent away on business, FaceTimes his children. Friends play a game "together" on different devices and in various locations. A family watches an episode of their favourite series, with each member in a different place but messaging comments about the storyline using WhatsApp. These activities entail experiences that can go far deeper than just providing a service to a set of individuals – "the real thing" is about emotions and feelings.

Exhibit 4: To create an experience-based convergent value proposition, the starting point should be customers and their emotional and functional needs



The starting point should be customers and their emotional and functional needs.



This indicates that the intertwined layers of experience equate to one or more of the emotions described in Exhibit 4. Telecoms operators need to redesign their marketing narrative based on this connection.

Would this experience-based convergence approach really help operators to move in the right direction? We think it would: and the outcome would look very different to current propositions (see Exhibit 5).

Experience-based convergence allows operators to get closer to the strategic goals we described earlier, serving as a key building block that helps them position their products and services in a totally new way. In turn, this positioning enables operators to appeal to customers' emotions and feelings – about their experience – and through this different communication style, to establish new associations and greater emotional connection.

This approach also allows improved differentiation of value propositions, thereby creating a competitive dynamic that is driven less by direct price competition and more by better insights into customers' needs and emotions. The result? – a richer environment in which to produce innovative ideas and concepts.

Experience-based convergence also increases the operators' capacity to capture part of the value created for customers. With this approach value capture need no longer be based on sustaining a given unitary price point for each of the building blocks of the value proposition. Indeed, the unitary prices would not be visible to consumers. Instead, the new value propositions target customers' budgets and, through this, focus on managing ARPU.

Exhibit 5: Why would this experience-based convergence be different from current convergent value positions?

It speaks directly, to customers' emotions, providing a unified integrated experience of connectivity, entertainment, and service…	A fully integrated experience of seamless connectivity, indoors and outdoors, supporting an equally seamless experience of content usage and entertainment, and supported by a 24/7 service Bring your home with you in your mobile, and manage your home as if it is your mobile
…which cannot be rebuilt by customers with bits and pieces from stand-alone products	Exclusive features not to be found in other, stand-alone offers • Exclusive connectivity (such as abundance of mobile data) • Video everywhere
Value capture departs from the P × Q logic and is centred around ARPU management	A single price point for the full experience, not broken down to the prices of each of its elements; there is not a "Q" to be multiplied by a "P", beyond the full experience itself In a world of data, with huge gross margins and technology helping to overcome capacity constraints, the focus has to move from managing price to managing ARPU (caveat: this does not apply to content)
It is more difficult to make comparisons between value propositions	1GB is 1GB, regardless of who offers it It is much more difficult to compare two different packages of landline and wireless connectivity, content, and service

CONCLUSION

Experience-based convergence gives operators a way to reposition themselves. If operators can persuade us that they are enabling our universe of rich emotions, deep feelings, as well as plentiful utility every time we connect to a network, this might allow telecoms to find a more central position in the digital ecosystem.

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Network virtualisation is heralded as the latest technology revolution – so will things be different this time around?

NETWORK VIRTUALISATION

SCIENCE FICTION OR REALITY?

Over the past several decades the introduction of a number of new, disruptive technologies, such as IP, xDSL, 3G and LTE have in many ways redefined the telecoms industry. Despite their innovative nature, none of these technologies has fundamentally changed the way a network operates, nor has their promise been fully realised. On each occasion, though the network vendors promised huge cost savings, this promise proved largely illusory. Network virtualisation is heralded as the latest technology revolution – so will things be different this time around?

A BUSINESS DESIGN REVOLUTION

What is network virtualisation? Technically, it is about separating network hardware from software (today, this is often vertically integrated and provided by one vendor), centralising network functions into interoperable software, and making these networks programmable as an IT application (see Exhibits 1 and 2).

Network virtualisation is more than just a technology shift, however. It promises the transformation of connectivity. Whereas most other IT elements have already gone through virtualisation, the network itself has until now been left largely untouched.

Network virtualisation will bring several clear-cut benefits. It will place telecoms operators in a better position to compete against Over-The-Top players. Combined with full-IP and Big Data analytics, it will open up new opportunities that will enable operators to introduce additional capacity in an easy and flexible manner. This, in turn, will enable the development of models tailored to consumers' needs.

These features ensure that network virtualisation is not only likely to produce a paradigm shift in network architecture, processes and infrastructure but that it will also open up the way for network operators to design a wide range of new digital services. It will do so while generating increased efficiency and cost savings. In sum, its introduction will facilitate the shaping of new value propositions.

Exhibit 1: Overview of Software Defined Networks and Network Function Virtualisation

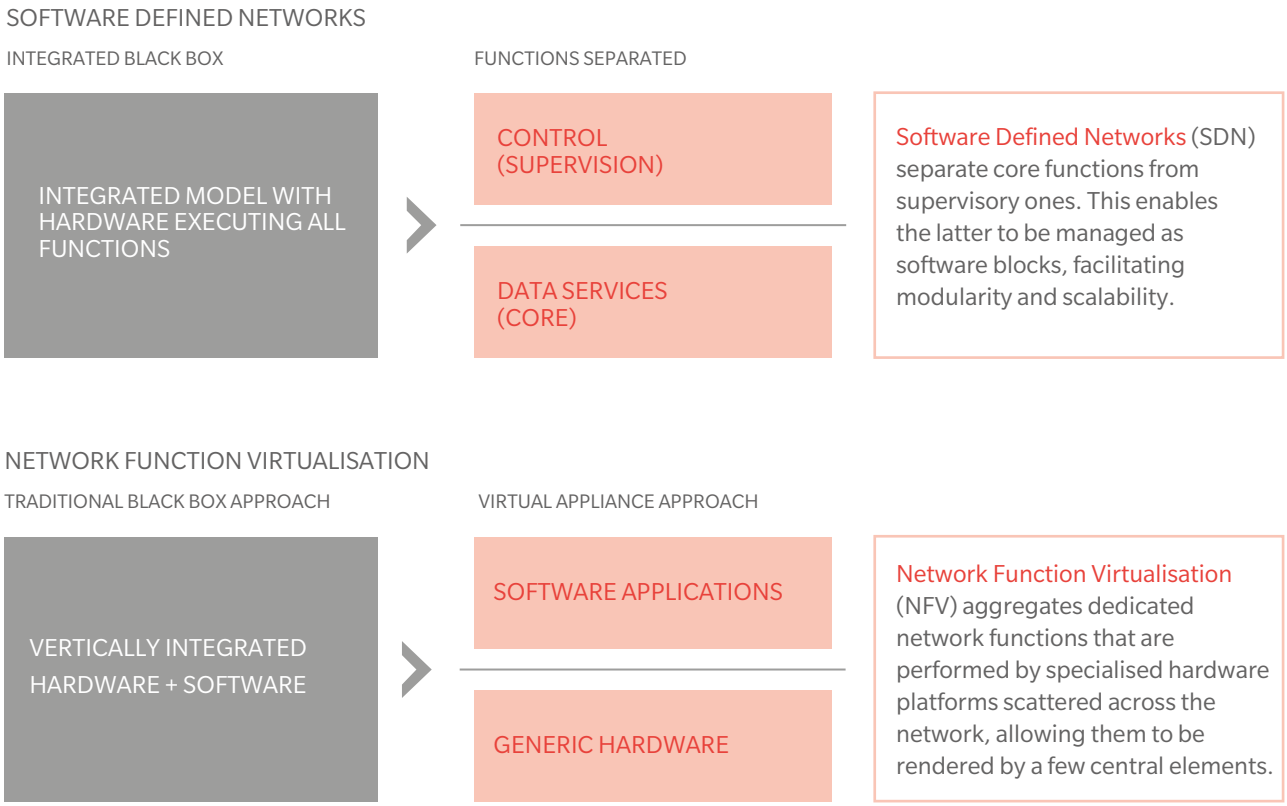
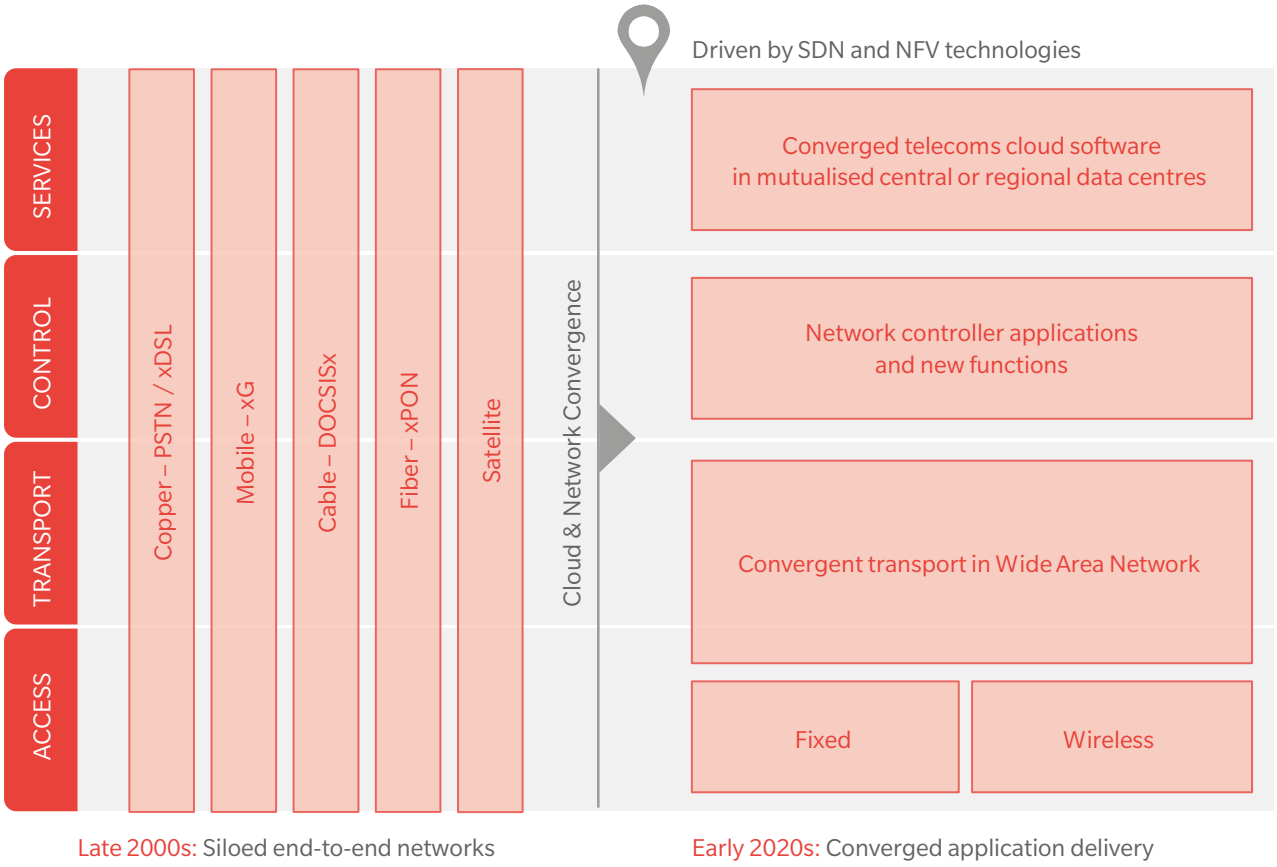


Exhibit 2: The telecoms industry is moving from a siloed operating model to an open, layered application model

A REVOLUTION SET TO CHANGE TELECOMS NETWORKS



Sources: F5 Networks, Oliver Wyman analysis

It is clear that virtualisation will be a game changer over the coming decade. However, marketing and sales executives are currently far from having full understanding of these emerging opportunities and the subject is often given less importance than it deserves at all levels of management. If virtualisation is to be given the seriousness it deserves, then network operators should rethink their business design using the virtualisation prism: handled correctly, virtualisation represents a major step in the path to becoming a fully digital operator.

AN APPEALING PROMISE

Network vendors have a natural bias towards overpromising. While they have no rational interest in overselling the benefits of virtualisation, some are clearly seeking to leverage its promise to regain market share from established vendors, promising significant savings for network operators. There is undoubtedly a good deal of truth to what is promised. We examine the nature of this promise here, before turning to look at some of the potential pitfalls in a later section.

Today, in terms of revenue share, network vendors generate most of their revenues from hardware, followed by services and

software. The shift to virtualisation presents these vendors with a huge challenge: the separation of hardware and software will reduce their revenues by commoditising hardware. Vendors will need to compensate for this lost revenue from hardware by creating additional revenue from software. Their ability to master this challenge is far from certain: vendors will need to become de facto software companies and this will require building new business ecosystems.

Taking a step back, we see seven main benefits for network operators based on our experience in this field.

Reduced time to market and enhanced flexibility: The introduction of new network programmability features will considerably simplify the process of product provisioning and shorten release cycles for both the enterprise and consumer markets. Once a product has been developed and the rules have been set, it will be easy to replicate elsewhere. Another advantage is that development and production will cohabit on the same infrastructure: this will significantly reduce the requirements for testing and the move to production costs. Likewise, service chaining and software automation features will significantly reduce the time to market and improve business flexibility.

Enriched consumer applications and services: Until now, marketing teams have spent little or no time investigating the likely impact of virtualisation. This is an oversight: virtualisation is likely to prove to be a key enabler of fixed-mobile convergence. It will enable network operators to develop exciting new services and applications across fixed and mobile networks. For example, by deploying a virtual IMS platform on a virtual network, operators could:

- Extend existing services (e.g. VoLTE, VoIP) independently of the originating fixed or mobile network, adding features such as call recording or mobile-fixed bundling
- Invent native multi-device and multi-technology services that break free of the constraints of the traditional networks, for example, making the provision of content on the move a reality for consumers
- Strengthen operator or third-party vertical value propositions (such as those in eHealth or gaming) using advanced and rich communications, for instance, providing e-commerce virtual numbers or alerts for mobile fraud

Virtualisation fostering pricing innovation: Vendors are proposing new real-time traffic shaping and predictive network management capabilities that will enable individualised pricing mechanisms based on usage patterns and localisation. This could make speed-tiering and dynamic resource allocation the next mainstream consumer charging mechanism.

Greatly enhanced user experience and service offerings: Virtualisation is changing the way enterprises manage their data centres, their applications and operations. With virtualisation, CIOs will be able to build programmable and automated private clouds – of which they have full control. This will mean that there will be no need for regular maintenance windows, no checks or audits: policy modifications will be configured once and for all and the changes will be cascaded automatically.

Network virtualisation will offer enterprises the ability to stretch applications across several data centres: this will change the way they consume applications. It will also enable enterprises to adjust their telecoms services as required, using on-demand and auto-scaling APIs. These features will significantly optimise their data usage and reduce costs by moving workloads or data centre back-up traffic to the most cost-effective times.

Virtualisation will also create radical, new service opportunities for banks, providing branches with transparent and seamless consumption of applications across both

private and public clouds. This will ensure that the relocation of bank branches ceases to be an issue.

Another major change for enterprises will be the shift in the control and management of networks and applications away from the enterprise to users. Virtualised VPN will allow secure connectivity over the internet and decreased rollout costs through automated, remote deployment. Taking financial services as an example, this will enable bank branches to install applications without the help of a certified engineer. With the advent of these technologies, it is likely that hybrid networks will emerge that directly challenge the business models of established operators in advanced services.

Significant optimisation of CAPEX:
CAPEX optimisation is the most visible part of the virtualisation iceberg. Network operators will need to purchase less hardware than before and, when they do so, will do so at lower unit prices thanks to platform consolidation. Interoperable multi-vendor software will reduce the complexity of current network stacks (OSS and BSS) while automated orchestration will drive IT stack simplification. The potential for CAPEX optimisation is, therefore, strongly correlated to the operator's network architecture baseline. Once the network is transformed in this manner, operators can expect run-rate savings in the range of 15-25% in network and IT CAPEX.

Optimised OPEX and headcount: Virtualisation will fundamentally change the way networks are operated. Since network design and rollout will take less time than previously, this will reduce the need for specialised skills in hardware planning and dimensioning. Similarly, automation of the network lifecycle through the use of automatic orchestration and interoperable vendor equipment and services will reduce the headcount required for carrying out configuration. In addition, the increased use of remote maintenance will reduce the need for site visits. Based on our experience, we expect long-run OPEX optimisation in the range of 10-20%.

Scale advantage for multi-affiliate groups:
All these potential cost savings will be further enhanced for multi-affiliate groups due to a combination of easier volume pooling and shared product development. Currently, each affiliate usually develops its own products on its own network and IT platform. Using network virtualisation, once a product is developed for one affiliate, it can then be replicated for other affiliates with only low incremental development costs. This will ensure shorter delivery times for product development. In our view, this is likely to prove to be an additional driver of geographic market consolidation.

VIRTUALISATION AS COMMERCIAL REALITY

Faced with declining revenues and increased margin pressure, most network operators see virtualisation as a ray of hope. This promise rests on using the consolidation of platforms, introduction of generic hardware and open source software as strong levers of cost optimisation. To make this a reality, both SDN and NFV need to be implemented simultaneously, since the full benefits they bring can only be reaped through common, synchronised implementation.

The challenges presented by common implementation are already being tackled. Over the past few years there have been more than 75 Proof of Concept (PoC) projects led by over 50 network operators. Many of these PoC projects have been followed by pilots and a number of trials are now leading to large-scale deployments at leading operators. At this stage, while there is no clear pattern to these implementations, it is evident that Tier-1 operators, those with convergent businesses, strong multi-country footprints and large enterprise client bases are paving the way.

The "pure mobile" operators appear to still be waiting for a strong industry signal.

Leading network operators have prioritised two main areas:

1. Advanced enterprise access and data centre services, where orchestration and automation bring strong and disruptive value propositions, for example, in Ethernet on Demand or online web user-configurable VPN services
2. Mobile core services, where virtualisation is providing an attractive economic business case for virtualised Evolved Packet Core (EPC) stacks

A LONG JOURNEY: POTENTIAL PITFALLS AND UNWELCOME SURPRISES

The reality today is that most virtualisation proposals fail to deliver what network operators expect of them. Indeed, vendor proposals using a truly "open ecosystem" approach are still relatively rare. There is much room for improvement in terms of the service portfolio, interoperability and, more generally, the sales approach. A further factor holding back virtualisation is that network operators fear vendor lock-in on the network controller and worry about the long-term availability of third-party services. They are also struggling to find the right technical and procurement equation, one that will allow the newcomers to challenge existing players. Developing a compromise that produces a win-win outcome for both network operators and equipment vendors is likely to be a slow and a long process.

Based on the numerous projects Oliver Wyman has led in this field, we see seven key success factors telecoms operators need to address when tackling virtualisation:

Define a customer oriented transformation: The starting point for any such large-scale overhaul should be a focus on how it will enhance the customer experience (and the underlying products needed to support this). The priority for network operators, therefore, is to redefine their customer value proposition and the underlying sales approach before starting to build the technical blocks. This is all the more important because without such effort any implementation is unlikely to be transparent to customers, or entirely seamless. There is much to gain, therefore, by showing clients the value of the transformation and how it can be monetised before embarking on the change.

Review roles, responsibilities and SLAs: The introduction of SDN and NFV is likely to result in the fragmentation of the current technical model. Their introduction will lead to more interfaces and components to integrate. As a result, network operators will face a major challenge in defining the right division of responsibilities between internal teams and suppliers, while maintaining current carrier-grade service availability.

Though the long-term benefits of flexibility and scalability that virtualisation brings are clear, the short-term challenges are huge, in terms of defining the exact scope of each function's technical package, vendor responsibilities and individual SLAs. The resolution of these challenges is likely to result in a "layered cake" network model, whereby existing suppliers might be partly replaced by niche suppliers or even open-source support partners: this will accentuate the need for enhanced coordination.

Completely revamp processes, tools and organisation: Network and IT convergence is a long-term logic. To bring this about, network operators will need simultaneously to revisit network and IT processes, tools and organisation.

The starting point for any large-scale overhaul should be a focus on how it will enhance the customer experience.

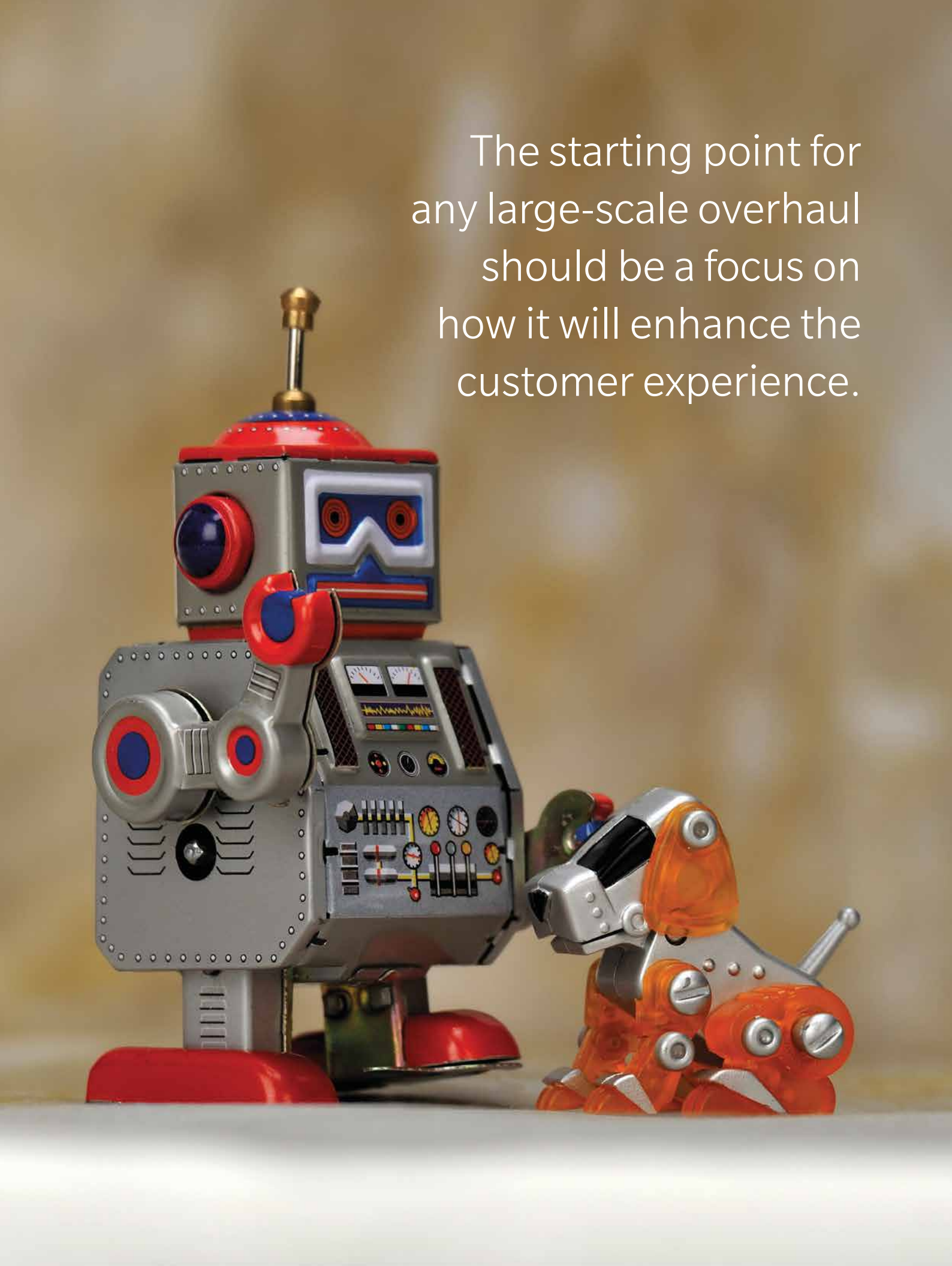


Exhibit 3: SDN and NFV impact on network operations

		PLANNING & STEERING	MANAGEMENT & CONTROL	EXECUTION
1 STRATEGY & PLANNING	STRATEGY	Define and articulate strategy	Manage demand	Translate strategy into network specification
	PLAN	Develop demand forecasts	Validate coverage and capacity plans	Develop coverage and capacity plans
	VENDOR CHOICE	Define vendor and industrial strategy	Validate equipment selection	Validate product compatibility Evaluate, test and recommend equipment
2 DESIGN & ENGINEERING	DESIGN	Define the costs and specifications required	Impact of network changes and final approval Formalise design policies	Detailed coverage design & tools Analyse traffic trends (and share with operator)
	ENGINEERING	Define network service guidelines	Approval on specifications and tools Define software specifications and tools for tests	Document network procedure and develop related tools
3 NETWORK EXPANSION	ROLLOUT	Develop equipment rollout plan	Manage and coordinate equipment rollout	Rollout, connect and switch on for testing
	TESTING	Define test strategy	Validate vendor equipment specifications	Test and trial installed network equipment
	PROVISION	Develop order and installation plan	Liaise with and manage vendors	Finalise network parameter for network equipment
4 NETWORK OPERATIONS	OPERATE	Manage network and supervise operations	Manage network and supervise operations	Optimise traffic performance
	MONITOR	Define monitoring schedule	Incident and escalation management	Network supervision and development monitoring tools
	MANAGE FAULTS	Define fault management guidelines	Inputs from supplier's skill centre Diagnose and repair faults	Diagnose and repair faults
5 MANAGEMENT & SUPPORT	MANAGE	Contract management and governance	Manage wholesale service provider Manage other suppliers and third parties	Deliver planned projects
	SUPPORT	Define client support strategy	HR, Finance and external parties	Execution of support function

Source: Oliver Wyman analysis

Low impact | Medium impact | High impact

A key task for network operators is to build new software production models, shifting from sequential product development to agile work methodologies. This shift will involve closer and more regular collaboration between application development, network engineering and operations staff. This presents a particular challenge to technical teams, which are traditionally more used to working in silos using manual processes. Their task is to move towards a network DevOps model.

The migration from traditional network operations to a virtualised model will require very substantial changes. Strategy and network design will move from hardware

to software dimensioning; network management and monitoring will become less resource intensive with the introduction of automatic network discovery and auto-repair mechanisms; a higher portion of network rollout operations will be run remotely.

We estimate that the transition to a full virtualised network will take between three and eight years. To limit the risks on this long road, operators should pay particular attention to the following aspects:

Focus on integrating cost decisions: Total spend on software licensing and support contracts will inevitably rise with the increase in purchases of independent software components and open-source support services. The promised cost benefits will only be achieved if network operators succeed in managing the supplier panels and the fragmented nature of the new technical spend. Likewise, the advent of new licensing models brought in by disruptive players, which are likely to mix both proprietary and open source software components, could lead to higher TCOs if not properly framed and tracked. To counter this, operators will need to build more advanced TCO-based cost control metrics that cover both operations and headcount costs.

Completely reinvent network sourcing approaches: The procurement approach of communication service providers has traditionally focused on hardware. As the value shifts from hardware to software, the sourcing approach will need to change. The separate procurement of hardware, software and integration services by network operators will significantly impact both the purchasing framework and its organisation, leading to higher sourcing risks. In response, buyers will need to focus on software spend optimisation, something they are currently not particularly good at.

In order to reap the benefits of virtualisation, it is critical that operators ensure that their procurement approach is overhauled completely: failure to do so is likely to lead to an increase in costs rather than the promised cost optimisation.

Define capability plans and recruit new skills quickly: Having first defined the target operating model and the desired capability, operators will then almost undoubtedly find that they face a critical skills gap. In our experience, acquiring the required resources with the right IT skills and carrier-grade expertise or telecoms and scripting capabilities is not easy: they are not likely to be available in-house or through external recruitment. This skills shortage will be made all the more acute due to competition for the same scarce resources with web players. To combat this, operators need to focus on creating the right employment proposition with appropriate compensation mechanisms.

Lead the way by developing a phased implementation: Both SDN and NFV are currently pre-standard approaches. Though the standardisation process is well underway, it is unlikely that it will be completed in the short term. Despite this, a number of network operators are taking the approach of "let's implement first and standardise later". Based on our experience, we recommend that in these circumstances operators should engage with network virtualisation using a phased approach, one that prioritises the areas where they find the best outcome in terms of the compromise between value creation and ecosystem readiness.

It is probable that the impact of SDN and NFV on the telecoms industry will be similar to that of previous disruptive technology innovations, triggering a winner-takes-all outcome, with a distinct first-mover advantage. Given the strategic importance of virtualisation, we recommend that operators should move quickly, piloting a range of potential solutions that focus largely on the enterprise segments and then adapt these as necessary, rather than take the stance of "let's wait and see".

VIRTUALISATION OPENS THE DOOR TO NEW COMPETITION

Though often depicted as the Holy Grail of telecoms, network virtualisation could just as easily turn out to be a major headache for operators, since it will provide new or existing competitors with fresh opportunities to attack the telecoms market. In the short term, this struggle will be focused in the enterprise market, where most web players and equipment vendors are already rallying their efforts. This struggle will be only the first of several, however. We see the likely evolution of this conflict as follows.

Web scale players attack the connectivity enterprise market: The first and most tangible risk is from the very large-scale web players, such as Google, Amazon and Microsoft. Their strong position in the data centre and cloud application market gives them a credibility that will enable them to move beyond their traditional realms to challenge operators in advanced connectivity services, such as WAN or branch network virtualisation. Google, for example, could leverage its own in-house switches, data centre capabilities and global connectivity footprint to provide packaged offers to large accounts.

Vendor competition is likely to be supplemented by increased internalisation: As competition grows in the equipment market, vendors are likely to consider moving downstream to address a higher share of enterprise clients directly. Service providers could respond to this by accelerating the overhaul of their value propositions, with the objective of avoiding disintermediation by vendors.

Enterprises could also consider re-internalising their network at the expense of service providers. Since network virtualisation will significantly reduce the upfront CAPEX requirement, enterprises might consider buying their own software components directly from vendors and building their own network solutions.

Traditional MVNOs will be reinforced: Mobile Virtual Network Operators (MVNO) will be empowered with new capabilities and tools provided by the virtualised networks. With their own virtual network services functions managed internally and at potentially lower cost, MVNOs should in many cases be able to provide a larger portfolio of services at more attractive prices.

Global MVNOs are likely to partner with dumb pipes: As network virtualisation and soft-SIM become commercially mature, new global MVNO models could emerge. Network virtualisation reduces the need for traditional local telecom platform infrastructure to ensure final customer control. MVNOs could use this opportunity to produce new end-client value propositions, developing global in-house, virtualised, high-value services that partner local operators for dumb pipe connectivity. We believe that players such as Apple and Google might use this opportunity to target the consumer telecoms market in a number of geographies, using a global approach. Apple, for example, might even sell a monthly service subscription on iTunes while procuring network services from a local telecoms operator.

CONCLUSION

Virtualisation will inevitably produce a revolution in both the enterprise and consumer markets, though taking a distinctly different form in each. Due to the revenue at stake, disintermediation risks and increasing competition in the enterprise markets, several Tier-1 operators have already engaged with the emerging opportunities and challenges presented by virtualisation. More are expected to do so this year.

Though SDN/NFV is no longer primarily a technical problem, with some functions and commercial products already in production, virtualisation nevertheless needs to be addressed in a somewhat different manner to that used in a traditional network transformation. We believe that, to be effective, the approach needs to address three aspects:

1. Virtualisation needs to be given the high priority it deserves, viewing this transformation as primarily a strategic and marketing subject, one that starts by addressing customer "hassles" and the next-generation customer experience
2. It requires very precise analysis of the economic impact of virtual network delivery
3. For any operator seeking to become a digital operator, it requires developing a thorough understanding of how network virtualisation can be a fundamental building block

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By developing their lean-network target pictures, operators can define targets in a more systematic and holistic way.

A FUTURE-PROOF APPROACH TO SET NETWORK EFFICIENCY TARGETS

A LEAN-NETWORK, TARGET-PICTURE APPROACH TO REPLACE ITERATIVE COST CUTTING EVERY YEAR

Improving cost efficiency in a telecoms network is extremely difficult due to the multitude of conflicting goals and the need to continually upgrade the network. Instead of iterative cost-cutting rounds, operators should follow an aspirational, lean target-picture approach. This enables operators to reap recurring savings of 25-35% or 4-7 percentage points of EBITDA improvement – plus additional savings in CAPEX.

Telecoms companies worldwide face revenue challenges and decreasing margins. Since network-related activities typically account for 40-50% of an operator's total cost, they are the most likely target for cost cutting. Our experience shows that many operators tackle efficiency improvement in network operations every year with iterative, short-term exercises. This often leads to a multitude of ad hoc activities, the misallocation of resources, demoralisation of staff, and ultimately to suboptimal (and often disappointing) bottom-line results.

At the same time, telecoms also need to cater to rising demand – to carry more customers, deliver higher bandwidth, close "white spots" in coverage, and enable new features. These upgrades are limited by resource constraints, such as the frequency spectrum for mobile, signal strength in copper lines, number of new locations for mobile sites, radiation regulation, and the cash available for network operations and rollout. This complex dynamic makes it extremely difficult to cut costs in network operations while at the same time creating new network value.

A number of leading operators, however, work with a future-proof, lean-network, target-picture approach in order to tackle efficiency improvements in a more holistic way. In this approach, a toolkit links operational network KPIs to costs to ensure quick ramp-up and consistency across the entire effort. The approach facilitates setting targets, quantifying measures, and tracking impact – and ensures a common driver logic for all involved departments.

The lean-network, target-picture approach features a number of benefits compared to "conventional" cost reduction efforts:

- It produces stable and actionable savings goals.
- Being forward looking, it is geared towards best-in-class efficiency in each activity.
- It makes transparent distinctions between efficiency in rollout and operating activities.
- KPI-based modelling of costs for each activity clearly differentiates volume and unit cost efficiency.
- It can be adjusted to regional specifics, such as market environment, country topology, and legislative obligations.
- Rapid idea generation, based on best practices, drives progress towards mid-term goals.

The lean-network, target-picture approach consists of six steps. Each of these steps is elaborated in the following sections.

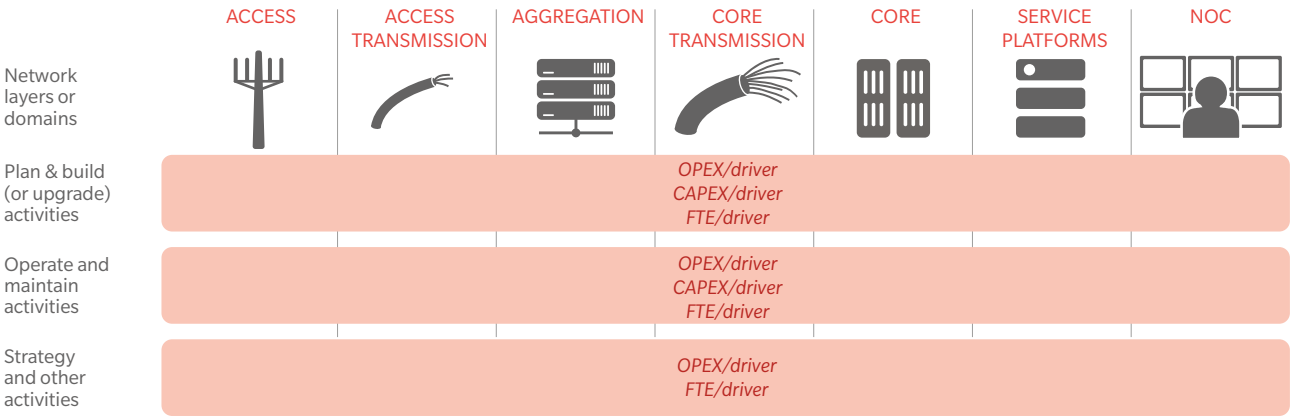
1. CREATE COST TRANSPARENCY DOWN TO ACTIVITIES AND NETWORK LAYERS

To get a transparent view of cost efficiency in network operations it is necessary to break down costs into the key activities and to slice these by the various network layers. This is illustrated for the mobile operations of a radio-access network in Exhibit 1.

Three elements are essential. First, a total cost perspective is required: both CAPEX and OPEX need to be considered to account for differences in operating models or sourcing setups (internal vs. outsourced). Second, use an activity-based view to detect costs "hidden" in units outside the network departments, such as those for rent or power. Third, in addition to the data on pure costs, operational drivers and FTEs, it is necessary to ensure that the overall cost data is comparable to peer operators. Typical questions asked during this cost analysis include:

- What is the cost incurred per new site built?
- How much does operating a mobile site cost in an end-to-end view?
- How much energy is consumed per fixed-line customer and at what cost?

Exhibit 1: Breaking down network cost and FTE along network layers and activities



- How many internal and external FTEs operate the core network(s)?
- How much does it cost to operate mobile-service platforms per subscriber?
- How many FTEs are employed in planning, strategy and NOC activities compared to peers?

2. EXTRAPOLATE AND CHALLENGE THE "DO-NOTHING" COST BASELINE

For the lean-network, target-picture approach understanding and aligning a "do-nothing" cost baseline, extrapolated for the subsequent period of three to four years, is key both to assessing the potential savings and to tracking impact during implementation. Network cost baselines are influenced by several factors:

- How is the number of subscribers likely to change for fixed and mobile operations?
- Which new technologies should be rolled out, when and how? At what cost?
- What is the cost of legislative, regulatory, and network quality requirements?
- Which infrastructure or network elements will need to be retired?
- How will network stability and durability evolve over time?
- How are wage levels and unit prices for hardware and service contracts likely to change?

With these variables in mind, the question is how to draw a robust baseline. Leading operators have found it helpful to use a model that links activity-based costs to operational drivers. This allows function managers to quickly evaluate the standalone effect of changes in volume or unit cost for a specific activity or overall network cost. The cost extrapolation results in a clear-cut set of assumptions and financial effects, and a consolidated "do-nothing" baseline, which acts as the basis for sizing the savings opportunity and the impact of the chosen measures. It is also the foundation for acquiring and managing function managers' buy-in for all later steps.

3. EVALUATE AND QUANTIFY OPERATOR AND COUNTRY-SPECIFIC LIMITATIONS

Even though network operations are highly standardised and thus easily comparable with peers, some effects can keep operators from achieving best practice cost efficiency levels. Such limitations include monopolistic wholesale market structures, rigid legislation,

and unfavourable jurisdiction. Besides these socioeconomic hurdles, physical limitations – such as mountain ranges, low population density, extreme weather, or the possibility of earthquakes – can also affect network operations and efficiency.

However, operators should not assume that these limitations are intractable. Certain limitations, in market structure or regulation, can be resolved by commercial tactics, focused lobbying, or investment. Many of the topographic limitations can be ameliorated in the medium term, for example, by sharing rollout and service costs with other operators in areas with low population density.

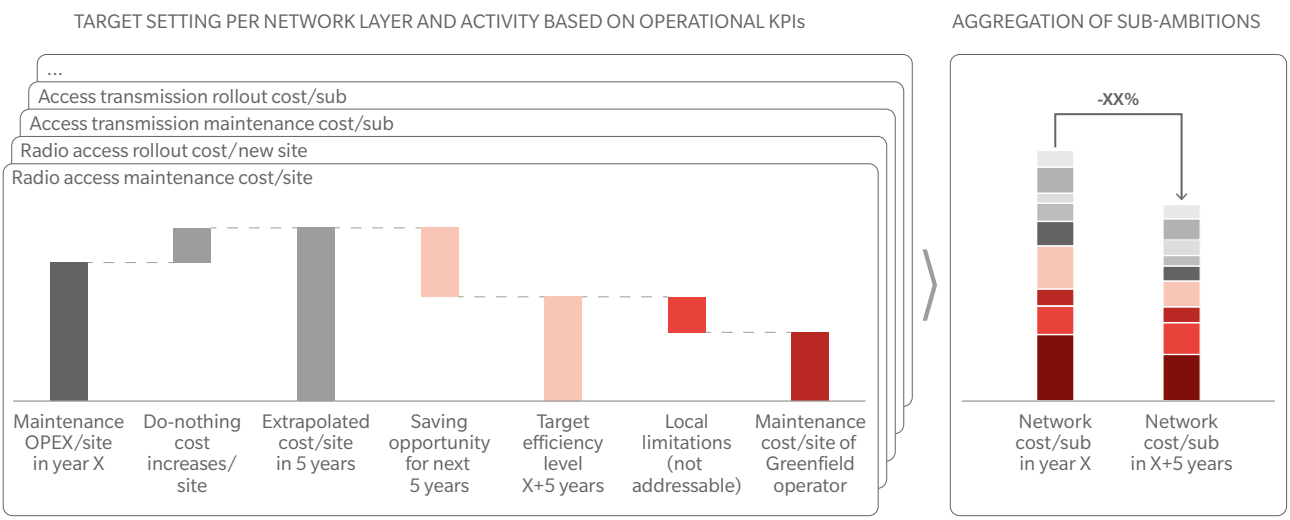
In order to define the right efficiency targets for each network layer and activity, the limitations (and their evolution over time) need to be understood at the standalone level. Only then can they be adequately factored into efficiency goals. The cost-driver model can also help flag the proportion of standalone site-maintenance costs that are driven, for example, by excessive legislation.

4. SET FULLY OPERATIONALISED AND BEST PRACTICE ORIENTED TARGETS

In order to set stable goals that a network organisation can deliver step-by-step over a three to four-year horizon, goals need to be both fully operationalised and plausibly achievable.

Operationalising efficiency goals requires describing them at the activity level, so that functional teams and managers are motivated to reach them. The most successful approach is to define clear downward "glide paths" for each relevant activity volume, such as maintenance interventions per site, along with the cost for each intervention. However, while we have found that telecoms operators typically have advanced activity-based systems in place, their network operations often remain uncharted territory. The use of a network cost-driver model here – entailing ten standard activities that cut along network layers – enables a granular target to be established. This model combines functional cost information with operational drivers and FTE volumes, and balances detail with pragmatic simplifications (see Exhibit 2).

Exhibit 2: KPI-based target setting per activity and bottom-up aggregation



Leading operators have found it very helpful to link this cost-driver model to their P&L statement, thereby increasing ownership of the efficiency goals. Our experience shows that applying such a cost-driver model creates a new level of transparency and awareness of efficiency in the organisation. It also fosters a more consistent, end-to-end view of network efficiency, reduces iterations and facilitates alignment across network departments.

Given the standardised operations of telecoms networks, the efficiency levels achieved by one operator should also be achievable by the others, all else being equal. Of course, the socioeconomic or country-specific limitations noted earlier can alter this. Thus, to define a realistic lean-network target picture, we leverage insights and data points from our extensive network KPI database (which holds data from over 60 operators) and combine them with the foreseeable efficiency improvements and specific limitations faced by the operator.

By developing their lean-network target pictures, operators can break out of iterative cost-cutting rounds and define targets in a more systematic and holistic way. The approach couples stable and value-creating efficiency improvements with an operational vision that network teams can understand and implement.

5. BACK UP TARGETS WITH CONCRETE MEASURES AND QUANTIFY SAVINGS IMPACT BASED ON KPIs

Our extensive experience in a multitude of large and successful efficiency-improvement programmes fuels seven core beliefs for backing up goals with concrete measures (see Exhibit 3).

Do not wait for a "silver bullet." Successful network efficiency programmes are often driven through a mix of transformational initiatives and a broad set of operational measures. Typically, half the improvement goals can be achieved through operational improvements.

Act aggressively. Success does not usually arise due to new ideas but to the level of aggressiveness in ambition, design and implementation. For example, a telecoms operator might pursue network sharing for their existing as well as for new infrastructure.

Customise "standard" solutions. Even though operators can leverage our large repository of successful network efficiency improvement measures, to ensure bottom-line impact they need to assess these in light of their context and tailor them to their individual needs.

Tie ownership to KPI-based quantification. Measures need to be formally described, with clear documentation of baseline and savings mechanics, including KPI impact and a link to the P&L. Managers should sign off measures and part of their compensation should be tied to the savings potential and the implementation of milestones.

Make sure you have a handle on planned cost increases. Understanding and operationalising planned cost increases is almost as important as developing measures to ensure a full-picture view.

Account for network revenues. Gross cost views that do not take into account revenues (e.g. from network sharing or leasing transmission lines to third parties) are misleading. However, they are the predominant way in which network departments are controlled today. To obtain a fair view, network costs should be netted against network revenues.

Ensure adequate buffers for overlaps and risk. Cost-cutting programmes often underestimate overlaps and dependencies between measures. These effects need to be assessed and deducted from the measure's potential. Realisation risks should also be quantified and accounted for in a dedicated risk buffer.

The few "silver bullets" we see are transformational levers worth assessing (and re-assessing) for all telecoms operators:

- Network sharing in both mobile and fixed line
- Managed-services outsourcing
- Fixed/mobile integration
- Radical legacy retirement

Given the significant interdependencies in these areas, each lever should first be investigated to maximise its standalone potential. As a second step, they then need to be looked at in a combined view and adapted and sequenced through cross-functional teamwork.

To achieve the remaining goals not yet supported with transformational measures, operators should follow a structured approach to derive operational measures for each network activity along the following four dimensions:

- Demand management and "stop-doing"
- Reduction of unnecessary activities and wastage
- Process and organisational efficiencies
- Reduction in resource costs and unit prices

By following the seven core beliefs for measure development and applying the mechanics outlined for transformational and operational efficiency-improvement levers, operators can typically back up 100% of their mid-term ambitions, achieving 50-75% of their goals within a few weeks.

For the sake of simplicity and consistency, we advise our clients to leverage the same cost-driver model for quantifying both transformational and operational measures. This makes it easier to map the impact of the relevant measures on the cost efficiency of each activity. It also reduces the workload of functions and controlling, and facilitates the preparation of trade-off decisions.

Exhibit 3: Meeting efficiency goals with concrete measures

Exemplary cost increases and efficiency measures per activity and cost centre

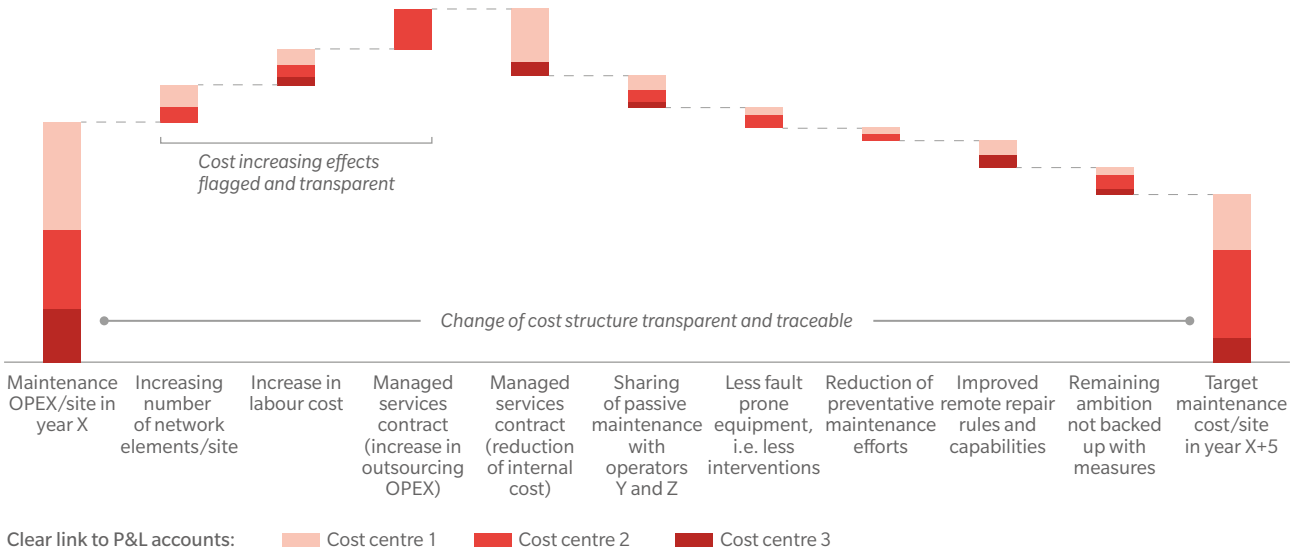


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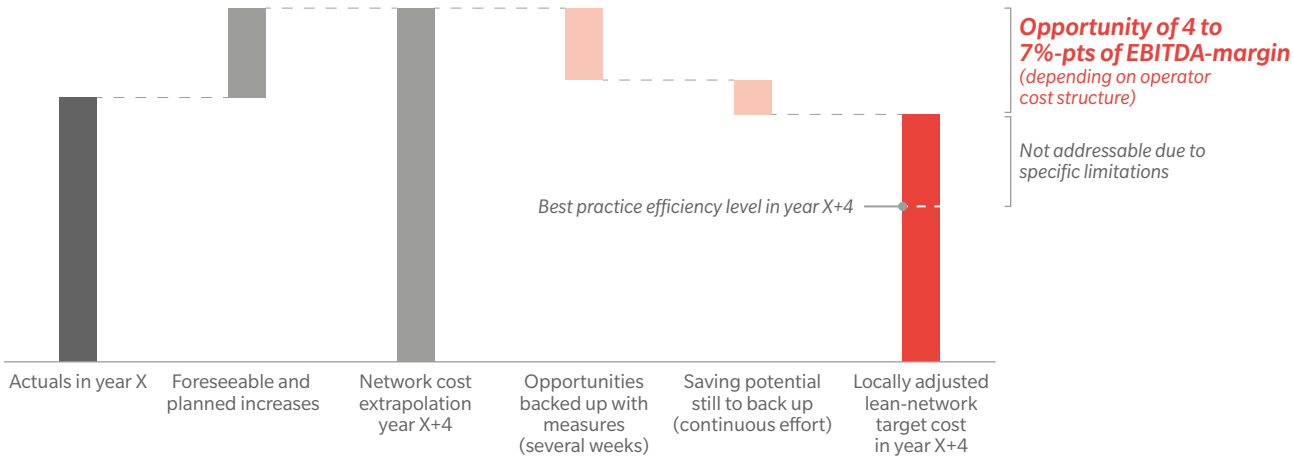
Exhibit 4: Economic lever of lean-network, target-picture programmes



6. ESTABLISH KPI-BASED EFFICIENCY MEASURES TO SYSTEMATICALLY "HARVEST" BOTTOM-LINE IMPACT

The lean-network, target-picture approach enables the operator to trace the impact of specific actions. Conventional cost-cutting programmes in network operations typically suffer one substantial shortcoming: planned and committed savings are often eaten up by other effects, such as:

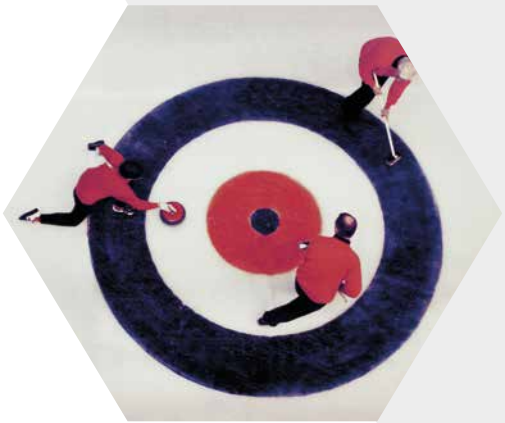
- Enhancements of network quality and/or closing of white spots in coverage
- Rollout of new technologies (such as Vectoring or LTE), fuelling not only increased CAPEX but also recurring OPEX
- Modernisation of core, aggregation or transmission elements
- Increased prices, or requests for compensation for "extraordinary" effects from managed-services partners

The lean-network, target-picture approach treats planned cost increases and efficiency-improvement measures using comparable logic. This ensures that since all planned cost increases and efficiency measures are broken down by volume and unit cost, all are fully controllable.

In order to "harvest" the efficiencies, operators should install a tracking toolkit and link it to the operational KPIs and P&L statements. The toolkit needs to track both the efficiency measures and the planned cost increases alongside their respective KPI and volume changes. Using such a toolkit puts management in full control of all the relevant costs and enables it to systematically steer operations towards the lean-network target picture.

CONCLUSION

The experience of leading operators shows that, if done with rigour and sustained commitment over a period of three to four years, the lean-network, target-picture approach typically delivers 25-35% efficiency gains or 4-7 percentage points of EBITDA-margin improvement – providing a substantial competitive edge in ever tougher market environments. The approach allows operators to realise these efficiency and margin gains as they create new value in today's increasingly saturated markets.



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Roaming will change radically, in Europe first and in most other countries thereafter.

THE ROAMING TSUNAMI

DISRUPTING THE WHOLE INDUSTRY?

Business literature is full of strong words like “radical” and “disruptive”. But what would one say of a business whose regulation is changing, whose volumes will multiply by ten, whose prices will drop by a similar factor, whose retail value proposition will be totally transformed, and whose wholesale dynamics will be fully renewed? Surely change such as this deserves the use of words such as “radical” and “disruptive” to describe it?

Roaming will change radically, in Europe first and in most other countries thereafter. This disruption will have deep consequences for operators: they will have to change every detail of their roaming business design. By making price differences between countries visible, this disruption could become a tsunami, sweeping the whole industry and potentially challenging operators’ customer ownership in the domestic business as well.

ROAMING TARIFF STRUCTURES IN THE PAST

Roaming has been a very profitable business for mobile telco operators. It has worked as a non-regulated cost-plus activity, in which companies were able to set their margins because, on the one hand, it was never transparent to customers how the final prices were formed and, on the other, users seldom chose their service provider by taking roaming into account.

Let us look in more detail at how roaming worked. Operators determined wholesale prices, in one-to-one (using multinational group structures and footprints) or one-to-many negotiations. Two main goals drove these negotiations: firstly, wanting to keep prices as high as possible and, secondly, needing to minimise the effect of traffic unbalances between operators in different countries – this could always be done by steering traffic at will to network A or B in a given country. The wholesale team would then return home and tell their retail colleagues, "We have set wholesale roaming tariffs with all countries. Take these wholesale tariffs as a cost, add a mark-up and, voilà, you have your retail tariffs."

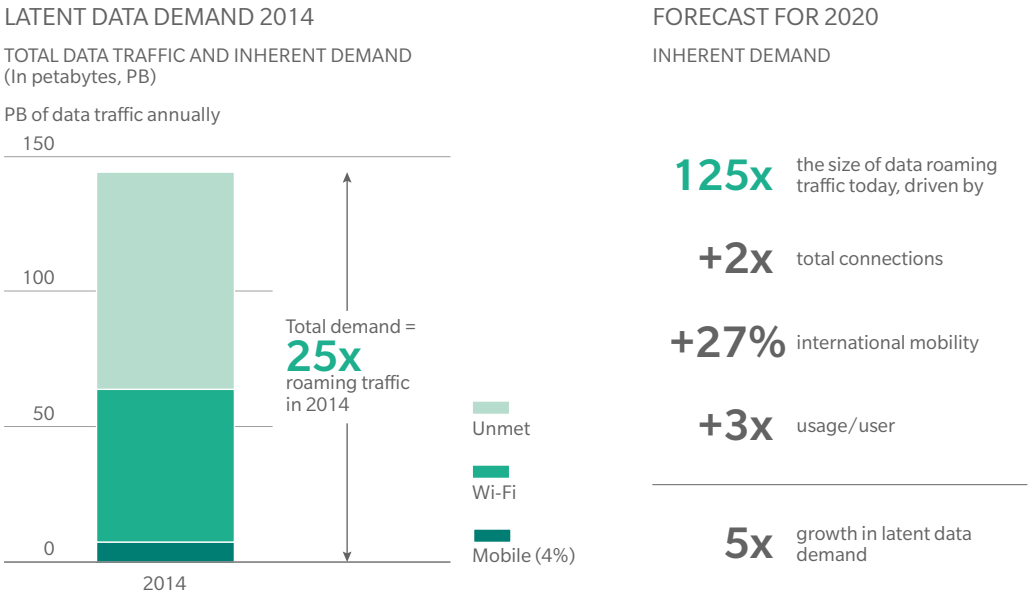
The retail team followed suit and retail prices were formed: a fully cost-plus scheme, hidden for many years from regulatory scrutiny. Without any incentive to cut prices and without competition, prices remained extraordinarily high. Our work in 2014 revealed that roaming data prices were between five and 100 times their retail equivalents (mostly due to the wholesale floor, not the retail mark-up). This dynamic was quite profitable for all operators. They captured healthy revenues from their own customers travelling abroad: most of these revenues went to the receiving network operators in the foreign country but, in turn, the originating operators kept all the wholesale revenues (and margin) from these travellers.

So what did roaming look like from an economic angle? It was a business with very high prices and very low volumes, leaving a huge portion of the latent demand unfulfilled. Take roaming data as an example: in 2015, while most domestic retail mobile data tariffs have migrated to bundles of different sizes, roaming data is still very often priced under pay-as-you-go (or with very small daily, weekly, or monthly opt-in bundles) with extremely high prices. This is an issue in voice, but in data it is a deterrent to adoption for most users, since it is impossible for them to translate an experience (watching a YouTube video on a mobile device, for example) into a quantity of units (such as megabytes or MBs) to be multiplied by a price.

The result is a huge unserved demand (see Exhibit 1). In our projects on this subject in Europe, we found that only 5-10% of the latent demand for roaming data was fulfilled by cellular networks. Globally, this figure drops to 4%.

The fulfilled demand was formed mainly of users in highly inelastic segments, typically business travellers whose usage was paid for by their companies. Most consumer-segment travellers, terrified by stories of bill shocks, refrained (and they still do) from using roaming data and turned off their data connections when travelling abroad. The result was (and still is) an almost "by the book" monopolistic outcome, with perfect discrimination.

Exhibit 1: Current roaming tariff structures and price levels have generated a huge unmet demand



LATENT DEMAND IS 25x THE CURRENT ROAMING MARKET – AND PROJECTED TO GROW ANOTHER 5x BY 2020

Sources: GSMA analysis, GSMA intelligence, UNWTO, Informa, Machina, Mobidia, Oliver Wyman analysis

THE DISRUPTION

Every monopoly, if not protected by regulation, will sooner or later be attacked (in economic jargon, "contested") by new entrants. In the past, there have been attempts to arbitrage operators in the roaming business. Everyone travelling abroad regularly will see vending machines at the airport offering prepaid local SIMs. There have also been some web-based business designs offering substantially cheaper roaming tariffs. However, most of these attempts involved a significant amount of inconvenience for users. For the average customer, it was almost impossible to make use of these alternatives (shown in Exhibit 2).

Then the EU stepped in with its Roam Like At Home (RLAH) regulation (see Exhibit 3). The European Commission (EC) approved the agreement that, by June 2017, there will be no extra roaming charges for users when travelling abroad. (A set of rules on fair usage defines some limitations to avoid the "permanent roamers" effect.) The volume of roaming minutes will be deducted from users' domestic bundles, as if they were at home. A transition scheme from March 2016 allows small mark-ups on the maximum established wholesale prices.

The EC stated in its directive that in summer 2016 wholesale roaming tariffs will be scrutinised to ensure they really enable RLAH retail tariffs. This will produce a revolution in the roaming business in Europe, for the following reasons.

Price formation will no longer start with negotiation between wholesale teams from the different operators. On the contrary, the wholesale department, before entering into negotiations with other operators, will come to the retail teams to ask, "What retail tariffs must the wholesale agreements enable to comply with RLAH logic?" – thereby moving from a cost-plus to a retail-minus logic.

Exhibit 2: Alternatives to roaming?

Up to now, operators have benefited from the fact that alternatives are loaded with hassle, allowing them to keep a profitable roaming business

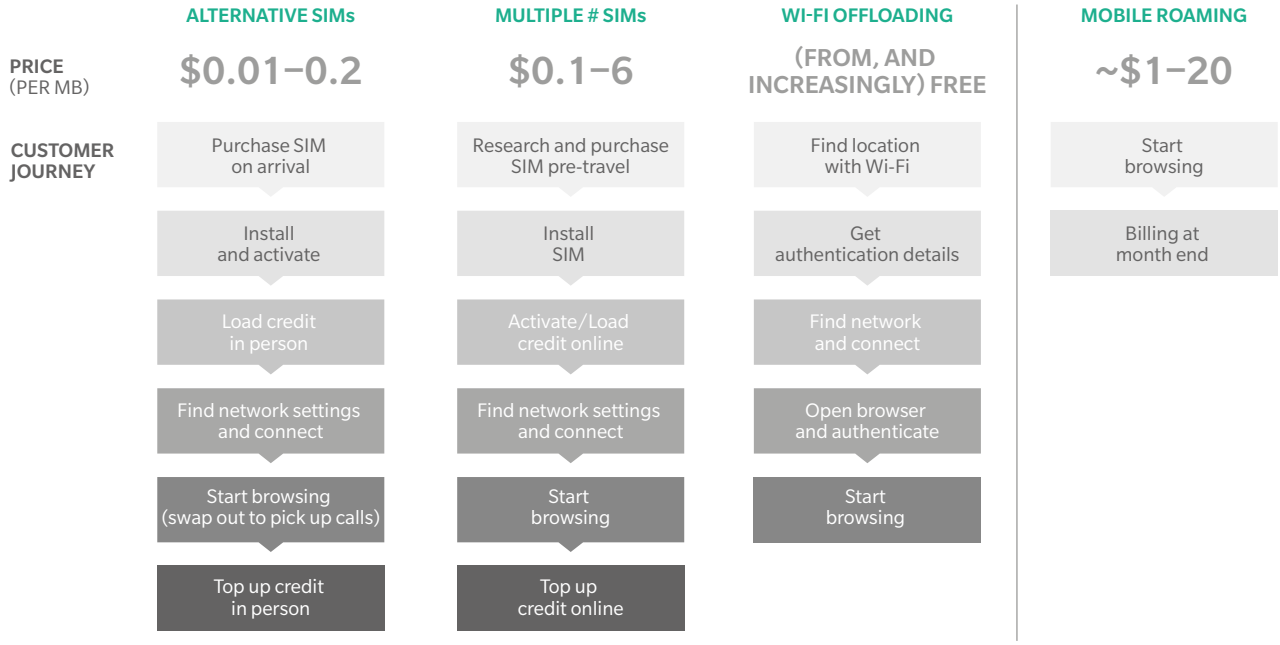
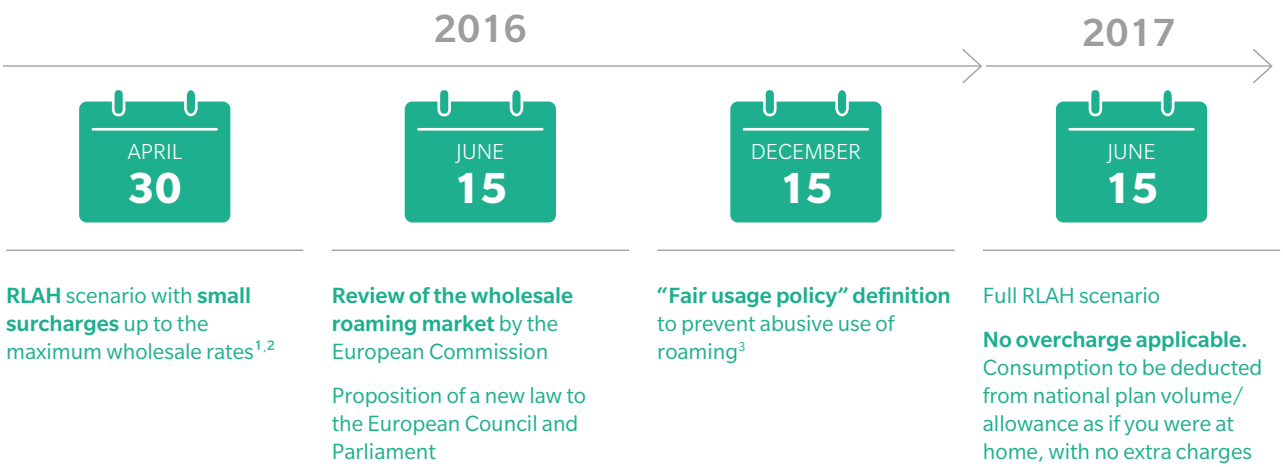


Exhibit 3: EU regulation on roaming

The aim of the EU note is to introduce Roam Like At Home (RLAH) by June 2017 with the possibility of adding a surcharge in the interim period



1. Maximum wholesale rate set as €0.05 per minute, €0.02 per SMS, and €0.05 per MB (excl. VAT). For calls received, the maximum surcharge will be the weighted average of maximum mobile termination rates across the EU
2. Also, domestic prices will be limited to the retail caps: €0.19 per minute of call made, €0.06 per SMS sent, and €0.20 per MB of data (excl. VAT)
3. For roaming that goes beyond fair use, a fee may be charged with a maximum of the wholesale rate that operators pay for using the networks of other EU countries

With retail prices in mind, the wholesale teams will start negotiating with the clear target of getting wholesale prices that produce a profit under an RLAH scheme. In the new context, if traffic is unbalanced between two operators, the roaming dream could become a nightmare for the operator that exports the most traffic. Each operator (or group of operators) will view this new regulation with a different sense of urgency depending on its position – as a net receiver or exporter of traffic. Net traffic exporters will be keen (and very active in front of EU institutions) to change the wholesale pricing dynamics as soon as possible to ensure profitable implementation of retail RLAH. Net traffic receivers will await more clarity and see what impact the EU regulations will have on traffic volumes.

From an economic point of view, operators will as before receive only a tiny margin (if any) over roaming-out revenues. They will keep roaming-in margins, but this time with effective prices that, in Europe, will be around a quarter of their previous level. The counterpart to this effect is that volumes will explode. Once users realise that RLAH is a reality, they will start to make worry-free use of mobile voice and data when travelling. According to our estimates, this changing usage pattern could lead to volumes around ten times higher than those seen currently. Roaming will therefore evolve from a high price, low volume business structure to a low price, high volume one.

Will the disruption affect markets other than Europe? Following this bold move by the EU, it is going to be difficult for regulators in other geographies not to act along similar lines. There are already clear signs that the direction set by Europe will be followed in other regions: Vodafone is already offering RLAH for its customers when they are in the USA, Telefónica and Claro are offering it in Central America, and AT&T is doing so in the USA and Mexico.

How long will it be before AT&T and Verizon customers travelling from the USA to Europe can benefit from the same treatment that Vodafone customers enjoy when travelling from Europe to the USA? It is just a matter of time before we witness RLAH-like approaches in most regions, at least on a cross-border or regional scale.

Users will start to make worry-free use of mobile voice and data when travelling.

A LEVELLING PLAYING FIELD FOR PRICE IN EUROPE?

As huge as the changes to the roaming business are, the disruption it causes could spread well beyond its boundaries. How might this happen?

Let us consider two national mobile markets, A and B (shown in Exhibit 4). We will assume that retail prices in market A are 30% higher than in market B (we can see this kind of imbalance in Europe in December 2015). Using RLAH logic, operators negotiating roaming wholesale tariffs in market B will not accept prices above their retail tariffs, otherwise they will lose money when their customers travel to country A. But then operators in country A will be forced to offer roaming prices to operators in country B that will be way below country A's own retail prices. So, when customers of an operator in market B travel to country A, they will enjoy a price that undercuts that of market A operators.

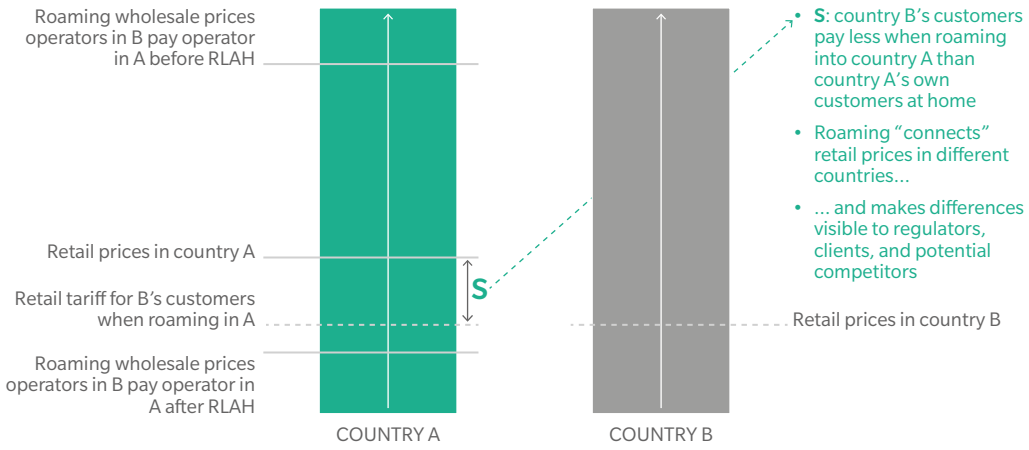
This sends out three kinds of signals:

1. It tells regulators in market A that operators in this market could reduce their prices, a signal that could be relevant when it comes to establishing Mobile Virtual Network Operator (MVNO) prices in the domestic market
2. It becomes clearer to customers in market A that the prices their operators charge in this market are too high
3. An operator in a low-price market could try to arbitrage such price differences by entering as an MVNO in a high-price market, then setting their national wholesale price at the same level as the wholesale roaming price

As this dynamic is generalised across Europe, price differences among national markets will become less sustainable. Roaming will, to some extent, "connect" price levels in different markets, making it very difficult for operators in any given country to sustain mobile prices that are significantly above the European average.

Exhibit 4: Roaming levelling prices in Europe

Customers of operators in country B will pay less when roaming in country A than country A's customers at home



ARE MNO CLIENTS AT RISK?

Under the new RLAH scheme, not only could revenues or margin be at risk but so could clients. Let us think of an Over-The-Top (OTT) player or a handset vendor, with a strong brand, who is willing to enter the mobile business. This agent could get an MVNO agreement in one EU country, strike roaming agreements with Mobile Network Operators (MNOs) in most other EU countries, and exploit soft-SIM features to extend its offer to most of Europe. Under the fair usage policy that the EU intends to enforce, this approach could face limitations. However, the agent could, instead, strike national wholesale MVNO agreements with the same MNOs and use the soft-SIM features to offer a pan-European mobile service. In this setting, traditional MNOs could not only see a challenge to their profit margins but also a threat to their customer base.

A TSUNAMI OF IMPLICATIONS FOR THE ROAMING BUSINESS AND BEYOND

Everything is about to change in the roaming business. Retail tariffs will no longer include a charge for roaming. Vodafone has already anticipated this move and its new Red tariffs include no roaming charges for Europe and the USA. Accordingly, wholesale tariffs will have to go through radical change. To enable RLAH, they must move away from pay-as-you-go schemes to mimic the bundled nature of most domestic retail schemes – and they will have to cut prices drastically.

In the first years of the new environment, estimating volumes will prove a major challenge. Doing so will be the key to not making losses from roaming due to failed wholesale negotiation. To estimate volumes accurately, operators will need to change the way they manage roaming. Currently, roaming is managed by wholesale teams in almost total isolation from the retail and finance functions. For example, roaming is often reported in separate pieces (roaming out, roaming in) and operators seldom enjoy an integrated view with a single P&L statement. This kind of approach will no longer work. A collaborative and multidisciplinary approach will be required to enable operators to be as accurate as possible in estimating future roaming volumes.

From an economic standpoint, the roaming business will change to become low price, high volume in its structure. What will the impact be on operators' P&Ls? The extent to which operators will be able to sustain current revenue levels will depend on price elasticity of demand: but this does not mean that the final outcome will depend on exogenous factors. On the contrary, the future of the roaming business will depend largely on the ability of operators to market the new RLAH schemes. Currently, customers perceive roaming to be unaffordable: they think they risk a huge bill if they turn on their smart phone data connection when travelling abroad. Operators need to devise and launch the right communication campaigns to convince customers that the situation has turned 180 degrees.

So far, roaming has been absent from the dynamics of competition. However, in local markets, another consequence of the new roaming regime is that, for some months at least, roaming will be part of the competitive armoury of operators, which will encourage customers to view roaming as part of the value proposition. Vodafone has already taken the lead at a European level.

Another implication is managerial in nature. So far, the main lever by which the roaming business has been managed has been unitary price. From now on, roaming will be managed from the perspective of the total Average

Revenue Per User (ARPU) – along the same lines that followed by the industry since voice started to lose its value and was included as part of indivisible bundles.

Finally, as we have explained, the changes to roaming also have the potential to impact the dynamics of pricing in Europe as a whole by creating clearer price differences among markets and signalling them to regulators. All in all, it looks as though the changes to the roaming business will deserve the "disruption" tag.

WHAT CAN BE DONE?

In recent months, we have supported some of our clients in navigating the forthcoming disruption in the roaming market. A key factor for operators managing this disruption is to realise that it is a CEO-level topic, one that has enormous strategic implications – for revenues, prices and, potentially, on the ability of operators to retain customers. It should not be delegated to wholesale or retail departments.

Our general view is that roaming requires operators to make renewed efforts to strengthen the relationships with customers. These efforts should be grounded on three main principles: anticipation, radical improvement in customer experience, and the move from managing price to managing ARPU.

More specifically, we think operators should:

- Anticipate retail disruption – unleashing latent demand by introducing new, worry-free tariffs as soon as possible, in order to drive a change in customers' perception that roaming is unaffordable
- Review the strategic setting – assessing potential market entry by agents coming from the digital world
- Accelerate customer experience improvement programmes – getting closer to customers' experience of the digital arena
- Communicate, communicate, communicate the new roaming approach – supporting the change in perception mentioned above
- Prepare a totally new approach to wholesale – moving away from pay-as-you-go schemes and devising tariff structures that remove the risks resulting from volume explosion, for example through margin preservation schemes
- Change the way in which roaming is managed – devising a more integrated approach and building a single, unified roaming P&L
- If the operator is based in a market with prices above the European average, start preparing for retail price disruption – focusing on trying to preserve an ARPU that is as high as feasible

CONCLUSION

In summary, operators must assume that the disruption to the roaming market will not only change the roaming business itself but that it also has the potential to change the dynamics of competition in domestic markets as a whole. They should prepare to be profitable in this new context.

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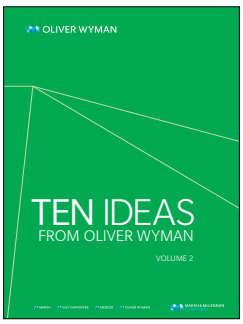

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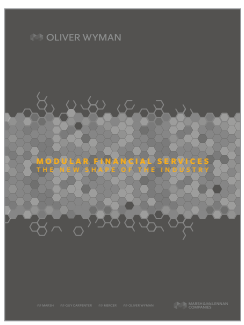

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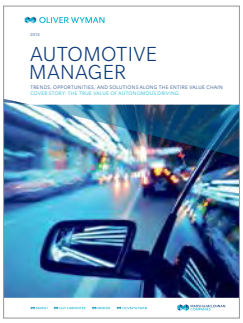

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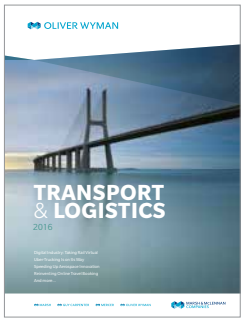

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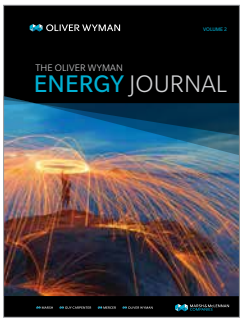

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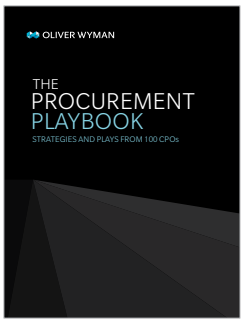

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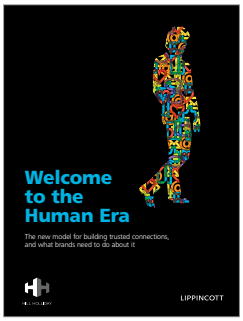

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