Global digital telecom playbook

Telcos reinvent themselves in the digital age
In an evermore digital world, telcos face increasingly challenging competitive environments and rising customer expectations. Operators need to seize digital opportunities and reinforce their positions by moving from being communication service providers to digital service providers. The global digital telecom playbook and EY’s Advisory services can help operators with this transformation.

All telco operators: incumbent and greenfield, quadruple play, triple play, mobile only, emerging markets and mature markets

Adjacent industry service providers

Purpose

Content

Target Audience

Market trends & customer perspectives
Industry challenges & opportunities
Digital transformation paths
Use cases & best practices
EY expertise & offerings

Communication service provider
Digital service provider
The digital revolution: market trends and challenges for telcos

Digital transformation path for telcos

Telcos’ digital best practices and use cases

EY offerings for telcos’ digital transformation
The digital revolution: market trends and challenges for telcos
Digital is already part of our daily lives; adoption is driven by customer demand for real-time information and seamless interactions across devices

90% of all consumers simultaneously use multiple connected devices.

81% of spontaneous purchases are made via smartphone.

€216 is the average European spend on online shopping per year.

TVs now provide a wide range of interactive services.

Social media is turning into a sales and services channel.

More than 241 million tweets are sent every day.

Data traffic via smartphone is predicted to grow 53% by 2020.

In the last two minutes, 80 Americans have switched to smartphones.

Consumers are spending over 85% of their time on their smartphones using native applications.

In a typical month, about 300 million apps are downloaded in Germany.

Instagram is growing rapidly and now has more than 400 million active users ... but at the same time, Facebook has 1.5 billion active viewers.

72 hours of video is uploaded to YouTube every minute.

As of 2011, Amazon.com sells more electronic books than printed ones.

Sources: TechCrunch; EY analysis
With new digital behaviors, customer expectations and needs shift... telcos have to strive for customer experience excellence.

As customer behavior and expectations evolve...

- **Personalization**
  “I am adapting my loans to my projects and capabilities.”

- **Autonomy**
  “I am managing the level of assistance that I need.”

- **Consistency in contact points**
  “I am in contact with my telco throughout many channels on a continuous basis, and I receive consistent notifications across channels.”

- **Multiscreen and seamless experience**
  “I can access all my services on each of my devices (with a mobile-first mindset).”

- **Socialization and simulation**
  “I have access to clear, consistent and transparent information.”

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- **Unpredictable omnichannel**
- **Service gamification**
- **Win/win big data**
- **Augmented reality**
Telcos face many challenges due to stagnant growth of the industry and increasing direct and indirect competition.

- **Siloed organizational structures**
- **Outmoded IT systems**
- **Regulatory pressure on pricing**
- **Fully saturated markets**

Digital will become increasingly CAPEX-demanding for telcos, as data consumption accelerates traffic on networks.

**Market consolidation** with numerous M&A deals

Intense competition - large number of players (including over-the-top (OTT))

Sources: Informa; OVUM; GSMA; EY analysis
As a response to this downward revenue trend, telecom operators should seek opportunities elsewhere in the digital ecosystem.

Global mobile and digital ecosystem value forecast 2010–25

Comments

► The mobile and digital ecosystem will grow significantly to a total of US$3.6 billion by 2025.

► Traditional operators will continue to take a smaller share of overall revenues, putting further pressure on free cash flow and investment.

► The two areas with the strongest growth are the Internet of Things (IoT), along with content and video.

1) IoT market is defined as that portion addressable by mobile operators.

Sources: Informa; OVUM; GSMA; EY analysis
Telecom operators can leverage four main opportunities to grow their revenues in the digital landscape.

- **Content and video (OTT)**
- **IoT and M2M**
- **Enterprise and cloud**
- **Advertising and big data**
Digital transformation path for telcos
To succeed in the rapidly evolving digital ecosystem, telcos need to define clear strategies and paths for digital transformation.

- **Capturing new digital opportunities**
  - Growth and adjacent business opportunities with OTT offers, M2M/IoT services, cloud services, big data and advertising

- **Customer-led digital transformation**
  - Experience: customer satisfaction measurement (NPS), customer experience management: product and service experience, customer journey design optimization
  - Business digitalization: omnichannel blueprint definition (sales and care), design and launch of digital operator (greenfield, sub-brand, MVNO), online sales strategy/performance improvement
  - Analytics: customer analytics platform specification and implementation, data monetization (mobile/localization, TV audience measurement)

- **Embracing digital capabilities and shifting culture**
  - IT and technology: reach new customers via internet, provide better quality and faster services, such as, fiber optic cables, new computers
  - People, organization and culture: develop internal digital awareness with initiatives, such as, digital HR and digital supply chain, hire new talents and develop a digital organization
  - Risk and cybersecurity: secure data collection and manage associated risks

Source: EY strategic framework for telcos digital transformation
On the road to digital transformation, telcos need to strategize and plan on how to organize for digital, based on their current digital maturity.

<table>
<thead>
<tr>
<th>Digital Maturity</th>
<th>Implementation Complexity</th>
<th>Strategic Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>High</td>
<td>Established</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Digital ambition dampened by high implementation barriers; digital initiatives launched in pockets leading to low maturity.</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
<td>Builders</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Digital ambition; high abilities to embed digital in existing capabilities; digitizing integrated customer interfaces.</td>
</tr>
<tr>
<td>High</td>
<td>Low</td>
<td>Transformers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Digital ambition to be competitive in the market; quick to implement given their size and scale.</td>
</tr>
<tr>
<td>Low</td>
<td>High</td>
<td>Pioneers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High digital differentiation; early digital adopter and drivers of digital innovation.</td>
</tr>
</tbody>
</table>
Large telcos in Europe have initiated three main types of initiatives to address digital transformation challenges

<table>
<thead>
<tr>
<th>Description and stakes</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group digital initiative (Center of Excellence)</strong></td>
<td></td>
</tr>
<tr>
<td>▶ Digital initiatives need a momentum at the group level demonstrating that this is a priority.</td>
<td>▶ The digital business unit of a leading mobile network operator (MNO) in Germany is in charge of coordinating most of the digital and innovation initiatives of the group.</td>
</tr>
<tr>
<td>▶ Digital strategy should be aligned with corporate and business strategy so that it creates a competitive advantage.</td>
<td>▶ The leading MNO in Spain has created a business unit dedicated to innovation and digital.</td>
</tr>
<tr>
<td><strong>Digitalization of the main brands (Opco)</strong></td>
<td></td>
</tr>
<tr>
<td>▶ Increasing competition is reducing margins, so telcos must differentiate their offering, increase their customer base and reduce customer relationship costs.</td>
<td>▶ The leading MNO in France expects 50% of client interactions through digital in 2017 vs. 30% as of today.</td>
</tr>
<tr>
<td>▶ Customers are becoming increasingly autonomous and able (and willing) to manage the online end-to-end journey, with no human support.</td>
<td>▶ The MNO challenger in France has engaged an agile digital transformation of its main brand.</td>
</tr>
<tr>
<td><strong>Launch of a 100% digital sub-brand (e.g., Digital MVNO)</strong></td>
<td></td>
</tr>
<tr>
<td>▶ Low financial risk (low entry costs, low fixed costs, low exit costs, etc.)</td>
<td>▶ In France, all mobile operators launched a digital sub-brand to prevent the arrival of a no-frills player.</td>
</tr>
<tr>
<td>▶ Short time-to-market (four to six months)</td>
<td>▶ An innovative MNO in the UK has successfully launched a digital MVNO.</td>
</tr>
<tr>
<td>▶ High innovative impact (on brand perception and processes) operation (e.g., creation of new best practices to be replicated in other business units/countries)</td>
<td></td>
</tr>
<tr>
<td>▶ Differentiation of the offering in a competitive environment</td>
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</tbody>
</table>
Telco operators need to consider six key success factors in order to succeed in the digital landscape

- No single strategy will be suitable for every operator, as the digital landscape is extremely diverse.
- Successful strategies will vary according to the following:
  - Differences in local conditions
  - Strategic appetite for digital transformation
- Network effects and scale are key to success in the digital ecosystem.
- Operators promising new initiatives need to scale, and rapidly.
- Operators need the flexibility to quickly exit unsuccessful ventures and redeploy resources to promising growth areas.
- Building partnerships through collaboration and innovation is key for digital success.
- Operators need to be open and establish partnerships with other operators, established internet players and new entrants.
- Operators should focus on growth levers with the best probability for success:
  - OTT
  - IoT and M2M
  - Big data and advertising
  - ICT and cloud-based services
- The right skills and assets are required to compete effectively in the digital ecosystem.
- M&As will become an important driver for digital transformation.
- Venture Capital funds and innovation hubs are also routes to acquire new skills and assets.
- More flexible business models are required to compete effectively in the digital ecosystem.
- Operators should invest in platform-based business models that bring:
  - Higher customer engagement
  - Growing range of services to be monetized

Sources: GSMA; EY analysis
3

Telcos’ digital best practices and use cases
Use Case #1: becoming a digital life provider and capturing adjacent business opportunities
A number of operators across the world are already developing strategies to conquer their space in the rapidly evolving digital ecosystem.

**Leading MNO in US**
- The leading MNO in the US has positioned itself as an innovator in the digital-first mobile, defining a strategy based on three main pillars:
  - Leading in terms of network connectivity
  - Developing new platforms around digital media and IoT
  - Developing new services/applications on these new platforms
- The mobile operator strategy has a clear focus on developing new business models on global digital platforms.

**Leading MNO in Spain**
- The leading MNO in Spain wants to become a key player in the digital universe, identifying talent and entrepreneurship as key components.
  - In order to become a referent digital telecom provider, this mobile operator has set three areas to focus its efforts:
    - Product development and innovation
    - Partnership and venture capital (innovation investment)
    - New digital services (M2M, e-health, financial services or cloud)

**Leading MNO in China**
- The leading MNO in China has identified four emerging areas to focus its efforts:
  - Smart family
  - Mobile payment
  - Internet of Things (IoT)
  - Cloud computing and big data
- Growth in these areas sits alongside the goals of strengthening the existing two core business areas: 4G and fiber broadband.

Sources: GSMA; company data; EY analysis
The majority of telecom industry players register less than 5% in digital revenues

MNO exceptions with >5% of digital revenues in Asia

Other telecom players in mature markets <5% of digital revenues

MNO — Mobile Network Operator
Note: Digital services include OTT, big data, APIs, FinTech, IoT/M2M, mobile advertising, cloud services and others. Digital revenues don’t include data revenues.
Sources: GSMA; companies’ annual reports 2016, EY analysis
To capture new revenues, telcos can leverage capabilities and assets to position themselves as vertical players, offering services beyond connectivity.

<table>
<thead>
<tr>
<th>Core business activity</th>
<th>Smart chip/module</th>
<th>Smart device/machine</th>
<th>Network connectivity</th>
<th>Service enablement</th>
<th>SI/application/solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIM card</td>
<td>Camera</td>
<td>Network</td>
<td>Platform and solution buildup</td>
<td>Packaging/ bundling</td>
<td></td>
</tr>
<tr>
<td>Sensor</td>
<td>Car</td>
<td>Connectivity</td>
<td>Back-end configuration</td>
<td>Service provisioning</td>
<td></td>
</tr>
<tr>
<td>Actor</td>
<td>Domestic appliance</td>
<td>Availability</td>
<td>Capabilities enablement</td>
<td>CRM and analytics</td>
<td></td>
</tr>
<tr>
<td>Aggregator</td>
<td>Electricity meter</td>
<td>Quality</td>
<td>Interface development</td>
<td>Business customer sales to end user</td>
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<tr>
<td>Transponder</td>
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</tr>
</tbody>
</table>

**Example in the IoT industry**

- **Possible partnerships to provide end-to-end service**
- **MNO core business**
- **MNO possible expansion**
- **MNO possible expansion**

| Share of total value by 2020 | 5%–10% | 10%–15% | 10%–15% | 30%–40% | 20%–25% |

Opportunities for telcos to seize business from applications

Sources: EY analysis; GSMA; Ericsson; Alcatel Lucent; ADL
Use Case #2: reinventing the customer experience and simplifying the commercial model
Customer experience improvement is considered a top priority by telcos, and digital is a key facilitator.

Customer experience management dominates the strategic agenda

Q: What are your organization’s most important strategic priorities over the next three years? (Top three responses)

- 82% Customer experience
- 50% Cost control
- 35% Network
- 32% Organization
- 29% IT systems
- 29% New services
- 18% HR and talent
- 15% M&A
- 6% Other

Improved service levels and personalization can unlock new customer experiences

Q: What are your organization’s most important initiatives to improve customer centricity? (Top three responses)

- 69% Improve customer service
- 69% Create more personalized customer experience
- 53% Improve network quality
- 31% Provide wide range of services
- 31% Provide flexible pricing options
- 28% Strike partnerships with other industry players
- 9% Others

► Customer experience management is emphatically the top priority for operators (68% citing it as first priority; 82% as top three).

► The drive to focus on customers’ experience dictates other priorities: agility, efficiency and network quality.

► New service development ranks fifth as a top three priority, but second as first priority, underlining how some operators are highly focused on capturing digital growth opportunities.

► Digital native consumers (who have never lived without digital) have high expectations of service providers; when convenience and quality fail to live up to expectations, these customers are quick to switch providers.

► This is well-recognized by service providers that set customer centricity, customer support, personalized services and network quality as the most important levers at their disposal.

Source: 2015 Global telecommunications study: navigating the road to 2020, EY, 2015
Customer 2.0 is forcing ecosystem players to provide digital interfaces and consistency of digital experiences across channels.
In their digital transformation path, telcos have started reinventing the customer experience through digital-driven omnichannels.

**Leading mobile operator in France**

- Aiming for 50% digitization of interactions with its customers by 2018 (vs. just over 30% today)
- The company is offering a low-cost and no-frills service range under its youth-oriented brand, available only online (sales and care).
- Several partnerships to develop a set of self-service apps to encourage digital interaction with its customers (part of omnichannel strategy).

**Mobile operator in the Middle East**

- Digitizing interactions with its customers, simplifying servicing mechanisms and optimizing costs
- Encourage customer self-care generates ~4%–5% cost reduction per year
- Increase online sales to reduce the number of stores contributes to ~8%–10% cost reduction
- Portfolio simplification reduces marketing expenses by ~5%
- Customer satisfaction increased after these changes

**Leading mobile operator in Germany**

- Increasing its exposure in digital, including development of digital customer experience (digital billing, e-sales and e-servicing)
- The company is targeting various levers of revenue and cost optimization through digital and commits on the following KPIs in its strategy:
  - Increase e-sales from 10% in 2014 to 18% in 2018
  - Decrease servicing costs by 16% in 2018 to focus on self-service portal

Sources: GSMA; company data; EY analysis
A digital-driven omnichannel strategy has a proven impact on customer satisfaction — telcos should develop in-house capabilities to make it work.

Digital has a positive impact on customer satisfaction:
- The correlation between NPS satisfaction scores and number of customer digital interactions has been statistically proven in several studies done for different telcos in Europe.

Note: NPS means Net Promoter Score, CEX means Customer Experience.

Putting in place the key enablers to:
- Baseline the current customer experience
- Size the value impact and prioritize improvement initiatives with delivery organizations

**Optimize performance goals with digital**

**Build capabilities**

- CEX analytics platform
- Personas
- Journey mapping
- CEX value models
- Measurement system
- Structure
- Incentives
- Leadership
Use Case #3: leveraging analytics to improve performance and better address customers
Telcos best practices: leveraging analytics to boost business performance

**Global telco and cable company**

**Customer analytics:**
In-house capability of expandable data collection and treatment:
► Audience TV data
► Customer data
► Online behavior

**EY Customer Analytics platform**
allows the leveraging of data and achieving the following performance uplifts:
► Segment customer groups and push product upgrades and cross-selling initiatives
► Increase customer retention and optimize the cost-side of operations (i.e., customer care)
► Measure the correlation between customer satisfaction and customer value

**Pan-European telco**

**Data monetization:**
Actor is now focusing on the following offers to monetize and commercialize its data:
► Third-party data
► Targeted advertising
► Consumer measurement

The company monetizes its data to target advertising on linear TV, VOD (on-demand, replay and catch-up) and second screens and to create more granular ad segments:
► Additional revenues up to €50 million in five years
► High margin expected, main costs being data processing IT, internal team and external contractors
► A few million CAPEX investment for the big data

**European pay TV provider**

**Big data transformation:**
Aiming to get additional value from analytics:
► Identify new use cases and revenue streams
► Design the operating model
► Prioritize investments

Client would an outline on how to generate additional value from big data and analytics across the firm, quantifying expected benefits and emerging costs, with a clear road map.

The objective is to define the long-term big data transformation enablers while implementing early value quick wins

Sources: GSMA; company data; EY analysis
The EY Customer Analytics platform develops advanced models and visualization tools for customer life cycle management.

A toolset that works across three data dimensions

A. Customer profiling model
- Customer profiles
  - Static 3P customers / 3P "couch potatoes"
  - 1P customers ready for migration
  - Legacy 1P CATV customers
  - Medium Value 3P customers
  - New customers
  - Opportunistic and always on the move customers
  - At risk customers
  - High Value 3P customers
  - Mobile-Only customers
  - 4P Customers (Bundle + Mobile)
- Description
- Value for operators
- Monitor business performance by segment
- Optimize targeting actions per customer profile
- Manage customer base initiatives

B. Customer lifetime value model
- Description
- Value for operators
- Derive lifetime value for each individual customer
- Optimize the cost to serve allocation per customer segment
- Track CLV and take actions

C. Customer experience model
- Description
- Value for operators
- Understand the CEX drivers that impact CLV
- Prioritize the CEX initiatives that have the most impact on value
- Build business cases for customer experience initiatives

Unified platform to support the creation of valuable business insights
Customer Analytics platform stands as a powerful tool, unifying customer profiling, CLV and customer experience analytics into one model

### Advanced customer analytics and business intelligence modules

<table>
<thead>
<tr>
<th>Customer profiling/personas</th>
<th>CLV</th>
<th>Churn prediction</th>
<th>Value from CEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-demo, product, value and usage-driven segmentation — based on statistical approach</td>
<td>Automatic CLV calculation next to each customer and by profile (ARPU, margin, churn, cost to serve)</td>
<td>Possible to establish churn and root cause analysis&lt;br&gt;Churn prevention analytics campaigns</td>
<td>Multiple customer satisfaction analyses (NPS-CLV correlation, super detractors focus, CEX deep dives)</td>
</tr>
</tbody>
</table>

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- **Customer analytics platform data set**
  - ~200 data points per customer (up to 350)
  - ~12m customers profiled
  - ~2.5b data points
  - Data available at customer ID level
  - 12 months revolving history
  - Automatic monthly update of customer profiling and CLV

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### Table

<table>
<thead>
<tr>
<th>Country 1</th>
<th>Country 2</th>
<th>Country 3</th>
<th>Country 4</th>
<th>Country 5</th>
</tr>
</thead>
</table>

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Country 1  | Country 2  | Country 3  | Country 4  | Country 5  |
---------------|-------------|-------------|-------------|-------------|
Socio-demo    | Product, offers and CPEs | Revenues | channels and interactions | NPS | Cost-to-serve | Digital | Country 1  | Country 2  | Country 3  | Country 4  | Country 5  |
Telcos can leverage analytics to improve performance and efficiency of both their front-end and back-end activities

<table>
<thead>
<tr>
<th>Growth</th>
<th>Optimization</th>
<th>Protection</th>
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<tbody>
<tr>
<td>Maximize revenue</td>
<td>Improve customer experience</td>
<td>Optimize support functions</td>
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<td></td>
<td>and loyalty</td>
<td>and processes</td>
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<tr>
<td></td>
<td>Improve productivity and</td>
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<td></td>
<td>efficiency</td>
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<tr>
<td></td>
<td></td>
<td>Regulatory compliance</td>
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</tbody>
</table>

### Commercial
- Improve analytical model supporting lead generation, acquisition, up-selling and cross-selling
- Real time reaction to customer triggers and event
- Content recommendation supporting up/cross sell and acquisition

### Strategy and business development
- Monitoring competitor behavior using web scraping and bots to gather intelligence and develop tactics
- Brand image analysis
- Subs evolution forecast and simulation

### Programming
- Optimizing the programming to increase viewership based on customer behavior data and analyzing the customer and product mix

### Customer Service (CC and FS)
- Call and contact prediction on specific events (e.g., social media analysis and speech analytics)
- Call and on field visit avoidance through proactive management

### Human resources
- Optimize hiring process
- Measure employee performance
- Predict employee attrition

### Advertising
- Introduce targeted advertising revenue stream
- Introduce interactive and targeted advertising in real time

### Technology
- Predictive STB maintenance and life cycle through IoT
- Predict systems, network and signal outages
- Increase cybersecurity through predictive modeling and simulation
From similar projects in telco space, EY experienced firsthand the tangible benefits of a robust customer analytics practice.

### Impact of customer analytics-related activities on telecom operators’ performance

<table>
<thead>
<tr>
<th>Area</th>
<th>Customer analytics-related activity</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New business</td>
<td>Data monetization: Sell off anonymized customer data</td>
<td>+100%–200% revenues</td>
</tr>
<tr>
<td></td>
<td>Targeted advertising: Target ads based on customer profile</td>
<td>+100%–200% revenues</td>
</tr>
<tr>
<td>Marketing and sales</td>
<td>Churn: Reduce churn by identifying key groups of customers at risk</td>
<td>-10%–20% churn</td>
</tr>
<tr>
<td></td>
<td>Customer profiling: Increase revenue through personalized offers</td>
<td>+1%–3% ARPU</td>
</tr>
<tr>
<td></td>
<td>Social: Use client feedback to optimize product portfolio and service</td>
<td>-5%–10% churn</td>
</tr>
<tr>
<td></td>
<td>Audience and content: Analyze viewership for commercial decisions</td>
<td>-5%–10% content spend</td>
</tr>
<tr>
<td></td>
<td>Billing and collection: Reduce fraud and false invoices</td>
<td>+1%–2% revenues</td>
</tr>
<tr>
<td></td>
<td>Pricing: Optimize pricing decisions</td>
<td>+1%–3% ARPU</td>
</tr>
<tr>
<td></td>
<td>Campaign management: Improve campaign efficiency and effectiveness</td>
<td>+40%–80% conversion</td>
</tr>
<tr>
<td><strong>OPEX</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer operations</td>
<td>Contact center: Use call elimination and quality improvement</td>
<td>-5%–10% calls</td>
</tr>
<tr>
<td></td>
<td>Fulfillment: Reduce faults, fallout and cancellations</td>
<td>-5%–10% fulfillment costs</td>
</tr>
<tr>
<td></td>
<td>Omnichannel: Lower cost to serve by improving channel mix and service</td>
<td>-5%–10% cost to serve</td>
</tr>
<tr>
<td></td>
<td>Supply chain: Reduce truck rolls by better understanding the customers’ reasons</td>
<td>-5%–10% supply chain costs</td>
</tr>
<tr>
<td>Corporate</td>
<td>Procurement: Use client feedback to optimize the spending on CPEs/handsets</td>
<td>-2%–5% spend reduction</td>
</tr>
<tr>
<td></td>
<td>HR: Increase the learning effectiveness and reduce turnover (call center)</td>
<td>-10%–50% learning costs</td>
</tr>
<tr>
<td>Network</td>
<td>Network maintenance: Predict outages using customer network data</td>
<td>-5%–10% maintenance</td>
</tr>
</tbody>
</table>
EY offerings for telcos’ digital transformation
EY has established five distinct digital offerings reflecting the holistic set of challenges that digital creates for our clients.

**Digital enterprise strategy**

We help our clients rethink their business strategy and operating model for a digital age.

**Incubation and innovation**

We establish an end-to-end innovation capability to incubate new ideas and business models.

**Experience transformation**

We analyze the world of the customer, then design and implement new experiences.

**Digital operations**

We align, optimize and automate operations and supply chain to deliver on the promise of digital.

**Digital trust**

We scan the digital risk horizon and help our clients build agility to respond to digital risks.
EY possesses a dedicated multidisciplinary team to accompany telcos in their digital transformation

EY has a cross-functional team dedicated to digital transformation

<table>
<thead>
<tr>
<th>Digital strategy consultants</th>
<th>Data scientists</th>
<th>Change management professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT professionals</td>
<td>Cybersecurity professionals</td>
<td>Service designers</td>
</tr>
</tbody>
</table>

**Functional professionals**

- **Strategy**
- **Marketing**
- **Client relationships**
- **Finance and internal audit**
- **HR**
- **Supply chain and purchases**
- **IT systems**

**EY digital assistance to reinvent businesses in a digital world**

- Internal multidisciplinary teams dedicated to digital, these are supplemented by functional and sectorial subject matter professionals
- A broad range of offers to accompany digital transformations
- “Advanced analytics” solutions to inform and simplify the processes of making key decisions
- A “digital factory” approach that favors rapid development and appropriation of innovation
- A “digital lab” that offers organizations digital transformation support in a joint development spirit
- A global and multi-sectorial approach to digital transformation of organizations
EYs digital offers serve telcos transformation

1. Digital growth and innovation for Telcos
   - Digital growth strategy
   - Digital due diligence
   - Digital innovation and digital factory

2. Telcos’ customer experience transformation
   - Customer experience digitalization
   - Digital-driven omnichannel

3. Telcos’ operations digitalization
   - Digital Supply Chain
   - Digital finance
   - Digital HR

IT digitalization  Data governance  IT security
We work to help deliver digital solutions to your needs, combining our technical, scientific and functional experience.
EY Advisory has relevant references of telcos digital transformation

<table>
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<tr>
<th>Operator type</th>
<th>Project name</th>
<th>EY support/added value</th>
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| Tier 1 European telecom operator | Customer-led digital transformation | - EY supported the end-to-end digital transformation for the customer experience transformation project, working mainly on:  
  - Identification of the key customer pain points/definition of the customer journey  
  - Definition and implementation of Customer Experience improvement initiatives  
  - Run of digital sprints, from “the customer stories” to the “minimum viable product” with a three-month cycle to assist in implementation |
| Global leading operator (Europe, MENA, APAC) | Digital Asset Management | - End-to-end asset management solution: real time asset tracking, supports redeployment of assets and consequent capex avoidance, Enables supply chain analytics  
  - Improved monitoring and informed decision making for end to end lifecycle tracking of assets, improved utilization / deployment of existing unused assets  
  - Use of mobile app to ease field operations and enable real time asset tracking |
| Tier 1 European telecom operator | Digital-driven omnichannel strategy and blueprint | - Benchmark of multichannel disruptive initiatives  
  - Assessment of multichannel maturity and performance of six operations in Europe  
  - Definition of the multichannel blueprint and vision  
  - Detailed specification of 12 concrete multichannel use cases, including organization, IT and processes impact |
| MNO in MENA | Digital transformation execution | - Digital maturity assessment vs. best in class  
  - Definition of the three-year digital strategy and road map  
  - Implementation of quick wins: new website launched, mobile app  
  - Specifications of key digital projects: E-care, social CRM |
EY Advisory has relevant references of telcos digital transformation (continued)

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| Tier 1 operator in Europe and MENA                | Pan-European Digital MVNO strategy and feasibility study                      | ▶ Conducting a Pan-European Digital MVNO feasibility study in four European markets  
▶ Building a disruptive customer value proposition (price, all-inclusive, digital, customer experience)  
▶ Defining a lean organization model and digital-oriented processes                                                                                                                                                                                                                                                                                                                                                       |
| Tier 1 operator in New Zealand                    | Shifting the customer service paradigm                                        | ▶ EY and the client worked together to shift the customer service paradigm through digitization in face of declining market dominance.  
▶ This included the following:  
▶ Transformation of governance of digital channels  
▶ Key risks and controls to manage digital interfaces  
▶ Streamlining of social media channels                                                                                                                                                                                                                                                                                                                                                                                  |
| Greenfield telecoms operator in India              | Go-To-Market strategy and digital operating model design                     | ▶ EY supported the client in deploying a large-scale digitization project revolutionizing telecoms in the country.  
▶ Through the EY Go-To-Market strategy and digital operating model for customer operations, the client benefited from the following:  
▶ Significant lead time reduction for activation  
▶ Paperless activation — a first in India  
▶ Customer experience as a differentiator using digital approach  
▶ Designed digital concepts                                                                                                                                                                                                                                                                                                                                                                                          |
| Tier 1 operator in Australia                       | Productivity and customer services transformation program                    | ▶ EY assisted the client in achieving significant productivity improvements and improved customer services to gain a competitive advantage in the market.  
▶ The process redesign allowed productivity improvements; reductions in costs; and reduction in transaction times, variance and rework, resulting in annualized benefits of approximately US$650m.                                                                                                                                                                                                                                                  |
More than 5,000 EY collaborators work on digital-related topics

1,000
Customer experience
Analyze the company environment to design and implement new journeys and solutions

250
Innovation and incubation
Put into place innovation structures to incubate and test new ideas and business models

950
Digital strategy
Develop digital strategies aligned with long-term vision and integrated within the company strategy

1,100
Digital operations and organization
Transform and automate operations, and align the organization to facilitate digitalization and reduce operational costs

1,600
Technology and data
Develop and construct the technology underlying digitalization, particularly use and analysis of data

400
Digital security
Understand and manage digital risks, especially fraud and cyber attacks

# of EY collaborators
Prashant Singhal, Partner, EY Global Telecoms Leader
Industry subject matter professional, leading transformations for operations and selection, pricing, distribution and launch strategy

Amit Sachdeva, Partner, EY Global Telecoms Advisory Lead
Industry advisor, leading transformations for operations and selection, pricing, distribution and launch strategy

Laurence Buchanan, Partner, EY Digital Advisory Leader
EMEIA Lead digital partner, specializing in digital transformation, customer experience and CRM; has led digital transformation initiatives for clients including TMT, retail, GPS, auto and pharma

Vincent Douin, Partner, TMT Industry, EMEIA
Fifteen years of experience in telecoms, with capabilities/experience in emerging markets, marketing and sales strategy and go-to-market

Patrick James, Partner, UK
Digital strategy transformation specialist, projects across the customer life cycle (CRM and e-commerce platforms implementations) in airlines, telco, banking, insurance, government, automotive and consumer products industries

Pierre Beaufils, Partner, USA
Marketing strategy expert in the TMT industry with 15 years of consulting experience

Bart Van Droogenbroek, Global Telecoms Tax Leader, Luxembourg
Supply chain management as well as financing, holding and intellectual property structures through Luxembourg intermediate entities

Joanna Truffaut, Director, UAE
Has led major engagements in digital transformation, digital business, operating and technology models, digital ventures investments, cybersecurity and innovation

Praveen Shankar, Partner, UK
Leads the UK and Ireland supply chain team in the telecoms, media and technology industry sector

Adrian Baschnonga, Associate Director, UK
Lead analyst at Global telecoms center, responsible for EY’s thought leadership output

Joongshik Wang, Partner, Singapore
Capabilities/experience in commercial due diligence, turnaround strategy, digital business and strategic marketing in telecoms and media industry, payment and retail industry

GK Anand, Director, India
Customer experience and service strategy design, business-wide cost reduction, IT strategy and transformation
About EY
EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

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EYG no. 00784-174Gbl

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