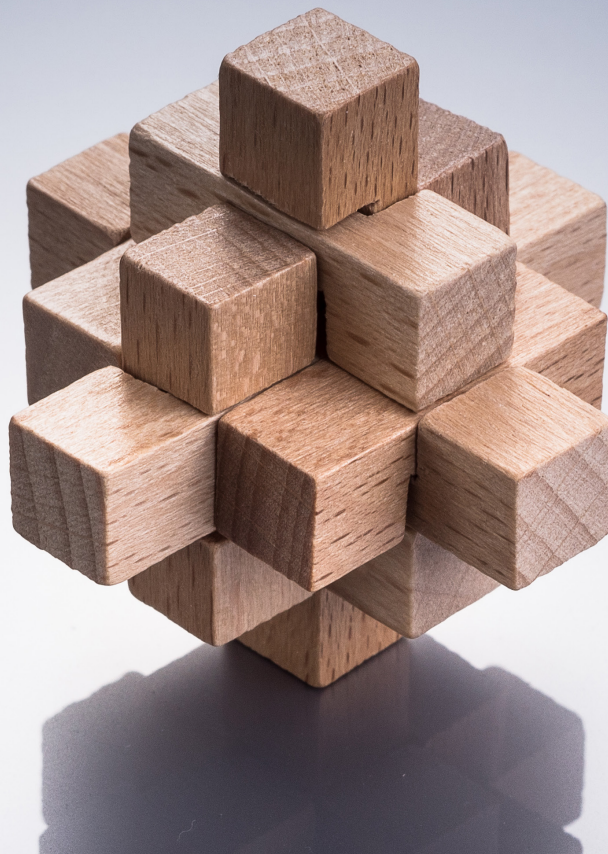


The building blocks telcos need to create their digital-and-analytics DNA

Telcos need to rewire themselves to work in agile ways and make data-driven decisions to keep up with customers' increasing demands for simple digital experiences, among other challenges.

Mohsin Imtiaz, Pallav Jain, Veit Kment, and Ruben Schaubroeck



Imagine the journey a family might take to get their son his first phone: the teenager has been using his dad's mobile phone to play games and watch videos. Would it be possible for a telco's systems to automatically detect the fact that their customer is ready to add his son to his account? And to complete that transaction within an hour or two?

Now imagine a similar journey in a developing market, where two-thirds of new users are young digital natives with limited access to payment options, such as online banking and credit cards, but sophisticated expectations of highly personalized and digital interactions with their mobile providers. Can a telco quickly identify and meet these customers' demands, too?

We believe operators not only can detect and meet these demands, but also that they must meet them to keep up with increasing competitive pressure. Our research shows that operators that get this right both get ahead of customer requirements and drive a 30 to 50 percent cash-flow improvement through revenue acceleration and cost optimization. And these companies are digitizing and using analytics across their organizations to get there.

One European telecom provider, for example, recently saved 25 percent of operating and capital expenditures over its three-year digital-and-analytics transformation, along with a reduction in customer-service calls of more than 50 percent. In doing so, the company reduced its product portfolio costs by 80 percent and its IT expenditures by 25 percent. These dramatic savings were accompanied by a tangible impact on sales, with approximately 40 percent of new wire-line and internet service sold online, as well as 25 percent of new mobile subscriptions.

Such a transformation encompasses both the digitizing of core customer journeys and internal processes, as well as using data to drive real

insights. We often see companies investing in one or the other, but it's the two together that enable a real transformation. This requires rewriting the genetic makeup of today's telco to create a new, digital-and-analytics DNA. In our work with telcos around the world, we have sought to decode the core components that operators need to achieve this transformation—the building blocks of this DNA.

Achieving this new digital-and-analytics ambition won't take place overnight (see sidebar, "Dialing up the telco of the future"). Telcos can only start by understanding how to structure a transformation in a way that makes sense for each individual operator. These five building blocks are common to all, though, and should inform a company's approach (Exhibit 1).

Ambition and vision

These inform not only the organization but also support the underlying elements of each of the other building blocks.

To develop their own ambition and vision, companies need to take a brutally honest look at themselves and the industry. They need to assess where they stand versus the competition, as well as how they are perceived by their customers. This is essential to setting the right ambition, strategic priorities, business case, and road map for the digital-and-analytics transformation.

For example, one Western European telco conducted market research to benchmark itself and made the unpleasant discovery that it had the lowest customer-satisfaction scores in the industry. This was tough to hear but ultimately helped catapult the company into a completely new mind-set. It set its aspiration to becoming the best in class for customer service, which then determined how it focuses its digital-and-analytics transformation efforts, investments, and other priorities.

Exhibit 1 The recipe for successful digital-and-analytics transformation has five key building blocks.



Ambition

- Vision and strategic priorities
- Value at stake
- Road map



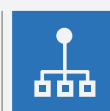
Journeys and use cases

- Front end
 - Omnichannel/e-commerce
 - Digital marketing and personalization
- Back end
 - Network and operations
 - Back office and service/support functions
- New business building



Engine

- IT systems and architecture
- Technical enablers
 - Data backbone
 - Cloud
 - APIs and microservices
- Product and process simplification



Operating model

- Digital organization and way of working
 - Agile
 - DevOps
- Partner and vendor ecosystem
- Program management, governance, funding, and impact monitoring



Capabilities, talent, and culture

- Capabilities
 - Product management
 - Design thinking
 - Personalization
 - Analytics
 - Employee capabilities
- Talent strategy
- Culture and leadership

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Domains and use cases

These should make up the future digital native telco, on both the front and back ends.

In identifying use cases, operators should think both expansively and practically. An expansive view across domains (for example, across sales, marketing, operations, and back office) is required to identify the full catalog of digital-and-analytics use cases. However, although the eventual goal is organization-wide transformation, operators also need to be practical and focus first on quick wins to build steady momentum and eventual scale.

With marketing and sales, for example, an incumbent Western European telco's objective was to monetize its existing base further while responding to competitive threats. It developed

an automated and targeted customer-life-cycle-management campaign that led to a 5 percent revenue increase. Customers received offers within 30 minutes of a trigger event, such as using large amounts of data to stream a live video or visiting a store to get a problem with a handset solved.

The network can also be fertile ground for targeted use cases. A Middle Eastern operator reviewed its capital-expenditure allocation to identify potential areas of optimization and built a tool to automate prioritization of funds; it generated a three-percentage-point improvement in its capital-expenditure-to-revenue ratio.

The following three questions can help operators identify and prioritize use cases that can best yield impact and scale quickly:

Dialing up the telco of the future

The telco of the future will have five primary characteristics that represent a fundamental shift from a slow-footed organization made up of siloed business units to an agile, fully integrated entity in which digital-and-analytics DNA infuses everything the company does:

Distinctive, low-touch, self-service experience.

Customers increasingly expect simple, intuitive, and mobile-first experiences, and they want to be able to have their requests handled digitally. While many operators are lagging, we already see 70 to 80 percent end-to-end automation in the top-performing telcos today. A target of 80 to 90 percent of service requests fulfilled digitally is realistic.

Completely personalized services, marketing, and experiences.

Marketing to segments should be obsolete, now that new advanced-analytics tools, such as machine learning, allow telcos to target individuals based on user preferences and behaviors to create personalized experiences across all touchpoints.

Software-defined, self-healing networks.

Network planning, building, operation, and maintenance will become largely analytics driven, through self-learning artificial intelligence, and automated, through predictive and preventive interventions steered with little or no human intervention.

Zero-touch, digital service delivery. The prior goals are only possible with an overhaul of a telco's technology backbone—from product development to revenue and cost attribution. Many operators are only just beginning to discover the potential behind robotics and process automation at scale across back-office functions, setting ambitions between 40 and 60 percent of cost savings for core areas.

Data core and insights engine. The business should move from a siloed and fragmented data landscape to an increasingly integrated view of customers that focuses on providing real-time analytics and insights that drive action.

- *How can data be leveraged best across the organization in an integrated way?* Here, ambitious operators are creating a rich, real-time view of their customers, including not just traditional customer profiles but also real-time customer behaviors (the specific TV shows and videos a consumer is watching, for example, or potential declines in data usage).
- *How can operators extract actionable insights from data that create real value?* Leading operators start from the value created for

customers and shareholders and are relentless in pursuing and managing that value. For example, several operators are moving from traditional “propensity” models (predictions of propensity for churn, for example) to machine-learning techniques that help identify potential root causes for churn and indicate possible actions that can be taken to reduce it.

- *How can technology be used to reduce the time between insights and actions?* Forward-thinking operators are not just satisfied with

identifying the best course of action, they are looking to accelerate the pace at which they can take and scale these actions.

Digital operating model

This includes a new way of working, culture, talent strategy, and vendor ecosystem.

Whether deploying smaller analytics use cases, building out adjacencies in new digital businesses that monetize operators' data, or undertaking company-wide transformation, generating success necessitates a fundamentally different way of working—an agile one with a time to market of weeks or even days rather than months.

This requires that telcos install multidisciplinary, co-located teams and ensure that they follow new agile development practices to rapidly and continuously create prototypes for new functionalities. Company leaders—from the executive team all the way down the line—should become coaches for these independent teams, which will have end-to-end accountability for their results. In addition, the teams should introduce new roles, such as “product owner” and “scrum master,” to track product development, which will take place in iterative cycles.

One Northern European telecom provider used such squads to improve its customer experience, as measured by customer-satisfaction scores, by 19 points. It did so by using agile, independent teams to digitize its core customer journey, going live with a minimum viable product in just six weeks. There was a substantial overall impact as well: a reduction of more than 50 percent in customer calls. (For a more in-depth look at agile, see “Putting customer experience at the heart of next-generation operating models,” on McKinsey.com.)

Critically, this agile way of working must be adopted not just for the company's digital transformation but

also as it builds and scales a true data-and-insights factory that enables data-driven decision making for each of the cross-functional teams.

To take just one example, a leading integrated operator developed a cross-functional customer-retention team that brought together marketing, channel, finance, product, and other disciplines. This group worked in a test-and-learn fashion to quickly deploy new offers and experiences, observe customer responses to specific offers using A/B testing, and make rapid tweaks based on those learnings.

These changes go beyond a new way of working and amount to a fundamental cultural shift, based on employee empowerment and customer focus. This also extends into working with partners and vendors in a different fashion, as they also need to adopt the new way of working.

Digital-and-analytics capabilities

These consist of such disciplines as design thinking and advanced analytics that will help telcos profit from new state-of-the-art technologies.

Creating new digital-and-analytics DNA requires roles and skill sets that most telcos don't currently have, which means recruiting and retaining top talent to be able to build a full range of positions and capabilities across business, management, data science, engineering, and IT (Exhibit 2).

Operators have traditionally outsourced IT and network functions, including development. Reversing this is difficult, but continuing with the status quo is as well, so operators need to strike a balance and go through a strategic reassessment on what subfunctions to outsource and roles they need to play. For example, one Asian telco had until recently outsourced all network functions but is now bringing back some network development around software-defined networking (SDN) and network functions virtualization (NFV) in-house.

Exhibit 2 New capabilities are required in digital-and-analytics transformation.

Critical capabilities for digital-and-analytics transformation

	Product development	Product owner	<ul style="list-style-type: none"> • Creates product vision and road map • Creates product backlog of user stories and epics
		Software development	<ul style="list-style-type: none"> • Develops across the technology stack for web and native applications
		Architectural solution design	<ul style="list-style-type: none"> • Defines target architecture of product/functional area and ensures integrity and compliance with architecture standards
		Development of robotic process automation (RPA)	<ul style="list-style-type: none"> • Designs and develops RPA solution
		Agile facilitation	<ul style="list-style-type: none"> • Makes sure product team adheres to all principles of agile and facilitates scrum ceremonies
	Design thinking	User-centric problem solving	<ul style="list-style-type: none"> • Develops user research strategies to identify customer need • Create engaging end-to-end user experience
	Digital marketing	Paid/organic media management	<ul style="list-style-type: none"> • Manages and implements paid media campaigns in different channels (search-engine optimization, search-engine marketing, display, social)
		Marketing creatives	<ul style="list-style-type: none"> • Creates effective content that inspires customers to engage with test pages
	Analytics	Data engineering	<ul style="list-style-type: none"> • Handles interfaces to large amount of data and creates data structure suitable for analysis
		Data modeling	<ul style="list-style-type: none"> • Applies strong expertise in machine learning, data mining, and information retrieval to design, prototype, and build next-generation analytics engines and services
		Analytics translation	<ul style="list-style-type: none"> • Understands business problem and translates into technical language and vice versa

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A good example of how these capabilities and roles form the digital DNA of a transformed telco is the way marketing in a developed region is changing. The highly targeted sales campaigns of today's tech and retail giants have set a standard that no longer allows telcos to simply create four or even 100 different campaigns to spread out over

their entire customer base. Instead, operators will need to change their mind-set from segment-based marketing to one that assumes no two customers are the same, with granular pricing and personalization for everyone, driven by user preferences and behaviors. Comprehensive data lakes feeding into machine-learning algorithms

will become the standard source of intelligence when contacting or interacting with customers. In addition, personalized content marketing—creating and sharing online material that stimulates interest in products and services, rather than explicitly promoting them—across all customer offerings must become the standard.

Extending that model of data-driven decision making across business functions takes radical change and broad shifts in roles and talent. This imperative is even more stark in emerging markets, where capabilities are often weaker and digital talent even scarcer.

A digital and advanced-analytics ‘technology engine’

This essential feature comprises business processes, at-scale data infrastructure, IT systems and architecture, and other technical enablers. These elements together form the backbone that is critical for a successful transformation.

Forward-thinking telcos that are already undertaking the process aim for a target architecture comprising three layers: a front end delivering a best-in-class, mobile-first customer experience; an agility layer based on a microservice platform to enable flexible and scalable development of services that move business logic away from legacy back-end applications; and a back end with a module-based product catalog that allows easy and quick extension of the standard telco product stack to accommodate new business units or partners.

In much the same way, telcos must create a data-and-analytics architecture leveraging an integrated 360-degree view of the customer, and models and

engines that fuel real-time predictive insights. This architecture must be consistent with and inform the operator’s future digital-and-analytics operating model. For example, leading operators don’t design a data architecture in isolation; they ensure the architecture is consistent with their overall vision for data governance—that is the only way to ensure the new model will be adopted across the business units.



Telecom operators face enormous pressure, and they realize that digital and analytics will be a core driver of their performance for years to come. Nearly every telecom operator today has begun some kind of digital transformation. However, over time these transformation efforts have often revealed themselves to be more costly or complex than originally envisioned. As a result, we find that most telcos have not gone far enough or been bold enough in their approach. Operators that use these five building blocks to engineer their new DNA will have the best chance to emerge as the winners. ■

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The authors wish to thank Stephen Creasy, Klemens Hjartar, and Kushan Surana for their contributions to this article.

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