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Harnessing data on carrier networks:
The new goldrush

How the public cloud and data science can radically accelerate operator product and service distribution performance

Content

Executive summary

The telecoms sector is undergoing a period of great change and forward-thinking carriers can seize it as an opportunity to thrive. Carriers already have the most important business asset to prosper in the telecoms space of tomorrow: rich customer data. The challenge, however, is to harness the full potential of it. The benefits can be felt across a carrier's entire business, from massively reduced operational costs to total digitization, and from KPI gains in customer loyalty and revenues to all-new commercial applications.

Great strides in knowledge engineering and the cloud are the drivers of telecom technology change. These technologies are already enabling proactive carriers to transform their commercial product suite, leveraging deep customer analytics, hyper-personalization, and the invaluable role of cloud computing to deliver a new type of user-centric customer experience. Digital technologies can sit alongside, and work in tandem with, legacy systems to achieve digital adoption across the customer base and position carriers for markedly improved KPIs.

How new digitization and machine learning technologies can fully automate telco commercial operations

fonYou has integrated and launched live deployments with a group of carriers around the world. The results are very promising and point to a radical improvement in telecom operators' financial performance.

This whitepaper discusses:

How new digitization and machine learning technologies can fully automate the telco commercial process

How customer groups undergoing digitization can be doubled in size in only a few months

Why ARPU increases more than 20% for users onboarded to digital channels

Lastly, we illustrate why these new technologies enable a radically different economic model, in which micro transactions become profitable at scale as cloud and AI capabilities drive down cost per transaction by a factor of 10 compared to traditional systems.

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Foreword

Mobile network operators (telcos/carriers) are at the frontier of a transformational paradigm shift within the telecommunications sector. This shift is characterized by a rapid acceleration in technological advancement. New algorithmic and cloud capabilities have developed to highly sophisticated levels in a staggeringly short period of time. Of course, these technologies are transforming industries across the entire economy. However, for telecoms, there are already carrier-exclusive operational and commercial applications that harness the power of these technologies for a range of outstanding benefits.

Like telecoms, the financial industry is also undergoing a period of digital transformation. And like banks as the incumbent giants of their own sector, telecom carriers have the most invaluable business asset of all for this new digital era in theirs: **rich customer data.** It is this data that will drive the success of digital commercial applications.

At fonYou, our vision is that mobile carriers are sitting atop their very own data goldmine, with the means of understanding the customer on a profound, granular level. Public cloud and data science are the core enablers of this customer-first carrier of the future that fonYou has successfully put into full-scale production, which we discuss in this paper.

Global data creation is exploding in growth

but less than 0.5% is currently analyzed and used from all available data - Forbes

Exploring how a carrier has digitized to grow airtime distribution

Real-world carrier use case report: This paper details the integration of an ambitious strategy to fundamentally transform a carrier with a large customer base of tens of millions of prepaid customers into a fully digitized, data-driven organization.

fonYou worked with this carrier to combine neural network and cloud technologies with the core legacy systems already in place. There was a huge challenge to overcome, which involved the processing of more than two billion customer data events per day while generating a full digitization of airtime distribution. Additional goals included maximizing customer value while always provisioning the optimal product offer and creating a hyper-personalized, new market benchmark customer experience.

Data is the new gold for carriers

A recent study by Walker, *Customers 2020: A Progress Report*, found that commercial experience is set to overtake price and value as the key unique sales proposition among customers. This revelation demonstrates even more the urgency for carriers to harness the vast amounts of data that run through their core networks daily and use it to create an optimized customer experience that powers their continued success. To construct this new reality, carriers will have to fundamentally change how they use core network data and understand how to integrate the requisite technological capabilities to work alongside legacy systems.

To achieve this, they can leverage the aforementioned technologies in knowledge engineering and the cloud, which enable agile digitization, hyper-personalization, and omnichannel communication. Moreover, the right use of these technologies equip carriers to launch new initiatives and digital products to generate all-new revenue streams and maximize current channels for commercial returns, including voice.

These capabilities enable carriers to create in-depth knowledge about their customers, about their real needs and wants at any point in time and offer an instant solution directly to customers' mobile handsets in their moment of need.

"Our estimation is that volumes of mobile data will increase 10 times in the next five years."
- EY telecommunications sector survey respondent

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The time is now for hyper-personalization

Sophisticated machine learning and customer analytics in particular allow companies to create a whole new type of hyper-personalized customer experience, which is characterized by customer journeys at each touchpoint. In tandem, demographic shifts have developed, with customers more demanding of superior experiences than ever before, as indicated by the aforementioned Walker 2020 report.

By providing a unique, ultra-tailored customer journey, brands anticipate and influence consumer predilections. This involves understanding each and every customer's context and preferences and delivering an outstanding customer experience at every touchpoint. Ultimately, it enables operators to maximize sales and improve customer loyalty rates through developing an emotional connection (brand intimacy).

Step 1
Contextual push offer in the preferred channel powered by AI
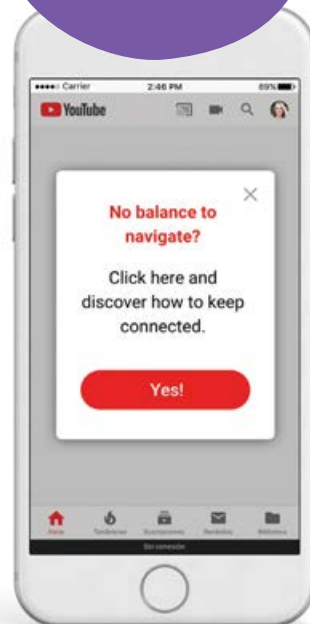
Step 2
Sarah Clicks on the link. Bundle sale + upsell with interactive chatbot

Step 3
Transaction and bundle provisioning
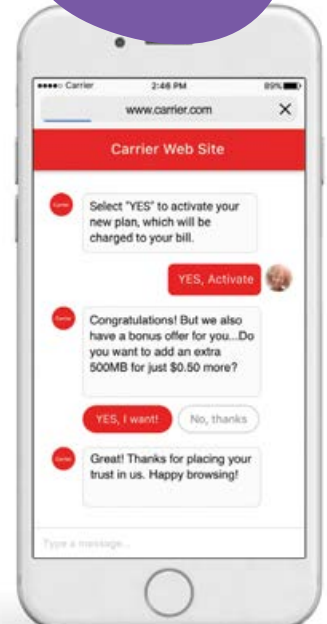
60 per cent of omni-channel shoppers are increasing the volume of purchases made on their smartphone, according to a Deloitte report

By integrating hyper-personalization, carriers can meet and exceed the digital expectations of today's customer. It equips carriers to upgrade to a digitized business model and generate KPI gains across the board. But importantly, it allows them to offer enhanced customer experience as a unique selling proposition, essential in a modern business landscape in which **being competitive on price and value is no longer enough.**

Carrier case study:
customer ARPU increase of 22% through digitization

fonYou recently partnered with a large-scale mobile network operator to deploy iCarrier – fonYou's data-science powered platform with the goal to digitize the sale of prepaid airtime top-ups and bundles. The iCarrier is an end-to end solution that connects to the core network of carriers and monitors customer activity in real-time. It operates multiple online channels like websites, chatbot applications and interactive push messages to engage with customers and present personalized offers. The platform fulfils digital payment and service provisioning for the telco once a customer selects a product (e.g. a prepaid top up, a bundle or a content subscription).

This carrier tasked fonYou with creating a digital, fully automatic customer engagement process to accelerate airtime distribution and elevate profits from micro-transactions of U.S. $1 or less.

It operates in an emerging market with a high prepaid percentage of their customer base. Most of its customers run out of balance weekly at least once and go two to three days per month on average without credit.

"While ARPU increased 22% for online customers, it skyrocketed by 125% for "zombie" customers – those who previously topped up sporadically and infrequently"

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Digitization raises customer value

The two to three-day downtime period represented a considerable lost revenue opportunity for the carrier. Another issue was that the vast majority of prepaid customers carried out top-ups in brick-and-mortar stores, with less than 1 % percentage using the carrier's website. Also, upselling higher value bundles and increasing customer value was ineffective because the distribution was done through third party dealers.
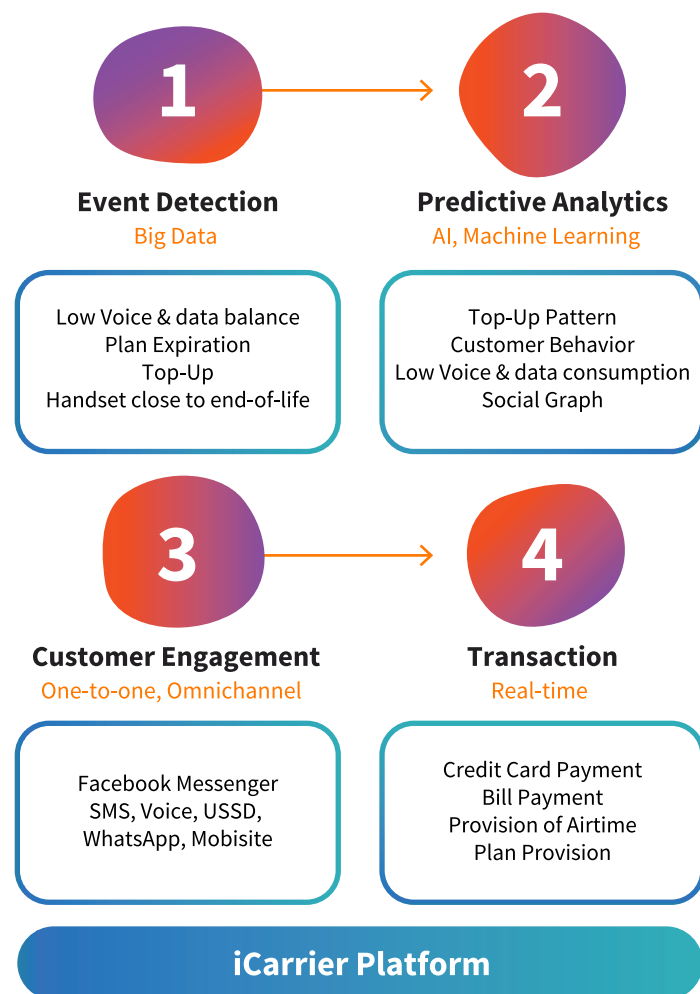
Making personalized offers based on the customer profile to increase consumption was not possible based on the physical distribution of airtime. Through digitization, the carrier wanted to accelerate its revenue growth and get back into the driving seat when offering and distributing its services.

Processing enormous data volumes efficiently

One of the biggest tests for fonYou was to process the massive amount of data from the network in real-time at a reasonable cost. When fonYou connected their system to the network for the first time, they found, to their surprise, that they had to process more than two billion data events per day.

From this huge scale of events, the system had to filter out the relevant data points and apply artificial intelligence techniques in order to achieve the following:

1. Creation of in-depth knowledge about every customer

2. Prediction of user behavior based on the algorithms

3. Execution of the right action in real-time

1

Event Detection
Big Data

Low Voice & data balance
Plan Expiration
Top-Up
Handset close to end-of-life

2

Predictive Analytics
AI, Machine Learning

Top-Up Pattern
Customer Behavior
Low Voice & data consumption
Social Graph

3

Customer Engagement
One-to-one, Omnichannel

Facebook Messenger
SMS, Voice, USSD,
WhatsApp, Mobisite

4

Transaction
Real-time

Credit Card Payment
Bill Payment
Provision of Airtime
Plan Provision

iCarrier Platform

The technological challenge was colossal and required a combination of different solutions to reach their goal. This included an infrastructure that could process and scale fast enough for the massive data volumes; an ecosystem that could combine data processing, AI, data visualization.
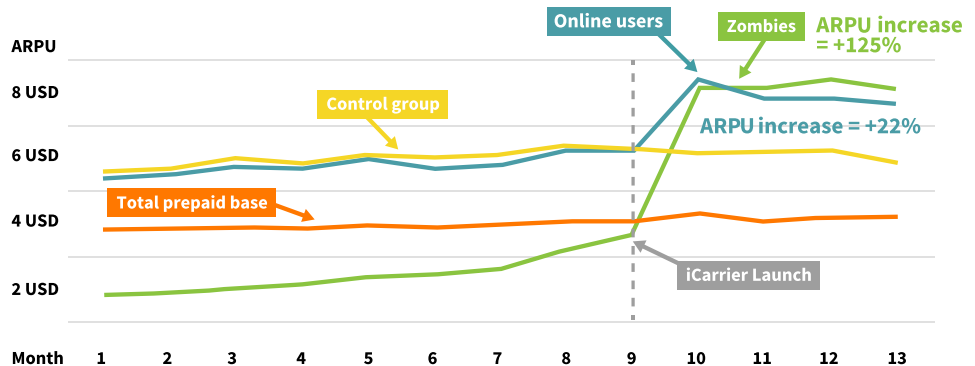
Improving airtime distribution in four steps

fonYou implemented a four-step process to achieve the carrier's target.

1. Analyse and predict customer behaviour in real-time

2. Digitize the customer engagement experience

3. Hyper-personalize offers to maximize conversion rate

4. Push the most contextualized offer to customers in real-time

This meant replacing "one-size-fits-all" mass messaging and the non-personalized offers that the carrier had previously used to promote customer purchases, which had very low conversion rates. The creation of a whole new customer experience has since positioned the carrier to drive airtime distribution to unprecedented levels, while concurrently delivering a more convenient, contextualized customer journey.

Results: ARPU increase of +22% for online users and +125% for "Zombies"

Chart labels: ARPU; 8 USD, 6 USD, 4 USD, 2 USD; Month 1 2 3 4 5 6 7 8 9 10 11 12 13; Online users; Zombies; ARPU increase = +125%; Control group; ARPU increase = +22%; Total prepaid base; iCarrier Launch

Driving ARPU gains

ARPU of three different groups were monitored over 13 months. During month nine the iCarrier solution was launched which automated the sale of airtime through digital channels with credit and debit card payments. Online users' average top-up grew from U.S. $4 per in-store, non-personalized purchase to US $4.9 per contextualized digital payment via their mobile handset.

- **Online users:** group of users that was onboarded and began purchasing airtime online with electronic payment means in month nine. ARPU increase of 22%.

- **Zombies**: users that were only topping up sporadically. When onboarded to the iCarrier they became high-value customers with a recurrent top-up pattern. ARPU increase of 125%.

- **Control group:** the control group has a near-identical top-up behavior and ARPU level as the online users. Their ARPU remained stable as they were not onboarded to the iCarrier and continued to top up in person, in brick-and-mortar stores.

Added to 22% higher ARPU among online customers, the richer customer experience has generated more than a 200% increase in conversion rates with automated, contextualized product offers.

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The final result: a digitized carrier with markedly superior KPIs

User behavior is now analyzed, and contextualized offers are pushed to customers through digital channels including interactive SMS, Facebook Messenger and RCS. The purchase and payment process has been optimized for speedy, simple checkout, and uses neuro-marketing techniques to enhance the customer experience.
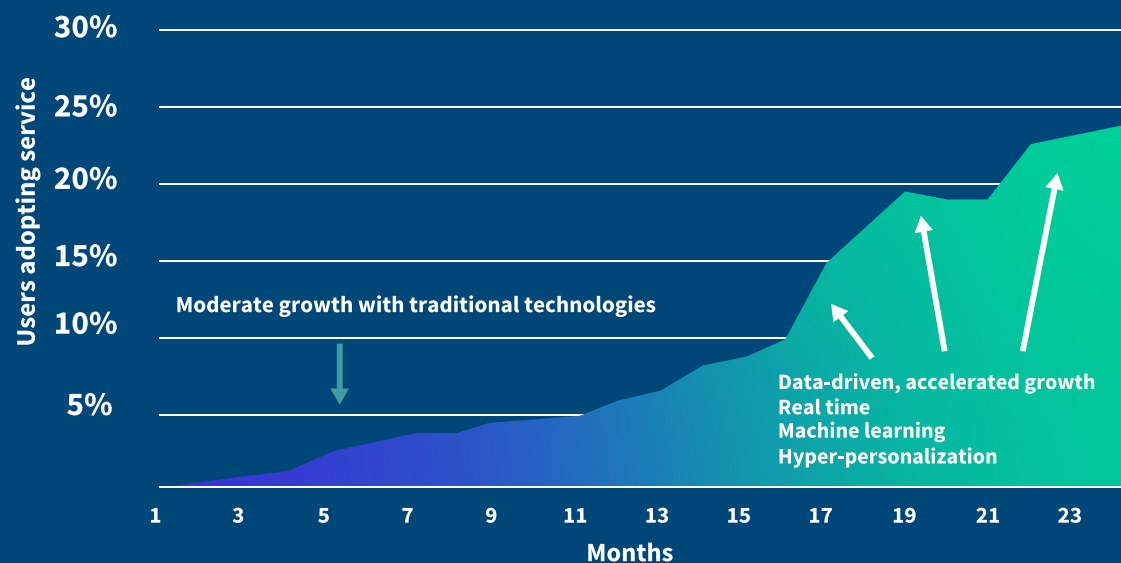
As well as migrating 30% of its user base to digital payments within a 24-hour period and increasing online customer ARPU by 22%, the carrier has now been benefited from lower infrastructure costs by leveraging cloud and AI capabilities.

After an initial period of 15 months, the adoption rate had grown to 8%. During this period customers could purchase airtime with their credit card on different online channels such as websites, carrier apps or social media channels such as Facebook Messenger. Based on a predefined set of rules by the carrier's marketing division, customers would receive offers through SMS or other push campaigns on their phones with the intention of driving customers to the transactional sites.

When data-driven algorithms and real-time customer engagement technologies were launched, the adoption rate doubled within three months and continued growing at an accelerated pace thereafter.

Radical service adoption with new data-driven technologies

Percentage of total users with credit or debit cards who purchased airtime online (Data from a real operator deployment)

Moderate growth with traditional technologies

Data-driven, accelerated growth
Real time
Machine learning
Hyper-personalization

Users adopting service

30%
25%
20%
15%
10%
5%

1 3 5 7 9 11 13 15 17 19 21 23

Months

The above image demonstrates the digital adoption curve among the carrier's entire customer base.

A new economic model for micro-transactions

Cost and margin per transaction

- Profit barrier legacy systems
- Legacy platform cost per transaction
- 20% — Gross margin per transaction
- Cloud and AI platform cost per transaction
- <5%
- **Profit zone**

10% — **100%**

Users adopting services

Cloud and AI break the profit barrier imposed by traditional systems
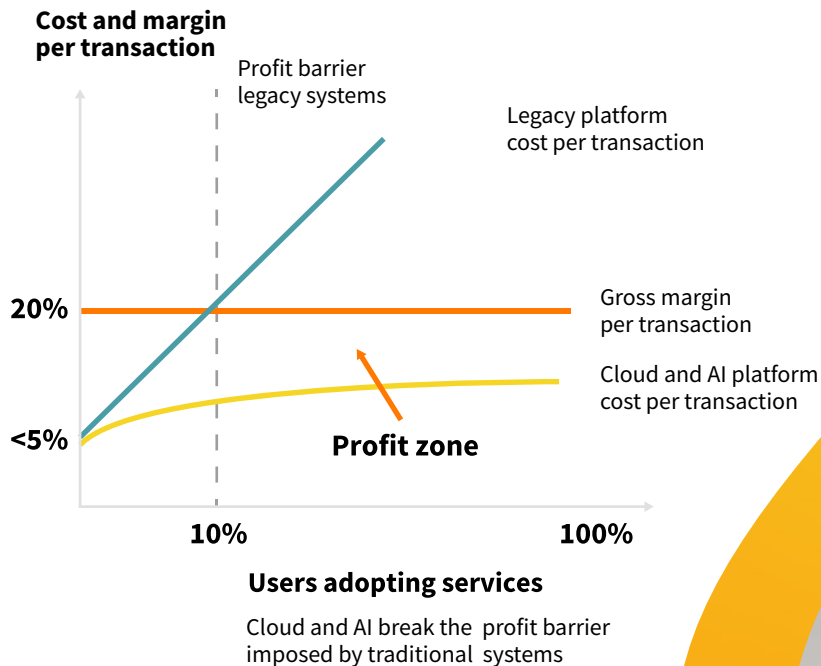
- With traditional solutions the cost for micro-transactions does not scale

- Going beyond 5%-10% penetration increases unit costs beyond economic viability

- AI and cloud enable a new world of marketing power at a fraction of the cost

The above image demonstrates how new cloud and neural network technologies change the economic model for micro transactions.

The distribution of micro-transactions – online payments or loans with amounts of U.S. $1 or less – require an extremely low cost per transaction if they are to be scaled beyond initial early adopters (5-10% of the base).

Acquiring customers with cost-effective campaigns requires user behavior prediction and real-time product offer hyper-personalization. In addition, it is key to engage with users through new digital channels, including WhatsApp, Facebook Messenger and RCS, powered by chatbots and rich media to drive the closing of transactions.

AI and cloud solutions now allow carriers to scale a micro-transaction business to 100% of its user base, something that was cost-prohibitive with traditional options.

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Legacy systems can be a boon rather than an obstacle

Carrier core networks are currently designed to transport data efficiently and safely. This is the carriers' great advantage in facilitating efficient digital transformation. However, core networks aren't engineered to extract and harness customer data at an industrial scale, which are prerequisites for knowledge engineering application. It is this application that makes true digitization and the commercial advantages that it unleashes possible.

Core networks are filled with data from customers accessing social networks, messaging apps, e-commerce sites, payment apps, and so forth, but it isn't used as the powerful business asset that it can be. More carriers are becoming aware of this fact.
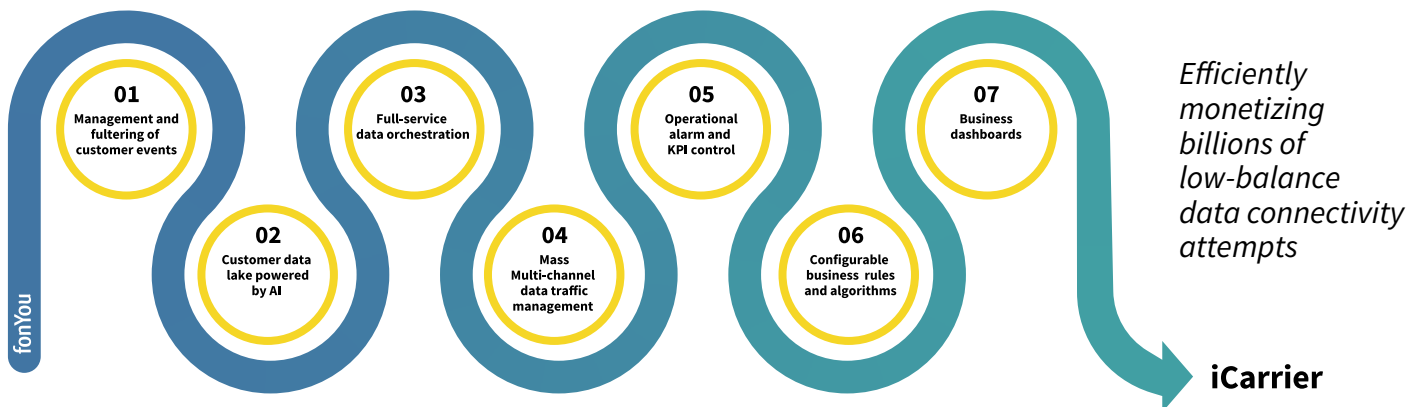
Carriers don't have to replace any legacy systems. In fact, it can work in perfect synergy with machine learning and the cloud. The key is to use these new technologies to reach the full potential within the rich customer data that is running through core networks. Crucially, the amount of data on these networks will only grow further, as more users manage their lives on smartphones, with data-hungry apps and increasingly interconnected devices. The urgency to take proactive measures will only increase.

74% of telecom companies believe "disruptive competition" to be their single greatest challenge, according to an EY telecommunications sector survey

foryou.com

The seminal moment of a generation for carriers

The current period of unprecedented transformation in the telecom industry coincides with other important changes that are already directly impacting carriers. These are demographic developments, with millennials and, increasingly, generation Z, becoming the two crucial cohorts on which to focus, and increasing consumer demands. Customers are much savvier than in previous generations – able to compare providers at the touch of a button on the internet and carry out their own research before buying.

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01
Management and fultering of customer events

02
Customer data lake powered by AI

03
Full-service data orchestration

04
Mass Multi-channel data traffic management

05
Operational alarm and KPI control

06
Configurable business rules and algorithms

07
Business dashboards

Efficiently monetizing billions of low-balance data connectivity attempts

iCarrier

These changes are driving the demand for a hyper-personalized customer experience – the kind in which carriers anticipate their customers' needs and wants before they know it themselves, and via the customer's preferred communication channel, whether it's a call, WhatsApp, Facebook Messenger, or even plain old SMS.

"The digital transformation of telecommunications represents a $2 trillion opportunity for industry and society" - World Economic Forum

The carriers that proactively embrace the seismic shift taking place in the industry, that understand that their very long-term survival may well depend on such an approach, are best-positioned to thrive. This doesn't mean ripping up their current infrastructure at a colossal cost or taking unnecessary risks. Rather, it can mean placing the requisite technologies in artificial intelligence and the cloud alongside legacy technology – to unleash the true power of these legacy systems – and reap the rewards, both in terms of commercial and operational gain, but also in carving a reputation as a forward-thinking, innovative organization.

For the laggards, the carriers that are averse to change, that prefer a wait-and-see approach, the urgent danger is that "sticking to what we know" gifts a competitive advantage to other carriers. After all, pressing forward with operational and commercial processes that belong to a bygone technological era, and which are already being made obsolete by a wave of cutting-edge technology, presents an existential risk.

This once-in-a-generation opportunity is within touching distance and is already in full operation with a number of carriers worldwide. It positions operators to understand their customers like never before, at a granular level, which is the foundational key to creating automated, hyper-personalized products. This opportunity to truly digitize enables carriers to chart an ambitious path forward into a future filled with an abundance of possibilities and commercial prosperity.

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About fonYou

Building the Mobile Carrier of the Future

fonYou transforms carriers into digital, analytics-driven businesses by monetizing billions of customer events and distributing millions of new top-ups, airtime bundles and mobile devices.

Addressing this opportunity, fonYou partners with telcos and deploys its iCarrier platform, a carrier-grade solution that combines AI, sales automation and digital channels to make sure that the right service is activated for the right customer at the right time.

fonYou was founded in 2006, is headquartered in Barcelona and has offices across the United States, Latin America and Africa.

Ready to accelerate your business? **Talk to us...**

Please contact us at info@fonyou.com

Barcelona HQ

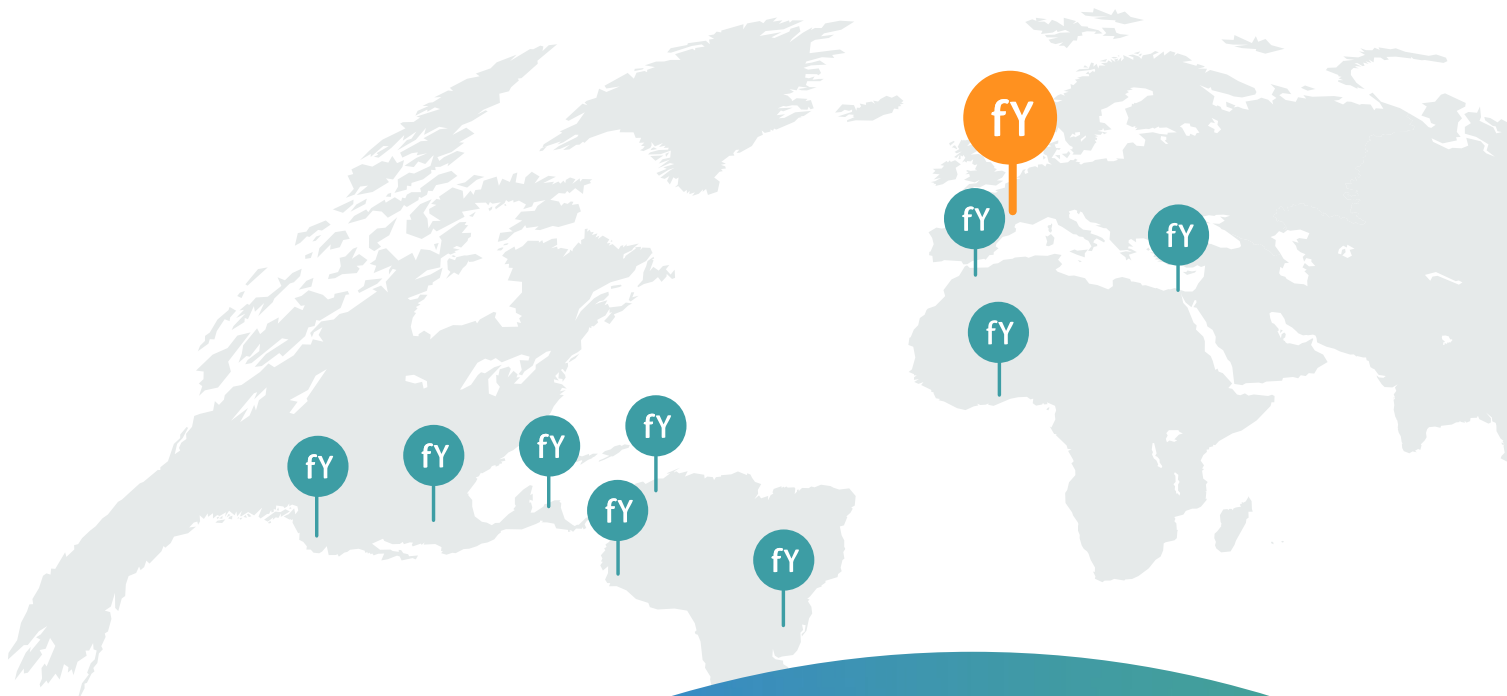fonYou Telecom, S.L.
C/ Llacuna 161
08018 Barcelona
Spain   **Tel +34 668 820 000**

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Nigeria
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Spain

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External Resources

1. **Deloitte**, Digital Transformation for Telecom Carriers

2. **World Economic Forum**, Digital Transformation Initiative – Telecommunications Industry

3. **EY**, Digital Transformation for 2020 and Beyond: Eight Telco Considerations

4. **Nielsen**,The Evolution of the Sustainability Mindset

5. **Forbes**, Big Data: 20 Mind-Boggling Facts Everyone Must Read

6. **Walker**, Customers 2020: A Progress Report

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