28th June – 1st July 2021

MWC 2021: Orange showcases latest innovations in Networks, Cyber Security and Financial Services – visit Hall 3, Stand 3I10 and online via MYMWC*

2020 has shown more than ever how essential connectivity is in all areas of our lives. During the Covid-19 pandemic, on the ground and across its footprint, Orange teams immediately mobilized to maintain and enhance connectivity, enabling everyone to stay in touch with loved ones, access information, study, manage their money, work, learn and remain included in society. At the same time, the year has shown how the environmental and climate crisis calls for major lifestyle changes and how digital technology is also essential for enabling the environmental transition.

Orange is present at Mobile World Congress 2021 both physically and virtually and is revealing a number of new innovations and demos that show how, as we exit the crisis, Orange's leadership – in networks, cybersecurity and financial services in Europe and Africa – is stronger than ever.

LIST OF DEMOS

Below is the list of demos that are shown on the Orange stand. Please click on the title to access the demo description or the video link to see a virtual run-through showcasing the demo via MyMWC*.

Networks:
- Immersive 5G Lab (access demo)
- Enhanced operator : mixed reality for industry 4.0 (access video)
- 5G AR Gaming (access video)
- 5G multi slices on single device (access video)
- 5G and Simulated Reality 3D
- 5G boat drone
- Devices: Neva leaf & Nola fun (access video)
- AI to empower network operations (access video)
- Crowd-detectable zero-energy-devices (access video)

Cybersecurity:
- IoT SAFE (access video)
- Cyberfilter/Malware Cleaner (access video)

Financial services:
- Orange Bank Africa (access video)

NETWORKS

Networks are the foundation of our innovation and a key pillar of Orange's Engage 2025 strategy and as such, a large section of the Orange stand will be dedicated to this area. In 2020/21, Orange is accelerating its development in 5G, fiber, convergence, submarine cables and overall network coverage. The Group has also begun to reinvent its operating model by setting up a new TowerCo, Totem, Orange Concessions in France and a FiberCo in Poland to promote further network development.

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The demos show how a more powerful, smarter and more flexible 5G network will complement and modernize existing networks, helping countries boost competitiveness by opening up new uses to businesses and the general public.

Immersive 5G Lab
The most innovative thing about 5G is what we'll do with it

Orange develops new 5G uses with partners and start-ups in a number of areas and this year, it presents a unique immersive experience on its stand to enable visitors to discover everything that 5G is changing and will change to improve people's lives, across a number of sectors.

For example, for Gaming and Entertainment, you'll be able to see the match from a seat in a box or in the stands and choose the sound environment to hear for example kicks in the ball in 360° augmented reality. For Industry, you can use a control panel to supervise a production line. Plus with the mixed reality headset you can connect to a remote maintenance technician via video, and with the tablet you can retrieve the customer order information in real time to optimize a new logistic route.

We are also showing demos in Health and Wellbeing, Training and Education, Smart Cities and Energy and Mobility and Transport.

Enhanced operator: mixed reality for Industry 4.0
How mixed reality and 5G improve operational efficiency in industrial settings

This demo simulates a maintenance operator intervention on a production line. Equipped with a mixed reality headset, the operator can assess the condition of a malfunctioning machine. The associated equipment (mixed reality headset, interface, network) enables him to access a range of content and data to quickly understand the situation, diagnose the problem and take immediate action to fix it. Virtual information (diagrams, operating mode, etc.) can be overlaid on the real machine thanks to the mixed reality headset so it can be repaired more easily. If necessary, the operator can also reach a remote expert technician via videoconference. By connecting to the operator's mixed reality headset camera, the technician can guide him as well as send additional information to make the necessary adjustments or repairs.

Mixed reality solutions combined with 5G make it possible to visualize and manipulate machines in real time through their digital twins in order to put in place the right corrective actions that avoid breakdowns and keep the machines up and running. In addition, the maintenance operator can access additional information to improve skills and agility.

5G AR Gaming
A new augmented reality (AR) gaming experience leveraging the power of 5G for up to 6 players

Orange has partnered with Niantic who developed a demo to show the exciting potential of gaming

capabilities when powered by our 5G network. This is the first Augmented Reality demo of a game that allows multiple players to play in the same place, simultaneously and enjoy an AR experience through 5G.
The 5G network is evolving to enable more players to enjoy an immersive and unique gaming experience. The first tests carried out via 5G edge computing enabled faster connectivity, more simultaneous connections and greater energy efficiency and therefore longer battery life.

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5G multi slices on single device
Managing quality of service and security on the 5G SA network

This demo is based on a smartphone connected to a 5G network to show both consumer and

business uses. It demonstrates the coexistence of a default internet slice and a dedicated company slice corresponding to an e-health service. The latter is used to transport the data collected by sensors (cardio, blood pressure, temperature, etc.) between the customer's mobile and its doctor during a teleconsultation. Slicing isolates e-health data from generic web traffic and therefore guarantees end-to-end confidentiality with an optimal quality of service. The simultaneous implementation of two slices from a smartphone is a first in Europe and was developed in partnership with Qualcomm Technologies Inc, Oppo, Casa Systems and HPE.

The second demo is based on a slice supporting a remote-controlled robot. If the network is congested, it automatically detects the degradation in the end-to-end quality of service and creates a new slice to recover the performance level required by the robot.

5G and Simulated Reality 3D
A new world of Simulated Reality 3D interaction without glasses, thanks to 5G low latency and high speed

This demo shows how the ultra-low latency offered by Orange's 5G network opens a door to a new world. Two people are interacting with the same 3D virtual object (no glasses, no wearables required) at the same time, in front of two special 3D screens. Both users are able to "touch", to "move" and to "send" the 3D object to the other one, with an impressive effect of volume and depth.

Interaction in real time through 3D objects between two people, in different locations, offers multiple possibilities in countless fields, in medicine, industry, entertainment, etc. This use case shows how 5G will bring us closer to a future in which we will interact, learn, work and entertain ourselves in a new way.

5G boat drone
Navigate a marine drone remotely, thanks to 5G low latency and high capacity

For the first time, Orange presents a new use case in which an unmanned remote controlled boat in the Port of Valencia, with extreme low latency requirements, is controlled from the Orange stand.

The sailboat with two controllers (to manage direction and speed) is handled by a person wearing VR glasses sitting in a static ship located on the stand. Through the glasses, the user can see the image captured in Valencia via a camera located in the actual boat. There is a separate screen for the audience to see both the view from the VR glasses, as well as the actual boat sailing taken from the Port.

The remote marine drone equipped with a 5G modem (CPE) and battery, is configured to send the 360 images and to receive the control command from the stand.

Neva leaf

Neva leaf, the first Orange smartphone developed via an eco-design approach

Neva leaf is one illustration of our commitment, within the framework of our Engage 2025 strategic plan, for 100% of Orange branded products to be eco-designed by 2025. Our eco-design approach looks at the whole device lifecycle to minimize obsolescence, broken screens that are hard to replace, expensive spare parts and more.

Neva leaf benefits from a more robust and modular design that allows customers to replace the battery and screen themselves. It is also designed to last longer through its ability to receive security software updates and is made from 20% recycled plastic to minimize its ecological footprint.

This product supports all the usual smartphone uses while meeting the expectations of consumers looking for eco-responsible, accessible and sustainable products. This demo shows how fast and easy it is to assemble and disassemble the new Neva leaf smartphone.

Nola fun

Nola fun, the new Orange 4G smartphone that is accelerating digital inclusion in Africa and the Middle East (MEA)

Nola fun enables Orange to reaffirm its ambition to be the leading operator in MEA by making digital technology accessible to as many people as possible.

Nola fun comprises:
  - ➢ an exclusive Android device that promotes digital adoption in the region.
  - ➢ a smartphone that meets consumer demand through a large screen, integrated Orange applications universe (Orange & Moi, Orange Money), and 4G mobile broadband.
  - ➢ new financing solutions to buy Nola fun on credit and pay it off over an agreed period through Orange Money.
  - ➢ integrated blocking solution developed by Transsion, which allows financial partners (yet available with Baobab+) to automatically lock/unlock smartphones according to the status of the owner's account.

From June 2021, Nola fun will be sold with a mobile offer (calls, SMS, internet) in most Orange countries in MEA, starting with Guinea Bissau, Senegal and Morocco. This demo illustrates the smartphone lock/unlock experience as described above.

Artificial Intelligence to empower network operations

Network events logs mining and problems root cause identification for core network in Orange Poland

Operational efficiency and Smarter Networks are key objectives for Orange. To help reach those objectives, we must shift from a management paradigm centered on managing siloed network technologies to network operations centered and driven by the data produced by these networks.

For this demo, we present a root cause identification pipeline of network failures enabled by Machine Learning for Orange Poland Networks. We developed a smart pipeline that includes the processing of network logs and events, anomaly detection and visualization of outliers to faster the root cause identification – allowing us to move from using static rules, where we would always monitor the same

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events, to performing dynamic detection of patterns, by analyzing network event logs using machine learning.

This demo shows that automation, AI and Cloud are key enablers to reinvent network operations for increased efficiency and quality of service for customer experience.

Crowd-Detectable Zero-Energy-Devices
Communicate without additional energy, wave and network deployment

This connected device is a game-changer in terms of the sustainability of IoT in the future. It benefits from several unique characteristics. Firstly, it is self-powered using ambient energy; secondly, to communicate, it recycles ambient waves such as TV waves, or the signal already used for communications between smartphones and the network. Finally, it can be detected by the ambient network. When the device is near a smartphone connected to the mobile network, the smartphone detects it and can serve as its "communication gateway". Likewise, the network also detects the device, and can therefore also act as its "communication gateway". Ultimately, this new type of device can connect without an energy source, using zero additional waves or infrastructure. For simplicity, we'll call it "000Device".

This demo presents its benefits for the logistics sector. A transport company can attach a "000Device" on an ordinary package for the latter to broadcast an identifier. The "000Device" is then used to track the package: each time it comes across a smartphone connected to the network, the package is automatically detected, located and time-stamped by the network, which is highly useful for the transport company.

Various prototypes of our "000Devices"are shown including solar tags which can reuse TV / 4G / 5G network frequencies. Among them, we even showcase devices that can be reprogrammed by a smartphone via NFC that were developed by Infineon Technologies AG in collaboration with Orange.

CYBER SECURITY

Orange Cyberdefense has become the leading provider of cybersecurity services in Europe. With the acceleration of business digital transformation, the number of cyberattacks are increasing, quadrupling between 2019 and 2020 (source ANSSI). All economic players, regardless of the size or sector, can be targeted.

Anticipate, detect, identify, protect and respond: this is Orange Cyberdefense's core expertise. As well as being reactive, the business anticipates potential risks and draws on the advantage of its operator activities to differentiate from the rest of the market.
Orange is showcasing how this is done throughout the two demos highlighted below.

IoT SAFE
Secure communications of connected devices thanks to the eSIM

IoT SAFE (SIM Applet For Secure End-2-End Communication) is a new standard specified by the GSMA and TCA (Trusted Connectivity Alliance) in December 2019 with active participation from Orange.

IoT SAFE is an innovative solution that uses the eSIM as a key store to hold cryptographic keys and services. It is designed to resist physical attacks. What's more, it can be remotely controlled by the operator to provision, renew or revoke identification credentials. To secure customers' connected

devices, Orange is developing an entire IoT SAFE ecosystem comprising of: IoT module and SIM makers (Thales), SIM OS and security services providers (Kigen, an Arm Company), operating systems (Arduino PRO), chip manufacturers (Sequans) and Cloud providers (Orange Live Objects).

Orange and Thales are demonstrating IoT SAFE on a Sequans-bases Orange Live Booster module, equipped with a SIM card and cellular connectivity, and using a secure connection to the Orange Cloud (Orange Live Objects). For Orange, deploying IoT SAFE via the future SAM (Secure Applications for Mobile) GSMA standard will be a key success factor in the security and interoperability of tomorrow's world.

Cyberfilter / Malware Cleaner
Protection against cyberattacks via the Orange network and threat detection on all your devices

To protect customers in both their professional and personal lives, Orange offers two innovative and easy-to-use services for protection in the office, at home or on the go: Cyberfilter and Malware Cleaner.

Cyberfilter is aimed at small and medium-sized businesses as well as consumers and helps protect against increasingly diverse computer threats: viruses, phishing and hacking. Cyberfilter is compatible with any type of device because the protection is provided by the Orange network. This means there is nothing to install or update. You are automatically alerted by Orange if you attempt to access a site deemed to be malicious. You can also access online reporting to manage your company's or family's fleet of mobiles and PCs and check for any issues. An "Advanced Cyberfilter" version extends the protection to browsing outside the Orange network (E.G. on public Wi-Fi networks) and comes complete with an antivirus option.

This demo uses a smartphone, tablet and PC to show the Cyberfilter interface and reporting tool that can be accessed via the Advanced Cyberfilter or Orange Business Lounge apps, or via a standard web browser. NB: the Cyberfilter offer is currently available in France for pro and business mobile customers.

Malware Cleaner is aimed at professionals as well as consumers. It detects, isolates and removes malwares by a combination of several anti-virus programs. Initially designed to decontaminate USB devices and computers, it can also analyze Android mobile phones.

Malware Cleaner comes in different forms (customizable kiosk or mini-kiosk, software version or portable key) to adapt to your business environment and requirements.
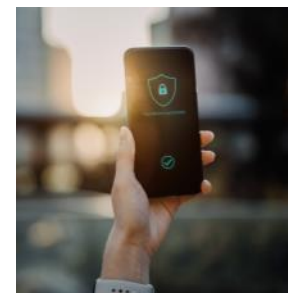
This demo is based on a mini-kiosk to show how an initially infected mobile phone is connected and the threat detected. NB: Malware Cleaner is currently available for pro customers.

FINANCIAL SERVICES

In Orange's African markets, digital technology is a powerful driver of social transformation. While mobile coverage is widespread across its footprint, access to essential services remains difficult for a large part of the African population.

Designing and developing innovative digital services that meet the essential needs of African populations is one of the main priorities at Orange, particularly when it comes to financial services. An example of this is shown through the launch of Orange Bank Africa.

Orange Bank Africa
Access to loans and savings for everyone in Côte d'Ivoire

Thanks to Tik Tak, a digital loans and savings solution launched in July 2020, Orange Bank Africa is democratizing access to financial services in Côte d'Ivoire. Saving the need to go to a traditional bank or branch, customers can open an account directly from their mobile phone in a few clicks and receive validation within 24 hours.
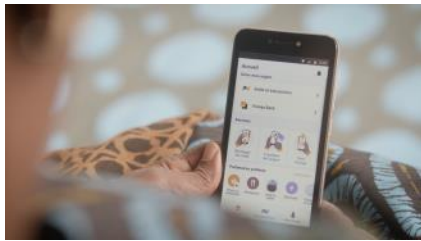
The Tik Tak offer is accessible via the Orange Money account and users can start saving and/or apply for loans from just 5,000 CFA Francs. Once the loan is accepted, subscribers receive money immediately into their Orange Money account. This offer is innovative in its simplicity and instantaneous as it takes less than 10 seconds for the customer to receive their money. It provides an easy user experience and is also accessible to everyone including unbanked populations, without a fixed income and regardless of where they live.

This demo will present the user journey to subscribe to the Tik Tak offer, apply for a loan from the Orange Money mobile app and set up a savings account via Orange Bank Africa.

VIRTUAL DEMO TOURS

Orange is participating in GSMA's demo tours which are live streamed via the MYMWC platform from the first day of MWC, during which a GSMA representative interviews Orange experts on some of Orange's key innovations. Replays of the tours are available throughout the show via the app/ webpage and can be watched on-demand for 30 days after MWC finishes. The details for these can be found below:

5G Virtual Tour with Arnaud Vamparys, SVP, Radio Access Networks and Microwaves Orange Innovation – 5G Group Champion
Highlighting key 5G demos on the Orange stand
Live Monday 28th June, 09.22 – 09.37AM

IoT Virtual Tour with Philippe Lucas, EVP, Orange Innovation Devices and Partnerships
Highlighting key IoT demos on the Orange stand
Live Monday 28th June, 11.42 – 11.57AM

Orange Stand Tour with Michaël Trabbia, Chief Technology and Innovation Officer, Orange
Live Monday 28th June, 13:00 – 13:30PM

Replays are available for the duration of the show, the full agenda can be found here:
www.mwcbarcelona.com/agenda

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The Group is present in 26 countries. Orange is also a leading provider of global IT and telecommunication services to multinational companies, under the brand Orange Business Services. In December 2019, the Group presented its new "Engage 2025" strategic plan, which, guided by social and environmental accountability, aims to reinvent its operator model. While accelerating in growth areas and placing data and AI at the heart of its innovation model, the Group will be an attractive and responsible employer, adapted to emerging professions.

Orange is listed on Euronext Paris (symbol ORA) and on the New York Stock Exchange (symbol ORAN).
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