CTExcel
QoS Wheel & Super SQI
Travel Recovery & Steering Optimisation
E2E Network Configuration
Elisa Automate
Making Roaming Relevant to a Local SIM Buyer
Roaming 360
Unlimited Data Package
IoT Networks for Digital Health Programmes
Omnichannel Trip Planner & ILD Guided Flow
Travelpass Bank
Vodafone Messaging Hub

ROCCO

THE
MNO
INNO**V**
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2O2I

**Featuring: China telecom Global, CKHIOD,
Elisa Finland, Ooredoo, Rakuten Mobile, STC Kuwait,
Telecom26, Verizon, Vodafone**

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BEHIND EVERY ROCCO REPORT IS A GREAT TEAM

ANTONIO RODRIGUEZ MERELLO

Antonio is the Lead Researcher at ROCCO. Having an economics background, his main strengths are in linking business insights with academic debates for the telecommunications sector. Among other publications, has has co-authored prominent reports of the telecommunications industry such as The Innovators 2020 or the ROCCO IOO.

JASON BRYAN

Jason is the CEO of ROCCO based at ROCCO HQ in Spain. He has overseen the last 7 years of in-depth monthly research on Industry Analysis, Vendor Performance, Market Intelligence and Market Pricing in the Roaming and Interconnect space. Jason was the founder of ROCCO in 2012, building on 25 years experience of Roaming and Interconnect roles in Vodafone, Telefonica Groups and a number of Vendors, as well as GSMA Chairmanship roles.

DHIRAJ WAZIR

Dhiraj is the CEO of ROCCO Strategy and one of the few subject matter experts in the Telecommunications field of Roaming & Interconnect. Dhiraj has spent over 19 years working on Roaming Wholesale, Product Management and Retail Propositions. Dhiraj has had a broad remit, building his telecom career with the Hutchison group, T-Mobile, EE and BT before joining ROCCO. Dhiraj is based in London, UK.

INTRODUCTION

Although there are many ways of defining the telecoms industry, one of its quintessential traits is the overwhelming presence of buzzwords. In this regard, innovation is arguably among the top used words, this quite often adds more confusion than clarity.

As a research company, ROCCO aims to provide more clarity and this is the major reason why we conduct the Innovators research. In other words, giving the credit to those who push boundaries is a crucial task for the benefit of the industry. Moreover, in this year's edition, the focus has shifted towards operators.

Why The MNO Innovators?

In recent times, with the disruption seen from chat apps and other tech giants, it's been suggested that Mobile Networks Operators (**MNOs**) are not the most innovative of companies. Having a history of working in MNOs and working with them, the team at ROCCO thinks differently.

For decades, MNOs have been the ones working with or instructing the industry on what is needed. They serve as a catalyst to change and often take the driving seat in standards innovation as well as developing solutions for themselves they just can't find on the market. Following on from ROCCO's The Vendor Innovators study where we ranked the top **50** most innovative vendors in our sector, it's now time to recognise the MNO's innovative solutions and the teams behind building them.

ROCCO IOO was all about recognising great people in our industry, recognising the people who make the Messaging, International Roaming, Interconnect & Fraud and Security world go round. It was greatly satisfying for us and brought us great insights.

This got us thinking .. so if there are so many great people in our industry, it really must be bursting with new ideas and innovations. What about the innovative solutions that take place within MNOs? How do we find these unsung heroes? We want to recognise and celebrate them. And whilst we do that, reignite that spark our industry needs to put INNOVATION back on the centre stage.

METHODOLOGY

NOMINATIONS

The nomination phase of the MNO Innovators had the following rules. First, anyone in the industry could nominate any MNO or Mobile Virtual Network Operator (**MVNO**), including self-nominations, for an innovative solution that had been implemented preferably in the sector of:

- **Messaging**
- **International Roaming**
- **Fraud & Security**
- **Interconnect**

The solution should have been implemented in the last **3** years. It could be a new process, a new retail plan, a new service or even a new tool. The nomination steps were the following:

1. The nominator entered the survey.
(The nominator can be an MNO/MVNO/vendor from the telecom industry)

2. They selected the MNO and the Country of the MNO.

3. They then explained which Innovative Idea the Operator had and in which sector.

4. They also provided information on why they thought this was innovative.

5. They shared, if possible, a representative contact of the nominated MNO.

6. They provided their contact details in case ROCCO needed to check anything about the nominated innovation.

7. ROCCO then reached out to the nominated MNOs and informed them of the nomination, and requested further information which was used in the voting and judging phases.

8. If the MNO did not provide this requested information, the nomination would have been withdrawn and the specific innovation would not have taken forward to the next stage.

The nominations closed on the **20th November 2020.**

VOTING
Voting opened on the 18th of February 2021

ROCCO gathered information about the innovations and shared this information so that voters could judge the innovations on their merits.

Voters were able to see the list of MNOs and their innovations and voted for whom they wanted:

o They entered the Voting survey.

o They selected the innovation they thought is the best, and rated it on various parameters.

o They also provided a brief statement on why they thought this was the best innovation

o Although MNOs were allowed to nominate themselves, they, however, were not allowed to vote for themselves.

Then it was handed over to ROCCO's panel of independent expert judges to rank.

(ROCCO employees including its directors were not eligible to nominate or vote)

ANALYSIS
The analysis stage ran between 1st April and 30th April 2021. The point of this stage was to rank the ideas according to the below two elements of their votes which hold equal importance in the overall ranking.

1) The ratings as voted by industry colleagues and stakeholders

2) Ratings by a panel of independent judges

RESULTS
The results of The MNO Innovators research was announced at Genesis-2021 (ROCCOs annual event) that took place on May 20th 2021 online and through this report.

o The MNOs with the highest-ranked solutions will be invited to take part in interviews and a photo shoot at a location and date to be determined.

o They will be invited to give keynote speeches at Genesis on a date to be communicated.

o On May 20th 2021 the MNO Innovators report will be published showcasing all the best innovations we have received as ranked by you, our industry colleagues and the judges.

THE JUDGES

We were honoured to have a fine selection of judges from all around the globe. In ROCCO we firmly believe that diversity is a strong asset that, among other things, provides a richer perspective. This a fundamental trait in the process of assessing innovation.

A business strategist and telecommunications professional, Atim Akeh-Osu possesses a diverse background in telecoms operations and management. Her 20 years experience span across Carrier relations, International Roaming, Marketing & Strategy and Enterprise Business where she has delivered dynamic models for business efficiencies and consistently supports several digital transformation initiatives. Distinguished for expertise in cross-functional coordination, she has led teams to achieve personal and organisational potentials. She believes in the evolution of the telecommunications industry and supports innovative solutions as a means to industry sustenance and relevance in our fast-paced digital world.

ATIM AKEH-OSU

KIM JACUBOWSKI

Kim name was announced in the ROCCO 100 in 2020 as one of the top 25 most influential people in our industry. She is well-versed in both wireless and wireline telephony, leading multi-million dollar contract negotiations, vendor & project management, technical implementations, financial analysis and network support. Managing the complete wireless product lifecycle – emphasizing new and emerging technologies and geared towards maximizing revenue while providing strong customer growth and satisfaction. Kim is one of the industry experts and, because of this, she has built a strong community around her which has helped support the development of telecoms.

Simon Wingrove is the Specialist Solutions Director at BT where he is responsible for a broad portfolio of high growth P&Ls and specialist businesses spanning A2P Messaging, IoT, Drones, Security and Logistics. Simon has a strong and varied entrepreneurial pedigree in both the corporate and start up environments, leaving him well-placed to fulfil his broader remit of identifying and incubating new, non-core, commercial opportunities for BT.

SIMON WINGROVE

Theodosis is the Chief Commercial Officer of PrimeTel PLC and has been involved in telecoms for more than 15 years. In 2020 he was recognised as one of the Top 25 people in Roaming & Interconnect. His wide knowledge encompasses areas such as Carrier Relations, Roaming or Strategic Planning.

THEODOSIS THEODOSIOU

Boon Chee is responsible for the Bridge Alliance's roaming and product development areas. With strong experience in roaming, innovation, emerging technologies, business development and partnerships. Prior to joining Bridge, he spent more than 26 years in the telecommunications & ICT business. He was most recently leading the Product and Innovation Group in a fast growing digital services mobile operator in Indonesia, Smartfren, as well as held various management roles in Singtel, Starhub and Telkomsel leading product development, IoT, project deliveries, advanced communications digital services and regional businesses.

LOO BOON CHEE

THE INNOVATORS: OVERVIEW

Over the years ROCCO has released several studies that focus on the innovation contribution of telecom vendors. Our goal is twofold since, firstly, it is important to recognise the companies that push boundaries by introducing new products and services. Moreover, this information has a high value for all players in the telecoms industry as it helps them in refining their decision-making process. innovation is arguably a contentious concept since many companies employ it too often which, at times, makes it a pointless term. In the view of Drucker (2002), innovation is the set of actions implemented by an entrepreneur that creates new wealth-producing resources or enhances existing resources with more potential.

Following this idea, in this report, ROCCO identifies innovation as the process behind the design and implementation of new technologies and services that, among other things, provide a better user experience or improves existing processes. The measurement of innovation and what its actual impact consists of can also be a subject of debate. In the 2020s The Innovators Market Intelligence Report, we used the following classification provided by Creative Realities (2015).

LEVEL OF INNOVATION DESIRED
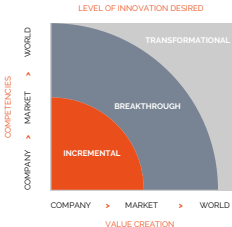
This page features a description of innovation levels from an MNO perspective.

INCREMENTAL INNOVATION

Operators who make incremental innovations based on existing solutions. This consists of small, yet meaningful improvements in products, services, and other ways in which they do business. These tend to be the "new and improved" innovations. They can be easily visualized and quickly communicated and give MNOs something new with which to grab attention in an increasingly noisy marketplace

BREAKTHROUGH INNOVATION

Operators whose innovations lead to breakthroughs in our industry. This is a meaningful change in the way they do business that gives their partners or customers something demonstrably new (beyond "new and improved"). A breakthrough innovation produces a substantial competitive edge for a while, although the length of time anyone can maintain such an advantage is growing increasingly shorter.

TRANSFORMATIONAL INNOVATION

These are MNO innovations that transform our industry altogether, potentially creating new industries or radical changes in how we work. This generally consists of the introduction of a technology that creates a new industry and transforms the way we live and work. This type of innovation often eliminates existing services or, at a minimum, totally transforms them. For this reason, transformational innovations tend to be championed by those who aren't wedded to existing infrastructure. All in all, transformational innovations are exceedingly rare.

In the previous Innovators report, we used two attributes for each innovation level.

INCREMENTAL INNOVATION

FAITHFUL

The attribute faithful denotes those kind of MNOs who always faithfully make incremental changes to their solutions in a reliable way. Those companies that provide products that do not usually have defects or complaints, they are also innovative to support specific client needs and their products evolve every year.

COLLABORATOR

An operator is considered a collaborator when it works with partners to make incremental changes to its solutions. It produces innovations that reduce their costs, increasing their quality or providing them with efficiency gains.

BREAKTHROUGH INNOVATION

INTREPRENEUR

Intrepreneur is the attribute that denotes a breakthrough innovation through an operator culture where, internally, staff are encouraged to think like entrepreneurs, starting start-up style thinking and products and services inside the business. In essence, these are the MNOs that exploit innovation opportunities in the market, take risks in developing new products or services and keep an innovative stance despite success or failure.

CHALLENGER

A challenger MNO breaks through as an innovator by challenging the existing processes and products and looking to really innovate the telecommunications industry. They play an active role in the development of new standards also challenge current standards to improve the landscape for the whole industry and drive it forward through innovation.

TRANSFORMATIONAL INNOVATION

VISIONARY

A visionary is the kind of operator that wants to make its mark by transforming the industry and making it follow its vision. In order to be considered as visionary, an MNO must invest in research and development (**R&D**), but also be open-minded and think proactively about where the industry is heading.

INVENTOR

Finally, the inventor operator is the epitome of a transformational company. It cannot settle with traditions and needs to be always looking to advance the industry with benefit to all. In other words, inventors have original ideas as well as inspire other companies and make customers feel excited about their new products.

GENERAL INFORMATION

From Finland to Kuwait we have a diverse selection of MNOs that have participated in this study. The regional distribution is the following, there is **1** operator based in North America while both Asia and Europe have the highest representation with **4** operators in each of them.

WHERE ARE THE MNOs LOCATED?

4

● EUROPE

● NORTH AMERICA

● ASIA

1

4

LOCATION & INNOVATIVE COUNTRIES

BLOOMBERG 2021 INNOVATION INDEX TOP 10

2021 RANK	COUNTRY	SCORE FROM 0 TO 100
1	SOUTH KOREA	90.49
2	SINGAPORE	87.76
3	SWITZERLAND	87.60
4	GERMANY	86.45
5	SWEDEN	86.39
6	DENMARK	86.12
7	ISRAEL	85.5
8	FINLAND	84.86
9	NETHERLANDS	84.29
10	AUSTRIA	83.93

Source: Bloomberg (2021)

The Bloomberg Innovation Index assesses innovation across countries according to a set of criteria such as patent activity or research concentration. In ROCCO's The Innovators 2020, we decided to use this index as a reference of how innovation in the telecoms industry relates to these results.

In the previous report, **23** out of the **50** companies featured were based in the top 10 innovative countries. In the MNO Innovators, there are **2** operators based in Switzerland (**Telecom26 AG**) and Finland (**Elisa Finland**). All in all, these MNOs arguably benefit from being based in countries where a strong innovation culture exists.
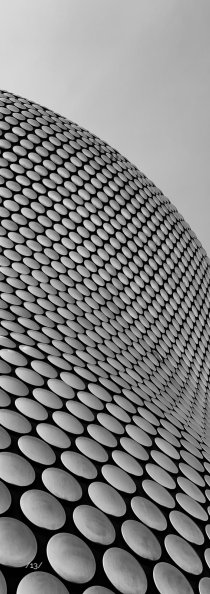
INDUSTRY CHALLENGES

In this section we cover some of the major industry issues that ROCCO has retrieved from different surveys. One of ROCCO's goals as a company is to contribute to the improvement of the telecommunications industry by creating a platform to discuss positive developments, but also, about what needs to be improved.

WHOLESALE ROAMING

The following comments are retrieved from ROCCO's Wholesale Roaming report 2020. We asked operators about which they consider as the main pain points in the area of wholesale roaming.

In essence, roaming billing and settlement is one of the main sources of dispute for operators. There are high expectations of upcoming technological developments which can tackle these issues such as Billing Charging Evolution and Blockchain. Nevertheless, the speed by which these technologies will spread across the industry depends on how MNOs identify the benefits of adopting them.

"Billing Reporting attitude towards innovation"

"Discount agreement processes. Re-neg, -> contract signature -> contract implementation (TAP) -> tracking -> settlement require multiple contacts between RPs due to slow/no reaction etc. The whole process is cumbersome, and needs automation"

"Lack of capacity/experience to adapt business models to COVID-19 situation"

"IOTs Negotiation"

"Outbound Roaming and bill shock (Financial risk over time)"

"Negotiations with vendors ... in my opinion, only a few of them listen to your needs as an MNO and very often come up with module-based solutions which at the end are very expensive to have a completely reliable solution at hands!"

MESSAGING

The messaging ecosystem presents one feature which undeniably distinguishes it from other areas of telecoms. It is the prevalence of SMS, despite the fact that it was developed in the 1990s. Moreover, our research indicates that in 2020 A2P SMS volumes increased significantly, which primarily was caused by the derived effects of the COVID-19 pandemic. After conducting several studies on messaging, ROCCO highlights the following issues:

GREY ROUTES

Grey routes is one of the recurring topics concerning A2P SMS. In this regard, it is worth comparing the estimated percentage of grey routes of total A2P SMS traffic.

IN 2016 42%	IN 2020 29%
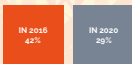
The above graphic shows the average percentage that grey routes represent of the total in the view of A2P SMS vendors. There has been a positive evolution since the average percentage was **42%** in **2016** and currently is **29%**. Nevertheless, further efforts need to be implemented to completely clean the ecosystem.

WHAT IS HAPPENING WITH RCS?

After years of anticipation, where there have been developments on the standards side and the involvement of tech giants, RCS messaging remains a niche option. Considering its attractive features, in a nutshell, combining the advantages of OTT messaging and SMS, many would ask themselves why this is not the leading messaging channel.

On the operator side, the major complaints are about the lack of clear standards and the insufficient support for operators by industry bodies. As a result, adoption by MNOs remains weak which also hinders the rise of this messaging channel. Nevertheless, A2P SMS dominance will eventually fade in the coming years. Specifically, some voices point out that this will take place in the second half of the 2020s.
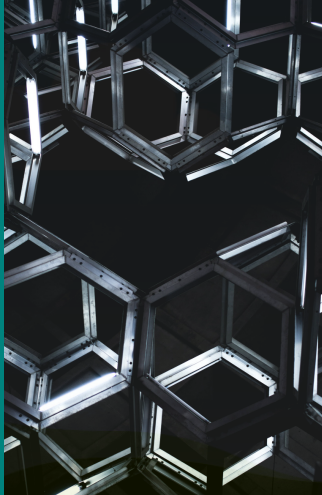
MNO PROFILES

The following pages feature general information of the participant MNOs, a summary of the solution they are presenting and comments from voters who explain why their solution is innovative.

CHINA TELECOM GLOBAL

- **HQ Location:** Hong Kong, China
- **Year of Foundation:** 2012
- **Company Type:** Listed on a Stock Exchange
- **Number of Employees:** 1001-5000
- **Services Offered:** Internet direct access, internet transit, data services, broadband, unified communications, internet data centre, cloud computing, ICT services, fixed and mobile voice and value-added services, multi-domestic MVNO and global IoT connectivity service, professional services, industry solutions, telecom operation consultancy and service outsourcing

China Telecom Global (**CTG**) is presenting **CTExcel** its scope is twofold as it features both a multi-domestic MVNO and a global IoT solution. Among other things, these solutions fill the gap derived from the lack of a seamless multi-national one-stop-shop mobile/IoT solution in the market.

In the case of the IoT solution, its major advantage relies on the fact that it enables a broad range of business cases, which includes well-known companies in different industries. Moreover, it allows obtaining revenues from products such as cloud and transmission, which are driven by the IoT solution. Conversely, the MVNO allows using CTG's capabilities across different areas. The services included are Voice, SMS, Mobile data services & overseas payment, One-Card-Multi-Number, eSIM, a 24-hour bilingual hotline and other value-added services (**VAS**).

On a final note, CTG is planning to, among other things, upgrade the solution to support VoLTE One-Card Multi Numbers and provide 5G seamless coverage.

"Absolutely new idea"

"They have a global vision with a focus on IoT and 5G"

"Best fitting business needs"

CKH IOD HUTCHISON

- **HQ Location:** London, UK
- **Year of Foundation:** 2018
- **Company Type:** Listed on a Stock Exchange
- **Number of Employees:** 51-200
- **Services Offered:** IoT, Enterprise Services, Data Analytics, MVNO Services, Digital Products and Services and Private Networks

CKH IOD Hutchison is the participant with the highest number of solutions, which are **E2E Network Configuration Automation**, **QoS Wheel & Super SQI** and **Travel Recovery & Steering Optimisation**.

The key goal of **E2E Network Configuration Automation** is to overcome the shortcomings derived from the handling of a vast amount of IR.21 documents per week.*All in all, this has a considerable impact on the number of hours and people that are focused on this administrative task. Considering these shortcomings, this solution aims to optimise the following processes:

- Improvement of the E2E time for updating the network
- Reduction of manual operations
- Minimisation of the exposure to potential human errors

The idea behind **QoS Wheel & Super SQI** comes from the existence of a vast amount of data that is not properly aggregated. This hinders both the review of the data and, consequently, proper decision-making. Moreover, this solution represents a breakthrough as it aims to address customer experience, as traditionally, the focus has been stronger on the operational quality of service (**QoS**).

The QoS wheel is based on delivering a single quality indicator (**SQI**) to measure quality monitored via:

- Active monitoring
- Passive monitoring
- Customer experience monitoring

The **Super SQI** is the output from the QoS wheel that allows prompt detection, analysis and benchmarking. Among other things, it combines multiple sources of data related to the E2E management of QoS and customer experience. All in all, it builds a single quality number by comparing and aggregating SQI coming from different sources.

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*This solution is developed in conjunction with 3 Scandinavia & Roamsynhext

Last but not least, **Travel Recovery & Steering Optimisation** is the third solution that **CKH IOD** is presenting. The motivation behind creating this solution is based on the derived circumstances of the COVID-19 pandemic where the level of uncertainty is unprecedented.

To tackle this issue, **CKH IOD** has developed a forecasting tool that uses artificial intelligence (**AI**) with an innovative range of hard and soft measures such as COVID-19 cases, number of flights or social sentiment. In essence, this provides different scenarios that drive a better understanding of future roaming traffic patterns, which is key information for roaming teams.

> **"To me, this is by far the most innovative as it is using AI to solve real-world problems today. I am sure the use of this type of technology to augment human intelligence will become an integral component for all complex decision making in the future. Great example."**

> **"In future, the QoS and capability to monitor, enhance and develop E2E connectivity automatically and precisely become more and more important. Artificial Intelligence and Machine Learning can help operator a lot to achieve better efficiency."**

> **"Travel recovery is very relevant to the current situation and applicable across partners as long as the right data feeds into it."**

ELISA FINLAND

- **HQ Location:** Helsinki, Finland
- **Year of Foundation:** 1882
- **Company Type:** Listed on a Stock Exchange
- **Number of Employees:** 1001-5000
- **Services Offered:** Telecommunication, ICT and Visual Communication

Elisa Automate is a virtual networks operation centre (**NOC**) that is based on the establishment of autonomous networks.

One of its major impacts is that it transforms NOC management from a labour-intensive approach to an automated operation centre. By implementing automation, it is possible to have both KPI monitoring automated as well as a refined customer impact analysis. Other advantages worth mentioning are:

- Cloud-ready virtual NOC which enables automatic resolution and predict faults
- AI/Machine Learning improves resolution time and customer experience
- Over 90% of the issues now solved without human intervention

> "Several innovative initiatives turned into global products including the Zero Touch Virtual NOC solution"

> "Elisa Automate is a great overarching initiative that serves more than one purpose. It's about efficiency, both in terms of cost as well as in keeping the world green with energy consumption reductions"

> "Due to accomplishment with the latest technologies and easy to go for it"

OOREDOO KUWAIT

- **HQ Location:** Safat, Kuwait
- **Year of Foundation:** 1999
- **Company Type:** Listed on a Stock Exchange
- **Number of Employees:** 1001-5000
- **Services Offered:** Telecom, mobile, wireless internet, telecommunication, operator, Internet, Voice plan and Data

Ooredoo Kuwait is presenting **Making Roaming Relevant to a Local SIM Buyer (Roaming SIM)** which addresses the issue of travellers preferring to buy local SIMs instead of using Roaming. To overcome this issue, Ooredoo is providing a SIM card where roaming works in a pre-decided country with a sufficient voice and data quota and validity of 30 days. This eliminates the concerns of having bill shocks or running out of validity and the ability to connect to more than one operator.

Among the major benefits of this solution we find:
- Unmatched coverage in the visiting country since Local SIMs will only give 1 network
- Adequate Internet / Calls Allowance - No need to try and understand the foreign country rules of calling or internet usage
- It is possible to buy the SIM in the comfort of your home and pay in the local currency of Kuwait and Have it delivered in familiar surroundings

"Relevant for COVID times"   "Unique USP"

"It's very sharply targeted to address
a real pain and very smartly done"

RAKUTEN MOBILE

- **HQ Location:** Tokyo, Japan
- **Year of Foundation:** 2014
- **Company Type:** Privately Owned
- **Number of Employees:** 1001-5000
- **Services Offered:** Rakuten Mobile, E-commerce (Rakuten Ichiba, Rakuten Books...), Card & Payments, Life & Leisure support services, Communications & Energy & Mobile, Investment, Sports, Digital Contents, Open EC, Affiliate, Securities, Bank, Insurance y Travel

Roaming 360 is the name of **Rakuten Mobile** solution. One of the major challenges associated with roaming management is the complexities associated with handling the data which, overall, delay the decision-making process.

This solution goes beyond the idea of a roaming analytical system as it provides data but with a business logic that allows refined decision making. Due to its automated functioning, it prevents human errors in sensitive areas such as Steering of Roaming, which may negatively affect operational costs. Another interesting feature of **Roaming 360** is that it users can create unlimited KPI's as per their own need. Last but not least, this solution presents different modules which can be modified according to the strategic needs of the operator.

"I think it is the most innovative solution that will help in gathering data and information related to roaming business despite of its complexity"

"Global roaming is not easy but Roaming 360 made it possible"

"Coming from an operational role I think the solution provides ease of creating higher efficiencies. A lot of day to day operations need not be messy, simple ideas that can translate visually for the layman to use in my view is most innovative and effective for change. Especially when it comes to organisational transformation, implementing new technologies that do not shift the status quo too greatly has a better impact in the long run due to faster adoption."

STC KUWAIT

- **HQ Location:** Salmiya, Kuwait
- **Year of Foundation:** 2008
- **Company Type:** Listed on a Stock Exchange
- **Number of Employees:** 501-1000
- **Services Offered:** Telecommunications services and Digital services

STC Kuwait's solution is the **Unlimited Data Package** which consists of offering customised data packages with a huge data quota. With a length of 7 days, an unlimited quota is offered in 9 countries and it also provides 1 GB for the rest of the world. The quotas offered in the package vary according to the location where the customer is roaming.

From a business model perspective, this solution enhances customer experience as it allows freedom of data usage in targeted destinations. Moreover, the creation of the data packages has no direct impact on operating costs.

In the future, **STC Kuwait** aims to enhance the coverage of the data packages.

"Very high usage capacity with a reasonable price covering more than 110 destinations"

"Pioneer in providing services and Quality of service with the maximum coverage"

"In times of high data consumption, having an unlimited data package will drive more people to purchase it hence increasing the revenues"

TELECOM26 AG

- **HQ Location:** Zug, Switzerland
- **Year of Foundation:** 2012
- **Company Type:** Private Company
- **Number of Employees:** 51-200
- **Services Offered:** IoT Solutions, Roaming, 2FA: Two-factor Authentication, Steering, Security, VPN, Trusted, Firewall, Static IPs, SIM Provisioning, Portal access, Global Connectivity, Scalability, M2M, Mobile Data Connectivity, SIM, SIM Management Portal and Global Connectivity

IoT Networks for Digital Health Programmes is the solution presented by **Telecom26** and is based on the idea of mobile health (**mHealth**). Specifically, the solution is targeted to overcome the lack of health services cover in developing countries derived from weak infrastructure. This is crucial as the recurrence of infectious diseases is higher in these countries, and hence, the likelihood of pandemic outbreaks is higher.

The partnership with SystemOne creates a connectivity-enabled ecosystem that provides greater visibility and understanding of the diagnosis within the communities. All in all, this creates a more effective and targeted disease response plan. **Telecom26** provides Multi-IMSI global SIM cards that enable devices to automatically access and switch networks both in-country and across borders. Moreover, the multi-SIM routers allow using always the best performing connected network. The major achievements of this programme are the reduction of time from patients arriving at the clinic to starting treatment and the decrease in diagnostic error rates.

"Because it uses connectivity technology to improve healthcare in remote areas by making Dx more efficient. In other words it helps to save lives"

"It is taking an underserved market and helping move it to the future"

"The ability to rapidly process and collect remote diagnostic data has been shown to be critical, particularly during the pandemic. This case study shows how healthcare can be delivered to even the most regions while leveraging the latest digital solutions."

VERIZON

- **HQ Location:** Baskin Ridge, USA
- **Year of Foundation:** 1983
- **Company Type:** Listed on a Stock Exchange
- **Number of Employees:** +10001
- **Services Offered:** Telecommunications Global Leader, Information Technology Global Provider, Entertainment Services & Global Security Solutions Provider service, professional services, industry solutions, telecom operation consultancy and service outsourcing

Verizon is presenting two innovations that are focused on roaming. **Omnichannel Trip Planner & International Long Distance (ILD) Guided Flow** and the **Travelpass Bank**.

The first solution primarily aims to simplify the process of choosing the right plan for roaming on the consumer side. This provides an enhanced customer experience as well as a revenue increase by driving uptake of the best-fit international plan and decreasing customer-care costs. Specifically, the solution is implemented via an international plan recommender available across all channels for Roaming & ILD:

- MyVerizon App
- MyVerizon Online
- Care

The **Travelpass Bank** is **Verizon**'s International Travel Plan that allows customers to use their domestic plan for a daily fee. Moreover, customers can earn free TravelPass days in several different ways. In essence, the **Travelpass Bank** is a repository where free TravelPass days can be stored and tracked. The main benefits of this solution are:

- Improved customer satisfaction as customers have a full view of all of their free TravelPass days
- Availability of reassigning the days to another user if they wish
- A reduction in calls to Customer Care teams

VODAFONE GROUP

- **HQ Location:** Newbury, UK
- **Year of Foundation:** 1982
- **Company Type:** Listed on a Stock Exchange
- **Number of Employees:** +10001
- **Services Offered:** Mobile & Fixed Telecommunications and Technology

Vodafone is presenting the **Vodafone Messaging Hub** (**VMH**) which tackles the need for a single source of a reliable and reputable set of services for Aggregators and Operators. This is particularly important in a context where fraud is becoming ever more sophisticated and wholesale customers are looking for more secure solutions.

The concept of the solution is the VMH Secure Messaging Shield that offers security reassurance. The main features are:

- AI fraud and bypass detection
- Rules-based firewalling
- Vodafone Group collaboration on fraud
- Industry collaboration with MEF, GSMA, GLF and i3F
- Account Takeover Protection (**ATP**), Match, Number Verify, Recycle, and Tenure secure identity services

One of the biggest benefits of VMH is that it provides a one-stop shop for secure messaging, RCS and identity services. This is achieved by implementing the following technologies:

- A combination of rack and cloud-based technology
- Standard interfaces and APIs
- Online portals enabling self-serve

> **"SMS Hubs are required in our business and with Vodafone background, this should be a big complex implementation"**

VOTING
RESULTS

INNOVATION BENEFITS

It is worth analysing how voters identify in which areas these innovations have a stronger impact, we asked voters: **Which benefits do you consider this innovation brings?**

Please note that some innovations are not featured in this section as they were not considered innovative by the voters.

The options considered represent the following categories:

- Revenue Creation
- Revenue Increase
- Costs Savings
- Operational Efficiency Creation
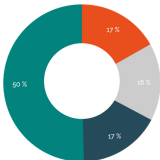- Customer Experience Improvement
- Other
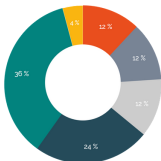
CHINA TELECOM GLOBAL CTExcel

For CTExcel, **36%** of voters identify it as a solution that will improve customer experience. The second-most voted option is the creation of operational efficiency (**24%** of votes).
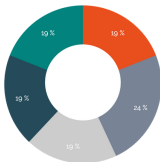
- It Will Create a New Revenue Stream
- It Will Increase Existing Revenues
- It Will Save Costs
- It Will Create Operational Efficiency
- It Will Improve Customer Experience
- Other (please specify)

CKH IOD HUTCHISON
QoS WHEEL & SUPER SQI

Half of the respondents consider that QoS Wheel & Super SQI is innovative because it will improve the customer experience. The rest of voters emphasise the creation of new revenue streams, cost savings and the creation of operational efficiency.

- It Will Create a New Revenue Stream
- It Will Increase Existing Revenues
- It Will Save Costs
- It Will Create Operational Efficiency
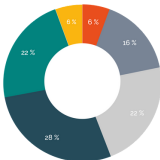- It Will Improve Customer Experience
- Other (please specify)

CKH IOD HUTCHISON
TRAVEL RECOVERY & SoR OPTIMISATION

24% of respondents highlight the Travel Recovery & SoR Optimisation as a solution that will increase existing revenues. The remaining categories have the same percentage of respondents (**19%**). Therefore, this solution is perceived to be useful for a wide range of areas.
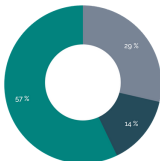
- It Will Create a New Revenue Stream
- It Will Increase Existing Revenues
- It Will Save Costs
- It Will Create Operational Efficiency
- It Will Improve Customer Experience
- Other (please specify)

ELISA FINLAND
ELISA AUTOMATE

Being a NOC, it is expected that the most-voted option (**28%** of votes) for Elisa Automate is that it creates operational efficiency. Other aspects highlighted are the improvement of customer experience or cost saving (**22%** each). One of the respondents provided the following comment:

"Eco-friendly"

- It Will Create a New Revenue Stream
- It Will Increase Existing Revenues
- It Will Save Costs
- It Will Create Operational Efficiency
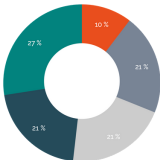- It Will Improve Customer Experience
- Other (please specify)

- It Will Create a New Revenue Stream
- It Will Increase Existing Revenues
- It Will Save Costs
- It Will Create Operational Efficiency
- It Will Improve Customer Experience
- Other (please specify)

OOREDOO KUWAIT
ROAMING SIM

More than half of respondents (**57%**) highlight Ooredoo's Roaming SIM as a solution that improves customer experience. The second-most voted category is the increase of existing revenues with **29%** of votes. Finally, only **14%** of voters highlight is potential of creating operational efficiency.

RAKUTEN MOBILE ROAMING 360

In the case of Roaming 360, the distribution of votes is similar across the categories. The most voted option is the improvement in customer experience by **27%** of voters. Moreover, the increase of existing revenues, costs saving and the creation of operational efficiency has the same percentage of votes (**21%**).

- It Will Create a New Revenue Stream
- It Will Increase Existing Revenues
- It Will Save Costs
- It Will Create Operational Efficiency
- It Will Improve Customer Experience
- Other (please specify)

- It Will Create a New Revenue Stream
- It Will Increase Existing Revenues
- It Will Save Costs
- It Will Create Operational Efficiency
- It Will Improve Customer Experience
- Other (please specify)

STC KUWAIT UNLIMITED DATA PACKAGE

Nearly a third of voters (**32%**) identify this solution as an enhancer of customer experience. It is also identified as a solution that increases existing revenues according to **25%** of voters. Similarly, **23%** stated that it will create a new revenue stream.
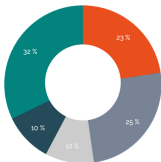
**TELECOMS26
IoT NETWORKS FOR
DIGITAL HEALTH PROGRAMME**

The majority of voters identify this IoT-based solution as both an operational efficiency creator and as a way of improving customer experience. One of the respondents provided the following comment:

"Delivering healthcare is vital for public welfare and fighting critical illnesses. These are the benefits."
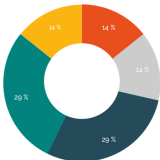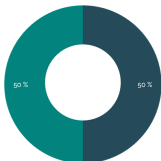
- ● It Will Create a New Revenue Stream
- ● It Will Increase Existing Revenues
- ● It Will Save Costs
- ● It Will Create Operational Efficiency
- ● It Will Improve Customer Experience
- ● Other (please specify)

**VODAFONE GROUP
VODAFONE MESSAGING HUB**

For the Vodafone Messaging Hub, the percentage of votes is the same (**50%**) across the two selected options. This solution is considered both as an efficiency enhancer and as a way of improving customer experience.

- ● It Will Create a New Revenue Stream
- ● It Will Increase Existing Revenues
- ● It Will Save Costs
- ● It Will Create Operational Efficiency
- ● It Will Improve Customer Experience
- ● Other (please specify)

INNOVATION LEVELS

As discussed on page **9**, in this report we are using an innovation classification that features the following levels: **Incremental**, **Breakthrough** and **Transformational**. The following graphic shows how the solutions relate to these innovation categories based on the judges' opinions.
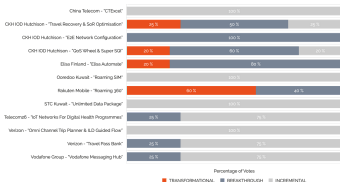
The results show that **CTExcel**, **Roaming SIM**, **Unlimited Data Package** and **The Omni Channel** are unanimously considered as incremental solutions. For the breakthrough level, the **E2E Network Configuration** is the only innovation that is considered as a **100%** breakthrough.

The remaining solutions are a mixture of the innovation levels. For instance, both **Roaming 360** and **Elisa Automate** are considered as both transformational and breakthrough. In contrast, the perception about two of **CKH IOD**'s solutions is even more mixed since it is perceived as representing the three innovation levels.

INNOVATIONS RANKING

ROAMING 360

ELISA AUTOMATE

QUALITY OF SERVICE WHEEL & SUPER SGI

TRAVEL RECOVERY & SoR OPTIMISATION

E2E NETWORK CONFIGURATION

CTExcel

VODAFONE MESSAGING HUB

TRAVELPASS BANK

IoT NETWORKS FOR DIGITAL HEALTH PROGRAMMES

OMNI CHANNEL: TRIP PLANNER & ILO GUIDED FLOW

UNLIMITED DATA PACKAGE

ROAMING SIM

The innovations ranking has been computed by considering both the ratings of the first round of voters and the ratings provided by the judges. The solutions are ranked according to their overall score.

Roaming 360 by **Rakuten Mobile** is the top solution and it is followed by **Elisa Automate** (**Elisa Finland**) and the **QoS Wheel & Super SGI** (**CKH IOD Hutchison**). Remarkably, both **Roaming 360** and **Elisa Automate** are innovations from operators located in top innovative countries. Therefore, this points out the influence that location has on innovation for MNOs.

OPINIONS ABOUT
THE INNOVATIONS

This section covers the comments that both voters and judges provided about the **Top 5** innovations and other solutions. This information provides a deeper understanding of the potential impact of the solutions as well as their main features.

ROAMING 360

"This solution covers plenty of ground, tackling a universal market challenge head-on and delivering a clear line of sight to the commercial potential. The modular construct lends itself well to key internal user groups. The only note of caution being that to replicate the solution does require firm data/BI foundation"

"Gives a 360 view of roaming business both in wholesale and retail, with an easy to understand dashboard, saving time for many internal teams and extensive analytics for further use."

"Impressive submission. This solution is all-encompassing. It addresses most of the challenges roaming teams encounter regularly and serves as a cost-effective one-stop-shop for new and existing roaming resources wherein the commercial and technical teams' interoperability is enhanced by the efficiency of these solutions. Worthy of note are the Registration, Stay period, Silent roamer and the autopilot solutions. Interestingly, the systems monitoring alarm repeatedly beeps and continues to escalate if not resolved within agreed SLAs. "

"If the solution delivers what it promises, it will be an excellent tool that will guide good roaming business decisions drawing inputs from various data sources. It can help drive roaming revenues as well as help better costs management at the same time. If the data can be further extended to retail offers, it can also be used to recommend the appropriate retail offers. I see many angles of value and benefit from this innovation."

"The convergence of multiple data points critical to building a 360 view of the roaming landscape can be a real game-changer in providing flexibility on cost-saving options, new revenue opportunities and overall performance all of which lead to an excellent customer experience."

ELISA AUTOMATE

"Use of AI and analytics to improve operations - customer experience, operational costs with proven results. In such a competitive environment operators should use AI in operations to achieve better results."

"As many MNOs migrate to the world of a virtual core network, being able to take this step further with the agile flexibility to react and even predict system faults and be transformative when it comes to providing an excellent customer experience."

QUALITY OF SERVICE WHEEL & SUPER SQI

"Roaming configurations are a crucial part of an overall roaming experience and still a major concern to many operators. With the complexities of the IR21 in RAEX format, many operators ignore or miss out on certain important elements. The E2E network configuration automation extracts the required fields and updates the respective nodes using python scripts for accuracy. If an operator is assured of accurate network configurations, network quality and roaming experience improve for roamers."

"Lends itself to being applied as a market standard scoring mechanic for roaming quality by territory, helping simplify complex KPIs and prioritise activity plans."

TRAVEL RECOVERY & SoR OPTIMISATION

"A compelling use of AI/ML technologies to facilitate accurate forecasting and incorporate extraordinary events."

"Whilst implementing this may be a challenge, the idea to leveraging on non-telco data and draw insights to predict roaming will be extremely powerful. The challenge will be to be able to identify the accuracy and timeliness of the various data sources for the tool to be useful, but I like to concept and idea. The prototype can be a smaller scale based on certain sets of data sources and be expanded over time."

E2E NETWORK CONFIGURATION

"Useful tool in Roaming that can save time and human errors in wholesale and technical departments of MNOs"

OTHER SOLUTIONS

"The CTExcel IoT and MVNO submission is a brilliant solution. It however addresses a specific category and is not as rounded and global in its approach."

"Vodafone messaging hub is a useful tool for MNOs and B2B as a one-stop shop for SMS needs and protection."

"All the submissions are great ideas in their own ways - some more so for domestic application, whilst others have the opportunity for wider deployment. Hope to see even more innovations in future similar events!"

"Innovation is often what takes place behind the scenes and I applaud all of the MNOs for thinking outside the box when it comes to improving efficiencies and customer experience."

CONCLUSIONS

The main purpose of this study is to change the general perception about MNOs not being innovative enough.

ROCCO firmly believes that the solutions presented in this report exemplify that operators are committed to thinking outside the box. These innovations encompass a wide range of use cases. For instance, some are focused on the customer while others address the processes associated with roaming management. Moreover, these solutions also feature emerging technologies such as IoT or AI.

One interesting finding of this study is that two of the Top 3 solutions (**Roaming 360** and **Elisa Automate**) are considered as both Breakthrough and Transformational. This points out that innovations that present these features are also perceived as the most innovative. In contrast to 2020s The Innovators report, only **2** out of **9** operators are located in the top leading countries. Therefore, in the case of MNOs location does not have a strong impact on innovation.

On a final note, ROCCO wants to acknowledge all participant MNOs for their interest in this initiative and for sharing the information about their solutions. In **2023** we intend to conduct a similar study with operators and their innovations.

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The images that have been used in this report have been taken from the following photographers Adrien Olichon, Dominic Bonilla, Gerry Roerty, Golubovy, Josh Sorenson, Meric Dagli, Valentin Lacoste and Yousef Alfuhigi.

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