GENESIS MAGAZINE MADE FOR INNOVATORS BY ROCCO

ROCCO

GENESIS

The People Behind BCE

BUSINESS EDITS:
MNOS: THE UNSUNG HEROES UNDER ATTACK!

INDUSTRY IMPACT:
10 YEARS OF ROCCO

OPINION 360:
ANURAG AGGARWAL
MANUELA MONTAGNA
ANTONIO RODRIGUES
PATRICK GATT

WHOLESALE ROAMING: WHAT LIES BENEATH?

SEPT 2022, EDITION 2

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THE ISSUE...

REBUILDING THE INDUSTRY POST COVID IS A BLESSING IN DISGUISE, LET'S TAKE THE CHANCE TO DO THINGS DIFFERENTLY, WITH INNOVATION AT ITS CENTRE...

While birthdays are always a time to celebrate, for ROCCO the start-up created 10 years ago this month, this year is a special one. The sparkling drinks are flowing, the cake is being served, join us in celebrating 10 years of ROCCO. This second edition of the Genesis magazine has been a delight to bring together. Not only because contributions have been forthcoming to our news desk at ROCCO HQ, but because it seems everyone is looking for a new way to get their message across. This is a magazine for our industry, but more than that, it's a magazine focussed on innovation. In this edition we made four interviews: featuring opinions from Anurag Aggarwal (Tanla) the ROCCO 100 number one most influential person, on his amazing career. We spoke to Manuela Montagna (CKHIOD) on innovation from her unique perspective looking at QoS. And we learned how the Wholesale Roaming world looks from the perspective of two small but very innovative operators. We interviewed Antonio Rodrigues (Unitel T+ Cape Verde) and Patrick Gatt (Go, Malta). We also asked all the BCE Suppliers to tell us which of their co-workers were working on BCE and they shared with us insights on their companies directions on BCE. Dhiraj Wazir has made a great article on the constant abuse mobile networks are experiencing in our industry and I managed to make quite a few private interviews on what the industry finds are the main challenges with Wholesale Roaming innovation. If you're doing something innovative in the industry, and you're interested to be featured in an upcoming issue of Genesis or you have some ideas or innovations to share why not reach out to me. Our next live event is next May 23rd to 25th and is another great opportunity for transformative thinking.

Editor-in-Chief

JASON BRYAN /
JASON@ROCCO.GROUP

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HAPPY BIRTHDAY INTERNATIONAL ROAMING, 40 YEARS OLD THIS MONTH

The first international roaming agreement was launched in September 1982 between Scandinavia and Finland.

It wasn't until 1989 that the GSM Standard was created.

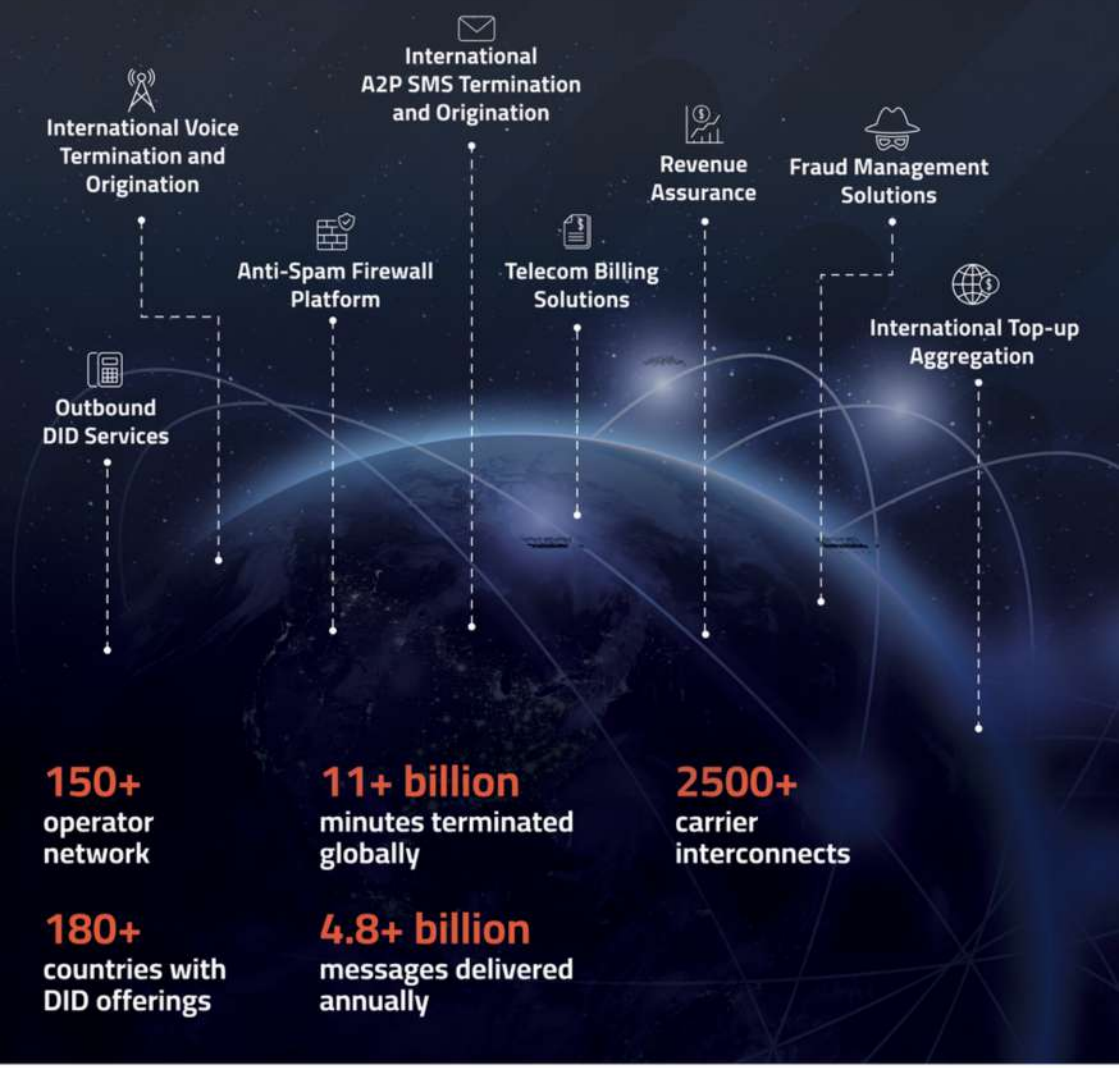
Then in 1992 the first GSM International Roaming agreement was signed between Telecom Finland and Vodafone Uk and the first sms was sent.

MMS is also 20 years old this year, and so is the very first Camera phone.

Looking at the history of Roaming, it's still relatively young. How are you going to contibute to the future of messaging and roaming history?

ROCCO 10TH ANNIVERSARY
Commemorative T-Shirts

Leveraging Customer Touchpoints with Innovative Telco Solutions



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"WE NEED TO ADAPT
OUR MINDSET,
TO MOVE FROM
TRADITIONAL
SERVICES,
TO THE FUTURE"

JASON BRYAN INTERVIEWS:

MANUELA MONTAGNA

ROAMING QUALITY OF SERVICE AND CUSTOMER EXPERIENCE MANAGER - CKHIOD

Illustration by Kimberly Carrera

Photo credit: Benjamin Voros

TO THE FUTURE

Jason ROCCO
Thanks for taking the time Manuela to answer some questions with us! First some introductions. What is your role in CKHIOD?

Manuela CKHIOD
It's a pleasure to chat with you Jason, I am roaming Quality of Service and Customer experience manager for CKH IOD. As QoS manager I am looking after roaming quality for various services and technologies in different scenarios, including future proofed scenarios. I am leading the coordination across our affiliates including knowledge and best practice sharing.

Jason ROCCO
Sounds exciting, what is CKHIOD currently working on?

Manuela CKHIOD
CKH IOD is part of the Telco business of Hutchinson Group. IOD stands for Innovation, Opportunities and Development: those are the drivers for all our work. To mention a few macro focuses of the company:

- Around 5G - we work on identifying and implementing new product and services to leverage on 5G investments.

Manuela CKHIOD

- Around Enterprise - we work on market enterprise products and solutions such as IoT, Private network.
- Around data monetisation - we innovate with data to create measureable and powerful solutions.
- Around improving sustainability – we work on new sustainability products and sustainability initiatives such as emission reductions targets

Jason ROCCO

That's an exciting role. In your view, what is the biggest industry challenge we are facing these days?

Manuela CKHIOD

New system and new technology providers require operators to adapt to a new paradigm. The Main challenge for me is about this paradigm shift. We need to adapt our mind set, to move from traditional services to the future.

The traditional services we are used to are going to disappear since brand new use cases are the ones our industry has to implement. 5G capabilities are the foundation of these new use cases: if we think to the popular picture from the ITU summarising 5G usage scenarios, that picture condenses in a perfect way future services.

Mobile operators at all levels of the organisation need to re-think their propositions whether it is for retail or wholesale, and whether it involves customer service or end customer perception, to comply with the new paradigm. Systems and service providers can implement and offer enhanced mobile broadband capability, or ultra reliable and low latency communication, or again massive machine type communication. New system and new technology providers require operators to adapt to a new paradigm.

How will those services evolve or transform or replace 4G services that we know and are used to selling? That is the challenge, bringing 5G use cases to reality.

"THE INDUSTRY SHOULD FIND THE RIGHT BALANCE BETWEEN HAVING VISION AND BEING PRAGMATIC."

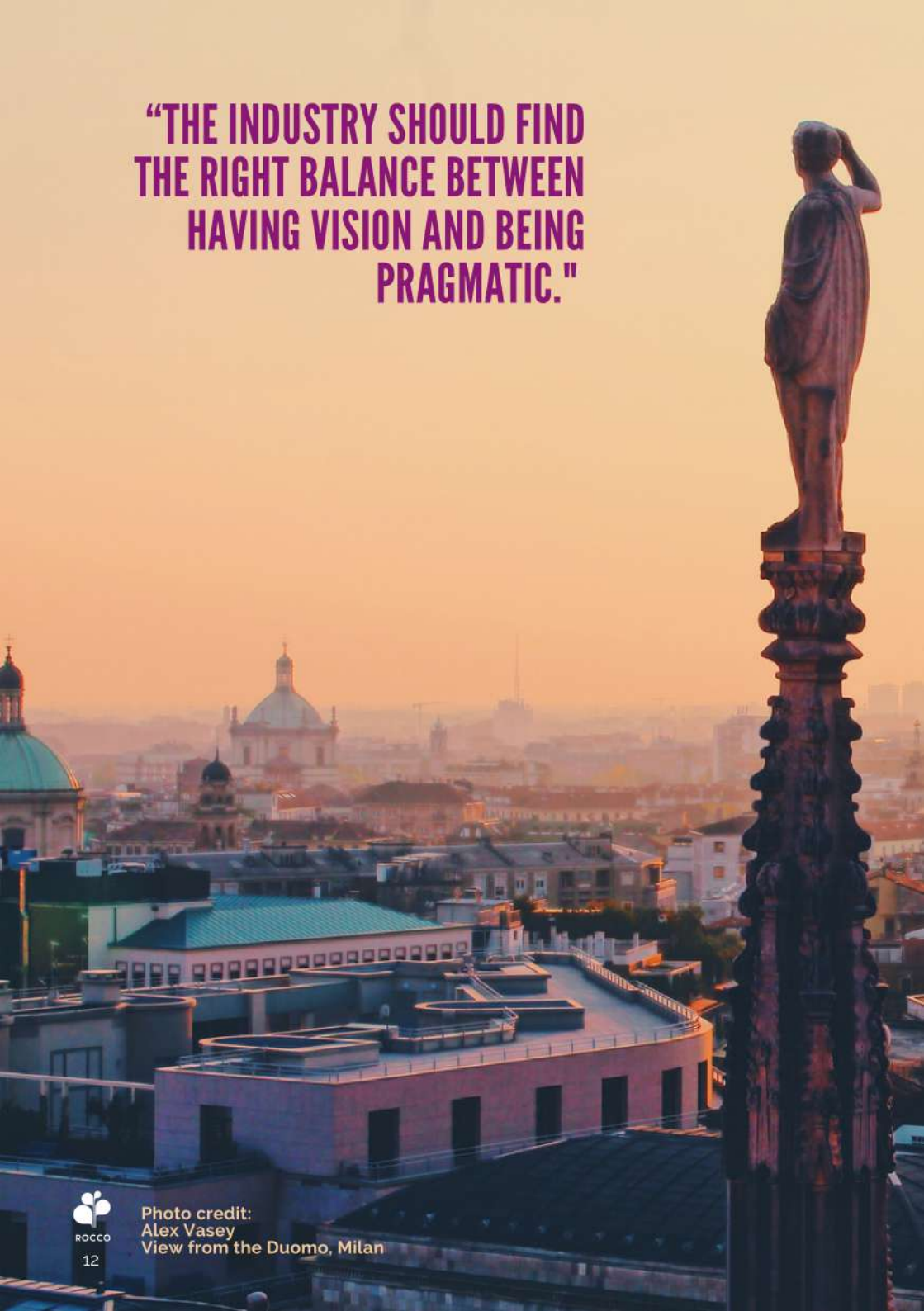


Photo credit:
Alex Vasey
View from the Duomo, Milan

"WE NEED TO CULTIVATE VISION TO KEEP UP WITH THE TECHNOLOGY PROGRESS, BUT WE ALSO NEED TO ACKNOWLEDGE THAT TECHNOLOGY CAN ONLY PROGRESS IF WE ARE ABLE TO QUESTION OURSELVES WHEN WE COME ACROSS A SHOWSTOPPER, TO DIVERT FROM THE ORIGINAL VISION IN AN AGILE WAY."

Manuela CKHIOD

UHD, VR, AR services can be implemented via EMBB, mission critical services, remote surgery, autonomous or remote controlled car service can be implemented via URLL, Internet of things services like smart cities which serve billions of different devices can be implemented via MTC.

- How are we going to offer those services?
- What is customer perception of those services?
- How can we monitor quality for 5G services?
- What is quality for 5G services?

5G infrastructure needs to meet the subscribers level of service expectation and mobile operators have to consider customer experience where customers are becoming more and more conscious and demanding.

Telecom customers are more digitalized these days, they are used to to self service subscriptions, high speed, and they are also less tolerant of a drop in quality of service. Mobile operators have to leverage on their digital capability to enhance customer experience and they have to meet the customer quality of service expectation.

What is quality for 5G services? What is E2E QoS vs Network Slicing QoS?

Network slicing QoS is fundamental in 5G, while E2E quality is fundamental to measure network service for accessibility, availability, retainability, speed and quality and by also considering customer perception of the service quality.

Jason ROCCO

Thanks for explaining what is clearly a fundamental project for our industry. Based on the impacts you present, what changes in the industry would you like to see?

Manuela CKHIOD

The Industry should find the right balance between having vision and being pragmatic. We need to cultivate vision to keep up with the technology progress, but we also need to acknowledge that technology can only progress if we are able to question ourselves when we come across a showstopper, to divert from the original vision in an agile way.

More proactive cooperation between "commercials" and "technicals" when it comes to selling propositions will help in finding the right balance between the "right to sell" and the "right to sell the right performance".

Jason ROCCO

In ROCCO we are celebrating 10 years. How do you think ROCCO has made a difference in the last 10 Years?

Manuela CKHIOD

ROCCO has been supporting mobile operators for a long time. It has been a reference for roaming, research and analysis and it has provided great insights to help MNOs better tailor their roaming propositions.

A turning point in ROCCO's collaboration with mobile operators was when IO was formed. IO is the differentiator in the roaming business: it gives operators the ability to meet and share thoughts during plenary sessions in a free and agile way.

A major milestone on the IO journey has been the creation of LABS, giving the ability to approach various matters from a technical perspective, to have vendors on board to be part of the technical discussions, and most important to give opportunities for input, share best practice for implementation, issue troubleshooting. What I appreciate most is the ability to bring together operators and vendors with different profiles, commercial and technical. And give the opportunity of brainstorming and understanding different perspective of same concepts.

Coming with a technical background it has been great experience to confront people approaching the same matters I am working with, but who bring different perspectives.

Jason ROCCO

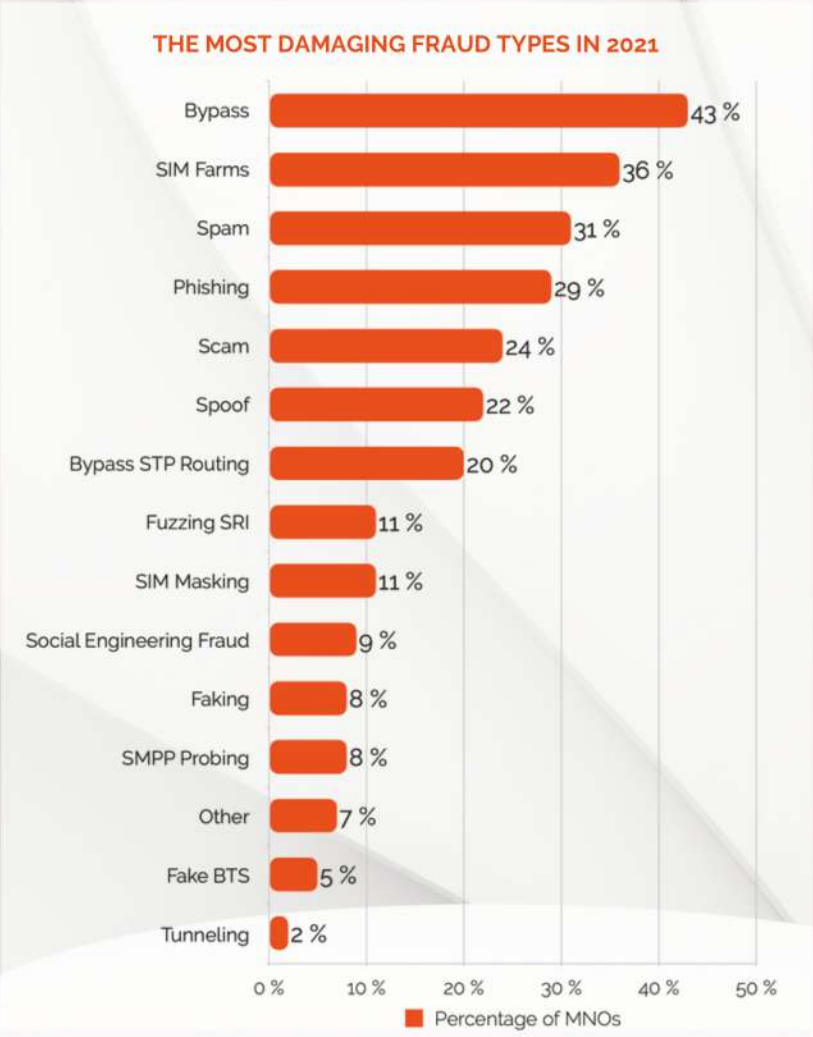
Manuela thank you once again for speaking to us and congratulations on your presentation at ROCCO Genesis this year it was really great to hear your perspective.

Manuela CKHIOD

Thank you for very much for the opportunity.

ROCCO RESEARCH INSIGHT

In our recent **SMS Firewall Vendor Benchmarking Report 2022,** we asked specifically which of the specific SMS frauds have hurt operators the most. **Which of the following fraud types have harmed you the most in 2021?** Please note that respondents could select more than one option.



The results show that Bypass, SIM Farms and Spam are the most harmful types of fraud in the view of operators. Also, among those that indicated other threats, we find flash calls, voice OTP or the new threat of 2021, Flubot.

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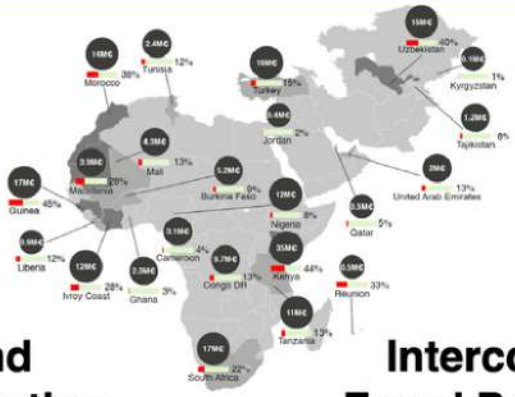

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- Roaming
- Mobile Money
- M2M, IoT
- 5G

Interconnect Fraud Protection

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- Voice Simbox
- CLI Refiling

To know more about A2P SMS infection rates, contact:
Frederick van de Weghe I Chief Commercial Officer
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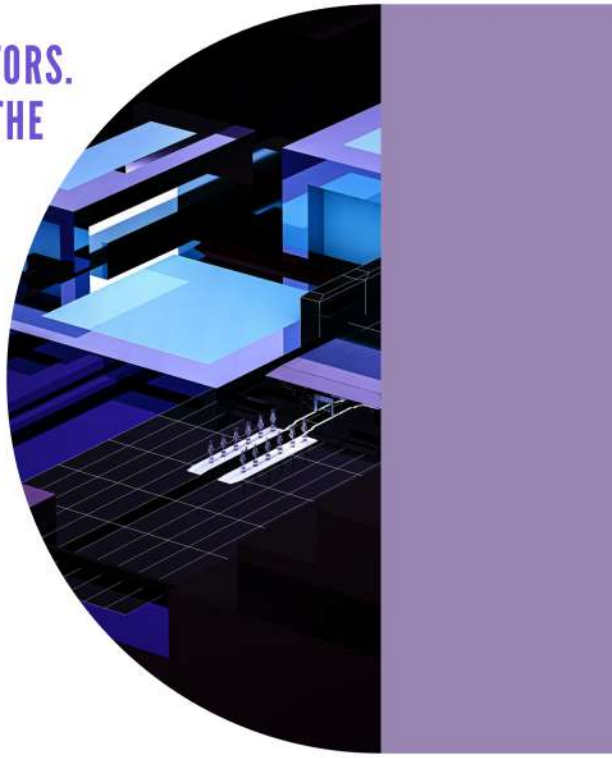
MNOS:

THE UNSUNG HEROES UNDER ATTACK!

BY DHIRAJ WAZIR
CEO ROCCO STRATEGY,
DIRECTOR LABS AT IO

KICKING THE MOBILE OPERATORS. WHY DO MNOS ALWAYS GET THE ABUSE?



I'm sure you've heard the cliché that "good guys never win". Perhaps we are born with a sort of blindness where we can't differentiate between goodness and weakness. It's no wonder that so many good kids in school get bullied or when the nice guy is always the one who gets taken advantage of. I wonder if that's why Mobile Operators have become soft targets over the years and anyone at random can come and have a pot shot without any consequences.

I write this, as recently I was very disturbed to see facts getting twisted to a such a degree that it would make even a rubber band feel embarrassed in its elastic capabilities! There were papers and presentations being made to any institution naïve enough to listen "to raise issues about emergency calls with VoLTE". Without even a basic understanding of how emergency calls work. This led to many operators being called by their regulators and asked for explanations.

Without going too much into it, it suffices to say a lot of valuable time a resource was wasted.

The whole incident reminded me of the funny anecdote which goes something like this 'An immature boy is asked by his mother to do at least one good deed a day. The next day, when the boy arrives late from school, the mother inquires as to why he was late. The boy goes, "To do my good deed for the day I helped an old lady cross the road".

The mother is obviously very proud, but yet surprised and asks "but why did it take you 30 mins to do this?" ... and the boy goes, "well mom, what could I do ... she didn't want to cross the road and I had to keep dragging her across!"

So why is "let's go kick the mobile operator" becoming such a popular pass time? Are they perhaps profiteering because they now run services that we just can't do without? Or have they lost their social conscience, technology killing off any values of humanity that were there.

So lets start to look for some heart and soul in the midst of all this technology.

The fact as clear as day is, be it volcanoes, earthquakes, war, floods, Tsunamis or other such major disasters it has always been the Mobile operators at the front announcing that they won't be charging for their services during the disruption. During such major incidents the prices of all major staples go up, water, food, fuel. (The value of my car nowadays doubles every time I fill it up with fuel! ... think about it). And in this backdrop, it's only the Mobile Operators (pretty much across the globe) announcing that they will not charge for Roaming or International calls.

OTT PLAYERS WITH NO REGULATORY OVERVIEW OR OBLIGATIONS COMPETE WITH OPERATOR SERVICES WHILE USING THEIR INFRASTRUCTURE, WHY?

From the UK I can report that, whenever there has been a major disaster in any part of the world, be it an unpronounceable volcano in Iceland grounding flights, a Tsunami in Indonesia creating mayhem, an earthquake disaster in Haiti, or the current war in Ukraine. It's the mobile operators who have been the first to announce that they won't charge for services in or to these countries. As I write this, EE in the UK has just announced that they won't be charging for roaming or international calls in Pakistan as it's been hit by floods. (I can almost visualise many of you nodding your heads as you have also seen this in your country.)

Have they all gone crazy? I look very hard, but it's difficult to find instances of businesses who make their services available for free when they see a huge spike in demand. But hey, let's go kick the mobile operators anyway!

My first brush with mobile phones was in India in 1995 when they were just introduced, and at the time 1 minute of a Mobile telephone call cost an eye watering $ 0.18/min, to put things in context the price of loaf of bread was around $0.06, and the price of a litre of petrol was around $0.23. Today there is no such thing as a price of a minute of call, you get unlimited calls as part of your plan which can cost as low as $2/month !! A loaf of bread on the other hand costs nearly 9 times more to a whopping $0.50 and a litre of petrol has jumped more than 5 times to $1.20. But who cares, it's easy just to go and kick the Mobile Operator.

It's also worth reminding ourselves, that while Mobile Operators must be extra careful when talking to their competitors and ensure that they respect anti-competitive laws (as they rightly should), this happens in the backdrop of OPEC the biggest cartel in the world flourishing and controlling the price of oil, and no one bats an eye lid, even when the whole world is facing an energy crisis.

Mobile operators pay billions of dollars in license & spectrum fees, billions more in building communication networks under strictest of regulatory regimes, when in parallel OTT players with no regulatory overview or obligations compete with operator services while using their infrastructure, why? Because it's just easy to go and take advantage of the nice guy.

Perhaps it's time for the nice guys to stop being modest, in today's day and age it's not enough just to be nice you also must remind everyone and re-educate everyone about the phenomenal services that mobile operators provide and often absorbing costs when other industries wouldn't dream of it.

Perhaps it's time for governments and other self interest groups to realise that their energies be much better used by calling out the likes of OPEC and ensuring that the value of my car is NOT a function of how much fuel is in the tank!

Dhiraj is the CEO of ROCCO Strategy and one of the few subject matter experts in the Telecommunications field of Roaming & Interconnect. At ROCCO Dhiraj is responsible for driving ROCCO's consulting business. Dhiraj has had a broad remit, building his telecom career with the Hutchison group, T-Mobile, EE and BT before joining ROCCO. Dhiraj was responsible for the complete overhaul of EE's wholesale roaming product set and building products & processes that have now been adopted by rest of the industry.

https://www.linkedin.com/in/dhiraj-wazir/

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ANTONIO RODRIGUEZ MERELLO- LEAD RESEARCHER AT ROCCO RESEARCH INTERVIEWS:

MEETING OF THE ANTONIOS

Illustration by Kimberly Carrera

ANTONIO RODRIGUES

INNOVATION & NEW BUSINESS MANAGER UNITEL T+ CAPE VERDE

MEETING OF THE ANTONIOS

Antonio Rodriguez Merello, Lead researcher from ROCCO Research recently spoke with Antonio Rodrigues , Innovation and New Business Manager at Unitel T+ in Cape Verde.

Antonio ROCCO

Thanks for taking the time Antonio to answer some questions with us! First some introductions. What is your role in Unitel?

Antonio Unitel T+

My name is Antonio Rodrigues. I'm working in Unitel T+ telecommunication since 2007, currently as Innovation and New Business Centre Manager.

Antonio ROCCO

Sounds exciting, what is Unitel T currently working on?

Antonio Unitel T+

Unitel T+ is a mobile operator in Cape Verde. We started in 2007 only in the mobile segment, but today, we are a global operator. We are offering not only mobile services to our clients, but we are offering mobile and fixed services to all our clients, we have particular clients, residential clients and also enterprise clients. So, Unitel today is working in all the segments from the telecommunication system, not only voice, SMS and data, but we are also introducing new kinds of content which is TV and all this kind of content related to TV solutions.

"FOR ME, TELECOMMUNICATIONS HAS ALWAYS BEEN AT THE EDGE OF THE CHALLENGE... SPECIFICALLY 2022, HAS BEEN THE YEAR THAT INTENSIFIES THIS CHALLENGE."

Antonio ROCCO

A very wide remit, based on your perspective, what is the biggest industry challenge these days?

Antonio Unitel T+

Well, for me, telecommunication has always been at the edge of the challenge. Specifically 2022 has been the year that intensifies this challenge. So, I think that the industry during this last time has embraced new networking services, new applications such as 5G, increasing competitivity of the broadband markets and Cybersecurity and risk management. But I think that the biggest challenge for the industry during this last time, it will be to migrate from the legacy network to the more modern infrastructure. So, I think this will be the biggest challenge for the near future.

Antonio ROCCO

In ROCCO we are celebrating our 10th birthday. May I ask since you seem to like our work if you think we make a difference to the industry?

Antonio Unitel T+

Well, this is a very nice question because since a long time ago, I think I have been following ROCCO. In fact, I have been following ROCCO since the beginning, if I'm not wrong since 2012.

I have grown at the same time I have seen ROCCO also growing in this environment. So, it has been a very nice road because during this time, every time that I was trying to find something, ROCCO was the first source of information that came on my search. So, Research was something that has brought me closer to ROCCO, because as you know in our country, it's not easy to find information specifically related to roaming. I have been working all my life in roaming and ROCCO was the source that brings me new information. So, it was a very nice road working close with ROCCO, of course not directly as a partner, but for the steps that I have been doing. ROCCO is a very nice source that provides guidance to operators in the telecommunication and innovation area.

Antonio ROCCO

What specific thing that ROCCO does do you like?

Antonio Unitel T+

Indeed, as I said before Research is something very nice. ROCCO has a lot of information in the telecommunications sector, especially on the Roaming and Interconnect areas. This kind of information it is very important. All the research ROCCO does and the fact that it brings innovation to the MNOs,

it is something very important in order to increase operators' knowledge about what is happening today in the telecommunication world. There is also another area where ROCCO is working that is very important: Strategy. ROCCO has a different way of working on the telecommunication business strategies. During this last few years, I saw that ROCCO is also working in the training area. This is very important because the telecommunications industry is starting to bring new people so it's very important to have this kind of training to empower the people that is working on the telecommunications environment.

Another thing that I didn't say and it's very important for me is that during all my career, I was looking for new things, new challenges. For example, I was looking for new IPX providers, new roaming partners, new financial clearing houses. And every time that I was in need of these kind of insights, it's like ROCCO on the next day or on the next week came with this kind of information that help us to decide to go to our current clearing house, for example. This is just to show you what kind of importance ROCCO has for us.

Antonio ROCCO

Based on the impacts Unitel T+ is facing today, what changes in the industry would you like to see?

Antonio Unitel T+

I think that a customer centric approach should be key. It should be the most important thing. We are currently struggling with digital transformation; therefore, it will be very important, that our services and I think all mobile network operators services should be focused on the customer centric side. So, this is the kind of service approach that I would like to see and to work on in order to be closer to our clients. Also, I think network security is something very important very needed that we need to take care of.

Antonio ROCCO

It's very important for us to hear your perspective of the industry. Thank you, thank you very much.

Antonio Unitel T+

Thank you so much. I hope that ROCCO will continue on this path and continue bringing new visions to the operators because it is very needed as our industry is evolving very fast. For that reason, we need someone that guide us and give us new things and new innovations for the operators.

With experience across telecommunications business, information technology and engineering industries, Antonio Rodrigues is a firm believer in Digital Transformation.

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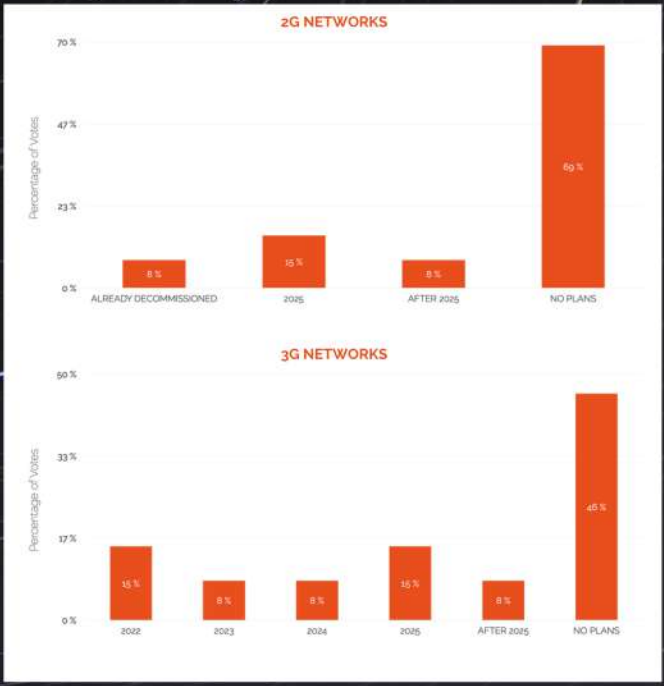
ROCCO RESEARCH INSIGHT

DECOMMISSIONING TIMEFRAMES

Do you have any plans of decommissioning your 2G and 3G networks if so by when?

FROM ROCCO'S VOLTE VISION REPORT 2021.



In the case of 2G networks, **8%** of respondents have already decommissioned it, while **15%** will do so in 2025 and **8%** after 2025. In contrast, **69%** have no decommissioning plans. 3G decommissioning is expected to follow a slower pace as the earliest expected date is 2022 (**15%** of votes). In contrast to 2G, the percentage of MNOs without decommissioning plans is lower (**46%**). Therefore, in the upcoming years, it will be more likely to see MNOs that will have decommissioned 3G networks than 2G networks. One factor explaining this is that operators have considered not decommissioning 2G yet as this could negatively impact the functioning of many M2M devices.

WHOLESALE ROAMING WHAT LIES BENEATH

7 INDUSTRY THEORIES ON THE LACK OF INNOVATION IN THE WHOLESALE ROAMING SPACE

BY JASON BRYAN,
CEO ROCCO RESEARCH,
DIRECTOR GENERAL OF IO

7 INDUSTRY THEORIES ON THE LACK OF INNOVATION IN THE WHOLESALE ROAMING SPACE

The people who engineered roaming processes at the outset in the early 90's, are mostly no longer in our industry. They long since left to drink wine in their châteaus in Provence or put their feet up in their fincas in Majorca.
They enjoy having created 30 years ago, one of the most important platforms for communication the world has even seen.

Roaming wasn't created in Silicon Valley, the first agreement was actually signed 40 years ago this month and was initiated in Scandinavia and Finland. Ten years later the first GSMA standard Roaming agreements were created by MNOs in European countries. This is very recent history, 1992, Whitney Houston's "I will always love you", was a radio hit in the same year.

Together, operators created a workable solution primarily for travelling across European states, not knowing it would eventually become a global standard.

But then International roaming, it was a premium service, MNOs could easily justify resource investment for whatever roaming project emerged. With cost+ roaming charges and a growing excitement for international travel, this was the golden age.

I was one of those resources back in 1996 that Cellnet (now O2 UK) invested in, to make roaming work smoother. The possibility of facilitating global connectivity and working in an industry that made that happen was truly exciting.

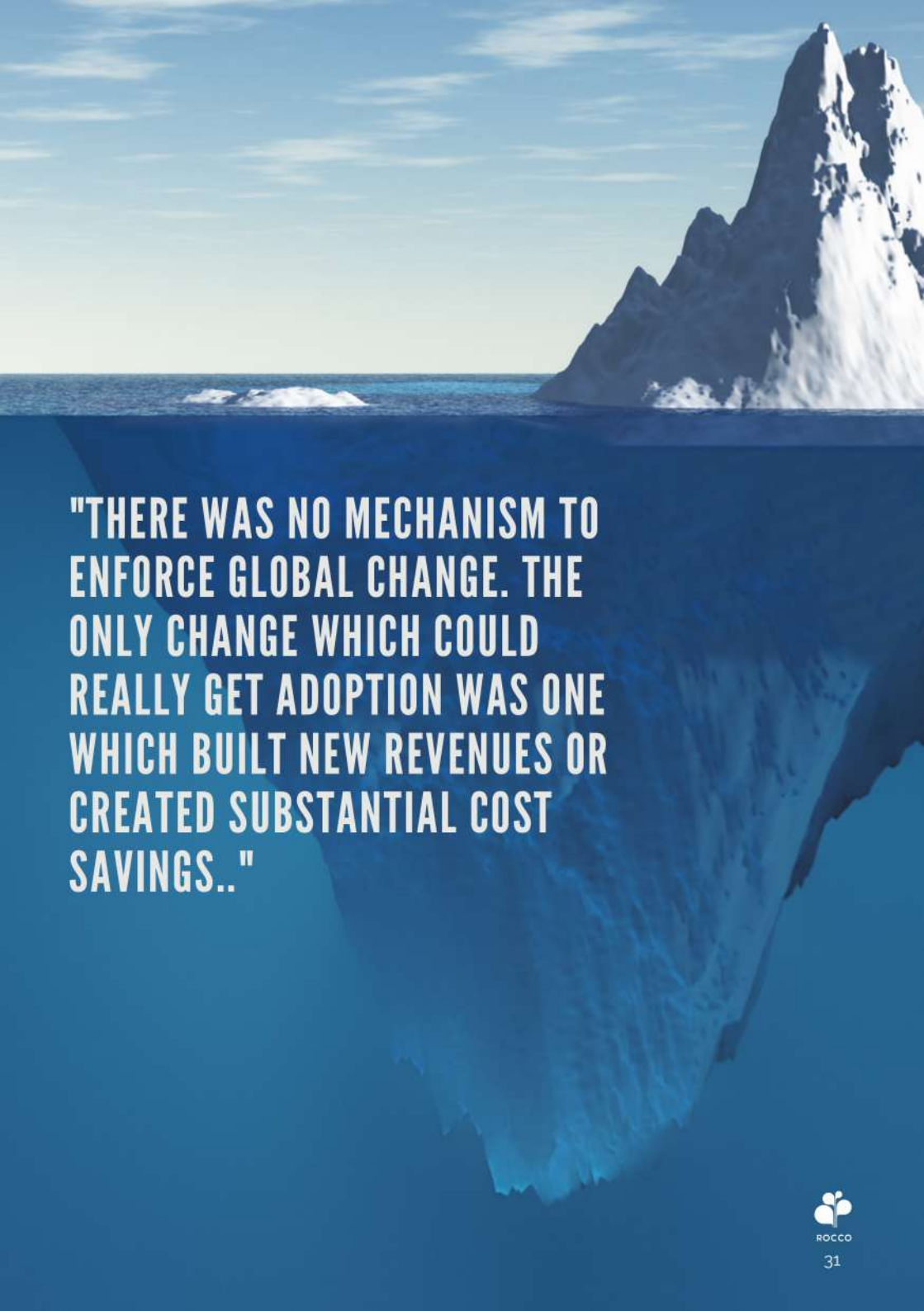
CHANGE IS RESISTED WHEN IT MAKES PEOPLE FEEL STUPID. THEY MIGHT EXPRESS SCEPTICISM ABOUT WHETHER THE NEW SOFTWARE VERSION WILL WORK OR WHETHER A TOOL WILL REALLY BRING IMPROVEMENT, BUT DOWN DEEP THEY ARE WORRIED THAT THEIR SKILLS WILL BE OBSOLETE.

The challenges of making wholesale roaming work globally were however not for the faint hearted. Working on standards in the early 2000's, it dawned on roaming managers that uniformity in approach for such areas as TAP 3, RAEX, NRTRDE, had its limitations. For 700+ MNOs globally to adopt common roaming standards mostly on a voluntary basis, it's not surprising there were challenges. There was no mechanism to enforce global change. The only change which could really get adoption was one which built new revenues or created substantial cost savings.

Subsequently, many innovations however exciting, never materialised. Apart from some small cases of incremental innovation (RAEX IR.21, NRTRDE), the key processes we use today are mostly from those early days of the 1990's when the roaming industry started. The only breakthrough wholesale roaming process advancements which are truly 100% adopted globally, came about because of the advent of email, when 20 years ago we stopped using fax machines to exchange AA.14 data, IR.21's or AA.12, AA.13 and started sending emails instead.

So, now 30 years later, bearing in mind all the possibilities with digital transformation, we are using more or less the same structure. Why doesn't Roaming get more research and development? The constant and ongoing discussion for decades which never got solved. Why does it take so long to launch a roaming agreement, complete IREG testing or make a discount? It's an open conversation. A conversation about why our industry isn't efficient. A conversation passed down from roaming manager to roaming manager through the generations.
So I thought maybe, by sharing all the theories I ever heard said in the industry, there might be a chance to start chipping away at the opportunity ahead. No doubt there's some you recognise here:

1) T**he Job-Elimination Theory**
When speaking to the vendor community who work tirelessly to introduce new products and services that build efficiency gains, we find a complex dichotomy between two equal requirements from the mobile operator community, 1) they want automation, 2) but not the type which brings true end to end automation,


"THERE WAS NO MECHANISM TO ENFORCE GLOBAL CHANGE. THE ONLY CHANGE WHICH COULD REALLY GET ADOPTION WAS ONE WHICH BUILT NEW REVENUES OR CREATED SUBSTANTIAL COST SAVINGS.."

they don't want to outsource everything. Time and time again you hear the one thing that's preventing adoption of automation solutions in our industry is the fear that one day the roaming team's jobs will be eliminated. We've seen how automation can work in other sectors, but it didn't necessarily materialise in people being eliminated, just migrated to other areas. We're not talking about AI taking over the roles here, it's even a step before that.

In Roaming clearly, the opportunity to automate processes (of which according to ROCCO research Roaming Agreements and Testing of Roaming are considered good options) is very high. Many aspects of a Roaming Coordinators work are highly manual and repetitive in nature. Thinking about a Roaming agreement which must meet certain pre-ordained criteria, there's much room for a rules-based automation.

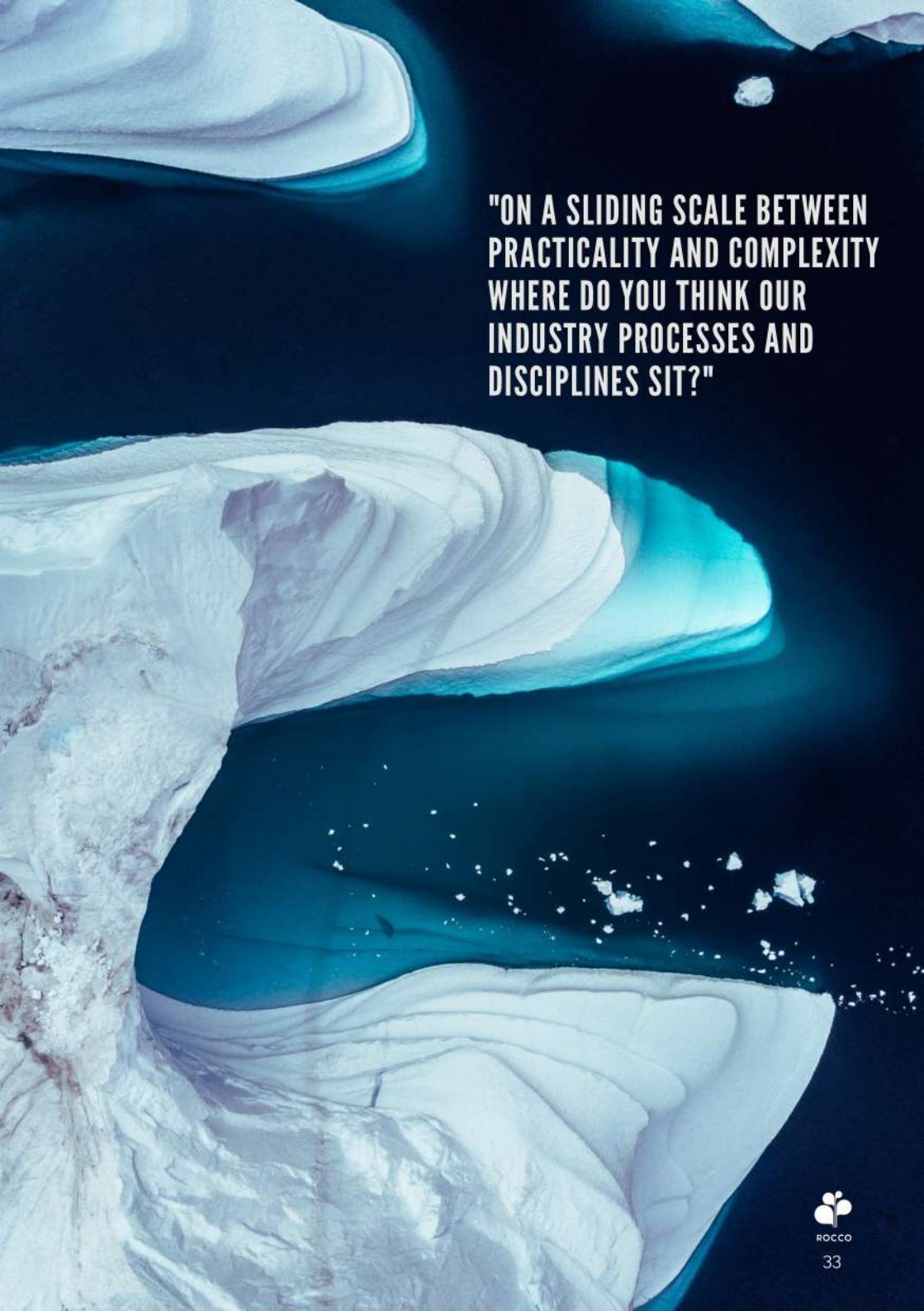
Change is resisted when it makes people feel stupid. They might express scepticism about whether the new software version will work or whether a tool will really bring improvement, but down deep they are worried that their skills will be obsolete. Industry leaders should over-invest in reassurance, providing information, education, training, mentorship, and support systems. To help ease transitions and to open minds to what's possible.

Many MNOs believe that automating processes which are mundane and tiresome to execute is a welcome opportunity. There is enough to be getting on with and more revenue benefiting areas of business to consider such as wholesale deal making (an area many MNOs consider needs a personal touch). So, we should start a program which entices all roaming managers to cut the repetitive work and focus on what they are good at and enjoy doing.

2) **The Global Practicality Theory**

Firstly its important to note, anyone working in creating industry standards, whether its for 3GPP, ITU or GSMA is doing an amazing job. There's a lot of hard work going on to bring global operator's varied views together into workable documents and to make those hard decisions about what specific standard should be adopted globally.

The problem is, some MNOs don't appreciate what's involved in standardisation work and are not contributing. I recently heard an MNO say, "Some innovations come from over disciplined MNOs in Europe who don't understand what it is to be an African operator". I recall from working in a mobile operator group, that every MNO in the group had its own view on how it would do things. The same goes from a standards perspective. But then that is the point of standardisation after all.


"ON A SLIDING SCALE BETWEEN PRACTICALITY AND COMPLEXITY WHERE DO YOU THINK OUR INDUSTRY PROCESSES AND DISCIPLINES SIT?"

Today, some MNOs consider that as an industry, we still encourage complex solutions that will as we know from the outset never materialise in one global process. Do we expect too much from every MNO in the world to think the same way or be able to adapt to what the standard makers want? It's not that when standardisation processes are initiated, that buy-in is sought from the community ahead of time, so this is to some degree valid.

Clearly, if the community had shared the intent on making practical solutions any MNO could adopt, why then aren't the solutions built with the consideration of the least impact in mind. Made for MNOs, who are at the end of the chain, with no capacity or budget for developments. In short, if the disciplines are practical, they would be adopted globally, more easily.

On a sliding scale between practicality and complexity where do you think our industry processes and disciplines sit?

3) **The Vendor Opportunity Theory**

Another suggestion is that the vendor community is not driven to make things easier, but to add to the complexity.

For over 20 years, MNOs have voiced that vendor led standards work often leads to overly complex projects, which then can only really be enabled by MNOs having to outsource the task to vendors. What's true is that it's easier for a vendor to lead an industry working party, since their companies can usually fund more easily their travel and time commitment. Chairs of groups are in a strong position to make decisions, but do vendors really take advantage of their senior roles to engineer new opportunities for themselves?

In response to this, I think it's a little unfair on the vendor community. Vendors have clearly indicated, they also have an interest in developing the industry, and in automating their own internal solutions which are highly dependent upon how the MNOs work. Vendors are often entrepreneurs with great ideas that rarely see light of day because of the wider ecosystems development stasis.

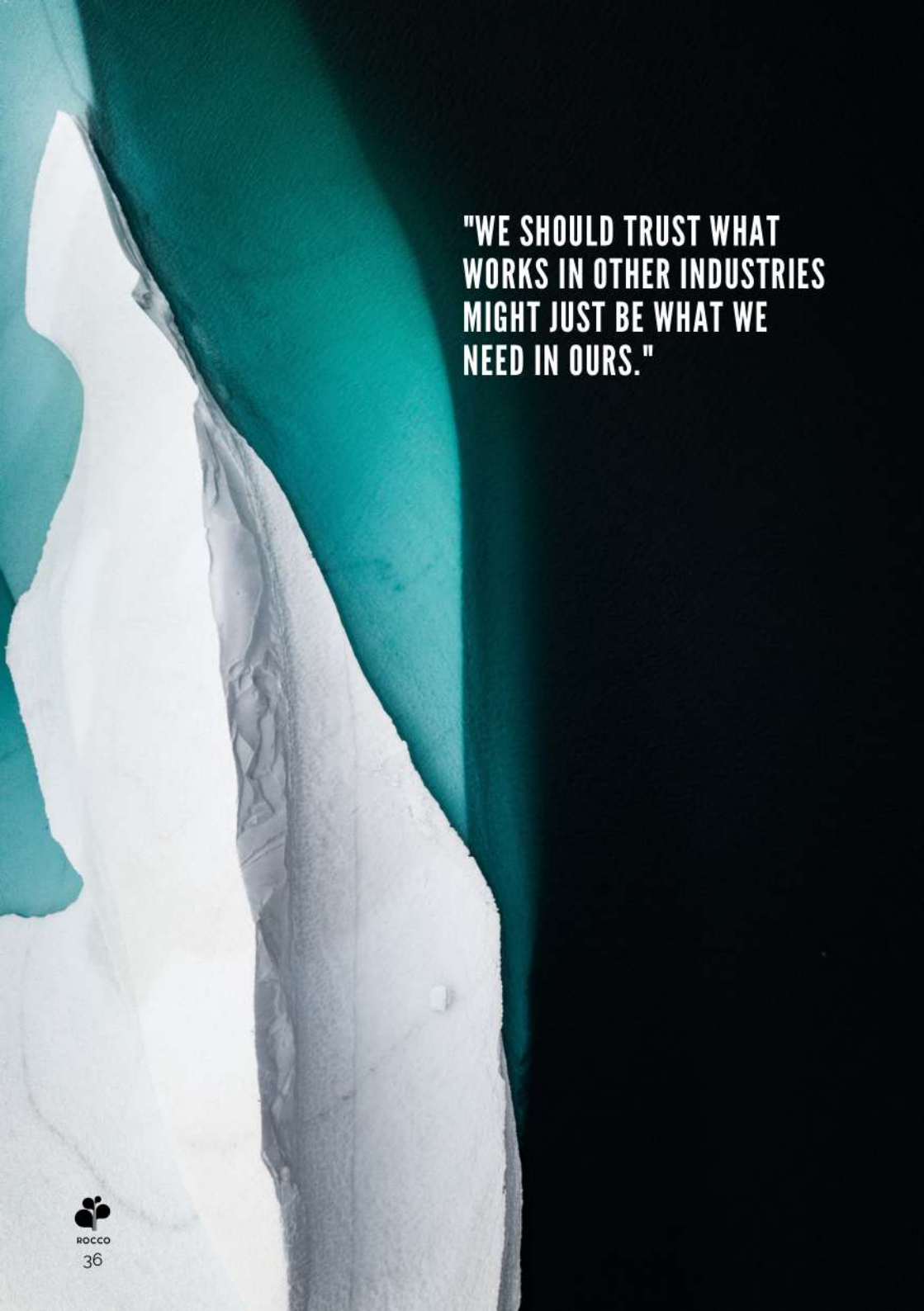
In addition, many existing vendor solutions are at such competitive prices these days that there's very little margin if any to be made. So, what would be the issue with trying to move the ball forwards and investigate what new opportunities come from a new chapter in wholesale roaming (because probably there's potential revenues waiting in automation and development). If MNOs are to keep their vendors in business and allow for a competitive environment, we need to encourage differentiation, R+D and exploration, provided indeed that there is global practicality in mind.

By far the most likely cause of the lack of innovation in our industry falls into the fourth theory.

4) **The Lack of Resources Theory**
Change is indeed more work. ROCCO Research recently reported that it's less likely than 10 years ago that MNOs management teams expect them to be involved in developing the industry, despite their being an obvious need. Somehow the business case for that was put into a bottom draw. The problem with this is that, in time, the resources who did have a wide view of the industry in the past, well if you don't give them opportunities to develop things, they will inevitably move on.

In our industry we have so few resources who are available, it's a challenge. Or even if we have resources who are close to the change, in terms of designing and testing it, they are often overloaded.
I'm finding, we must build again a resource base and spend time explaining the business case behind why they are needed. It will take time. We either need to engage some of the practical knowledgeable people in our industry back to the drawing board or create them.

It's important to remember, the ghosts of standards past are always lying-in wait to haunt us. If everything is in a steady state, they remain out of sight. But the moment you need co-operation for something new or different, the ghosts spring into action. Old wounds reopen, historic resentments are remembered, sometimes going back many years.


"WE SHOULD TRUST WHAT
WORKS IN OTHER INDUSTRIES
MIGHT JUST BE WHAT WE
NEED IN OURS."

So, we do have to expect that there will be push back from people who have been in the industry a long time, who may even be intimidated by or reluctant to change.

5) **The Skills-over-Volunteers Theory**
It's widely said that we don't call upon enough skilled resources from other industries who are more specialist in change management and development. We tend instead to accept any resource who has free time than investing in resources who may know a lot faster how to engineer a solution. I recall once a supplier coming into an industry standard meeting and giving advice. The advice sadly wasn't taken on board because there were two issues at play 1) the Roaming community inherently didn't trust an outsider with their special formula of challenges, understanding the nuances of roaming as a specialist field and 2) the MNOs weren't skilled enough on the topic to know what was being said by the supplier.
We should trust what works in other industries might just be what we need in ours.

To have as many volunteers who understand roaming as you can get, is not always the answer to any roaming project. It's about diverse knowledge, a sense of what's happening with digital transformation and trusted connections in other industries who have faced the same international challenges we have.

6) **The MNOs-don't-Innovate Theory**
For some operators, it may not be even on their radar that processes and tools in our industry and the automation of them, could be done better.

It's often said MNOs don't innovate, they don't spend money on research and development and mostly (from a customer perspective) are practically indistinguishable from another. Light Reading magazine recently stated, "The products and services sold by nearly all operators are based on the expertise and inventiveness of just a few big kit vendors". "It's why Operators are reduced to competing on price".

This theory suggests MNOs may also not be investing in developing standards approaches but more differentiating their own solutions.
However, when it comes to optimising their roaming business there always seems to be a unified agreement that there's work to be done.

So, if we just need to get the senior directors in MNOs involved in the challenge ahead, who wants to help write the business case?

7) **The Responsibility Theory**

In an industry where innovation is not clearly on the agenda, who should take the role of leading innovation?. Should it be the IPX or DCH, the MNO Groups, the industry associations, 3GPP, ITU, GSMA, IO? Further, how do you initiate and bring together all the right people to make that happen, giving the appropriate credit to all the ecosystem and the role they play. Where to start?

Well simply put, all the perspectives are important. If something isn't working, maybe recognising that help is needed from outside is the right approach.
The feeling is that everyone has been pointing to one entity or another for years who they feel is the one to lead the change. When, as we saw from our Genesis event in May 2022, all organisations need to move together.

Change agents should consider gestures to heal the past before moving into the future.

This may mean engaging with all the people who dismissed ideas in the past, facing them head on and asking them what could work.
It's about a business case which may not be perfect for everyone but may be right for the future of roaming as a connectivity solution.

Conclusions

On balance, roaming needs to evolve. Having made this study, it's clear to me that there are a lot of entities ready to work on something that is practical that can help automate roaming and make it more efficient, to enable it for the long term.

We do need to engage with solutions and make connections beyond our industry to explore what possible. We do need to recognise that we all have a part to play in supporting change. However, odd it may look like at first.

Like throwing a pebble into a pond, change creates ripples, ripples reach distant spots in ever-widening circles and help us identify all the players who support the change.

So, what is then the action. It's simple, raise your hand to say "I want change, and I want to help to create it".

THANKS TO EVERYONE WHO CONTRIBUTED TO THIS ARTICLE. THE ARTICLE IS PUBLISHED FOLLOWING INTERVIEWS WITH MNOS, VENDORS AND INDUSTRY ASSOCIATIONS WITH THE SOLE AIM OF INSPIRING INDUSTRY INNOVATION.

WHAT PEOPLE SEE ABOVE?

- SUCCESS

WHAT LIES BENEATH?

- FEAR
- IMPRACTICALITY
- FAILURE
- LACK OF OPPORTUNITY
- INNOVATION NAYSAYERS
- CRITICISM
- REJECTIONS
- DOUBTS
- DISRUPTION
- HARD WORK
- LATE NIGHTS
- SACRIFICES
- RISKS
- COURAGE
- ACTION
- PASSION
- PERSISTANCE
- DEDICATION
- VISION

INSPIRING STORY

THE STATUE'S IN THE STONE

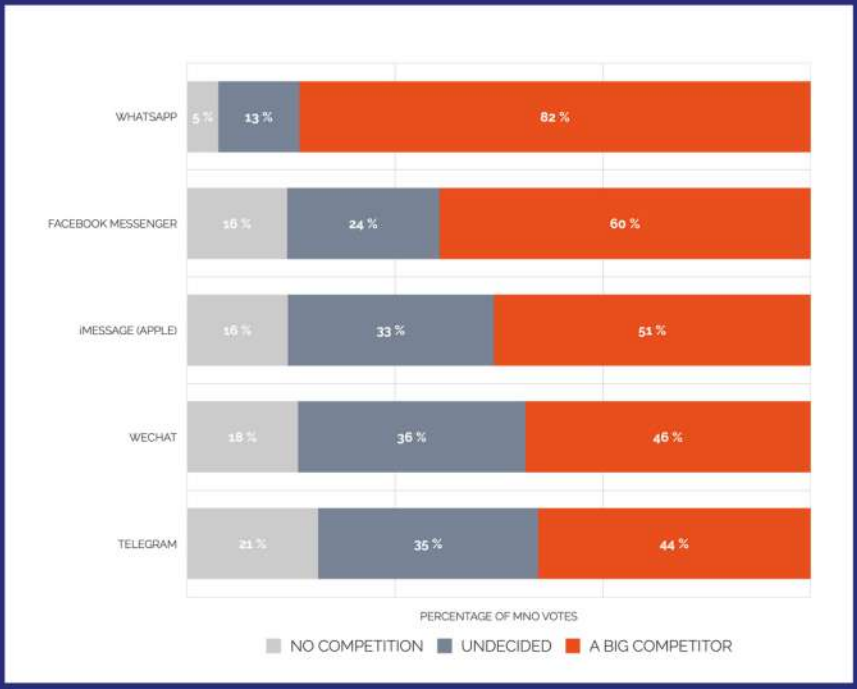
The piece of marble (called "the Giant") from which Michelangelo's David was carved, came from a quarry in Carrara and sat for 36 years in a studio before it was sculpted in 1501.

Leonardo da Vinci turned down the project. So in the end it fell to 26 year old Michelangelo to find the statue in the stone.

With the right materials and the right people anything is possible. What's stopping you from creating your industry masterpiece?

A2P SMS TOP 5 COMPETITORS

FROM THE REPORT A2P SMS MESSAGING VENDOR BENCHMARKING MNO EDITION.



WhatsApp is perceived by **83%** of respondents as a big competitor to **A2P SMS**. Although to a lesser extent, **Facebook Messenger** also represents a strong alternative according to respondent operators (**61%**). Moreover, **Telegram** is the third biggest competitor. All in all, this reflects that OTT messaging apps are perceived as the strongest competitors according to operators.

Regarding **A2P RCS**, it is striking that **52%** of respondents do not have a clear stance about whether it is a competitor or not to A2P SMS. As mentioned earlier, it remains unclear which messaging channel will be the successor of A2P SMS. In this regard, it seems clear that this channel must be ubiquitous as well as simple to use.

CRISTINA RUIZ GALVIN

MARKETING, COMMUNICATIONS ADMINISTRATOR ROCCO GROUP

TALKS WITH

PATRICK GATT

SENIOR MANAGER RESPONSIBLE FOR WHOLESALE AND INTERNATIONAL SERVICES FOR GO MALTA

TALKS WITH PATRICK GATT

Cristina Ruiz Galvin from ROCCO Group talks with Patrick Gatt from GO Malta about their challenges and how they would like to see the industry develop in the future.

Cristina, ROCCO
Hey Patrick, thanks for the interview, let's start with introductions. What is your role in GO?

Patrick, GO
I am Patrick Gatt and I am the Senior Manager responsible for Wholesale and International services for GO Malta. So my team handles Roaming; A2P business; Voice and Carrier relations; Data services, Point to Point connections and IP transit negotiations; and the commercial management of our submarine cables and of our international points of presence. We also represent our Cypriot subsidiary for their roaming needs.

Cristina, ROCCO
That's an extensive business to be involved with. What is Go Malta currently working on?

Patrick, GO
Luckily on many things, yet right now I am mainly focussing on a new revenue line.

Cristina, ROCCO
In your view, What is the biggest industry challenge?

"THE CONTINUOUS PRESSURE ON ROAMING RATES IS A WORRYING FACT AND WILL EVENTUALLY SQUEEZE LITTLE YET IMPORTANT PLAYERS OUT OF THE ECOSYSTEM."

Patrick, GO

Taking the roaming business and choosing just one amongst many...: speaking from the perspective of a small operator amongst the global players, the continuous pressure on roaming rates is a worrying fact and will eventually squeeze little yet important players out of the ecosystem making it not worthwhile for these MNOs to offer the service. It would be interesting to see how the industry will react to such a situation, which is more of a reality than many may think.

Cristina, ROCCO

Thanks for those insights. Thinking about what you said, what changes in the industry would you like to see?

Patrick, GO

The industry is made up of many players of various different sizes. Nevertheless, steering committees and lobby groups are generally influenced by the big players forgoing the importance of the smaller operators to the bigger picture. I would like to see more inclusivity in these fora where smaller MNOs are given the opportunity and the adequate representative space where they can also have their say and influence the key agenda.

Cristina, ROCCO

ROCCO is celebrating its 10 years anniversary. How do you think ROCCO has made a difference in the last 10 Years?

Patrick, GO

I think the gathering and analysis of critical information and the insights offered to the industry helped a lot of us out there. To me particularly as an example when we were considering which A2P firewall partner we were going to choose. I also think that (even though I am speaking as a non-member) the facilitating and growing of IO as an MNO only community was undoubtedly a great initiative and from what I understand, is making a difference.

I think that from just a start up a mere decade ago, ROCCO has increasingly become synonymous to a staple in the telecoms industry. I particularly admire the continuous evolvement of the services offered that made sure the organisation remained such a relevant name for MNOs and their respective businesses.

Cristina, ROCCO

Thanks so much for your feedback, Patrick. We really appreciate your insights.

Patrick, GO

Thanks for the opportunity.

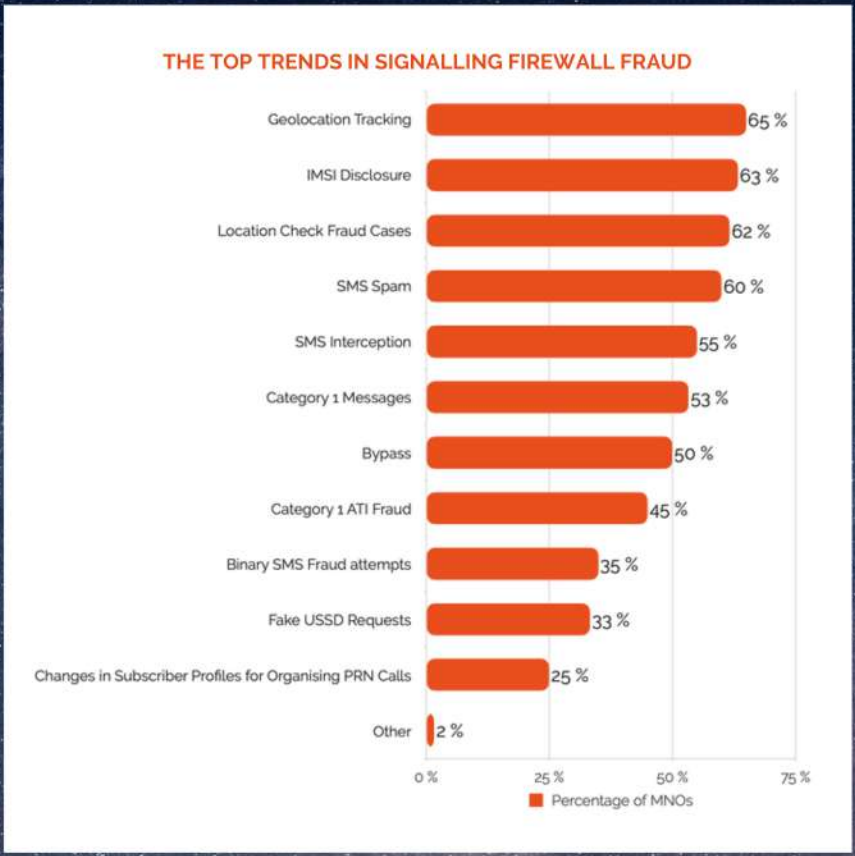
For further information on Patrick Gatt see his LinkedIn profile here:

https://www.linkedin.com/in/patrick-gatt-3437405/

ROCCO RESEARCH INSIGHT

KEY TRENDS IN SIGNALLING FIREWALL FRAUD

What would you say are the key fraud trends in Signalling Firewall?



In terms of their perception, respondent operators have indicated that **Geolocation Tracking** is the top trend in Signalling firewall fraud. This is followed by **IMSI disclosure** and **Location Check Fraud Cases**.

ROCCO
Celebrating
10 YEARS

ROCCO

Celebrating

10 YEARS

10 YEARS OF IDEAS, INNOVATIONS AND INDUSTRY SUPPORT

ROCCO U

LION'S DEN

SINCE 2012

ROCCO

Celebrating

10 YEARS

START-UP

ROCCO

Celebrating

10 YEARS

GROWTH

ROCCO

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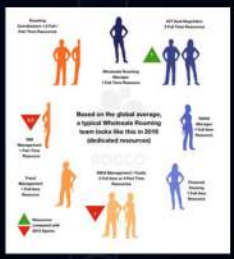
10 YEARS

ROCCO RADIO

PRODUCTIONS

INNOVATION



ROCCO

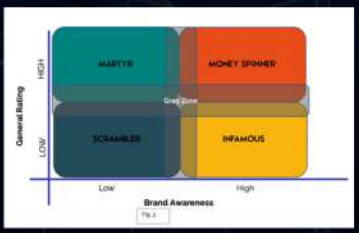
ROCCO

Celebrating

10 YEARS

ROCCO 100

TODAY



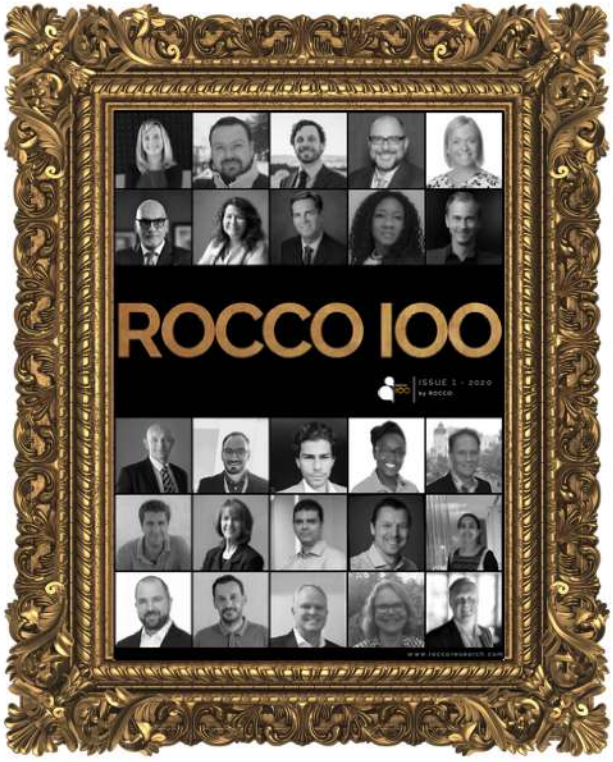
ROCCO 100

ISSUE 2
JUNE 2022

ROCCO 100

RETURNS IN 2024
NOMINATIONS OPEN OCTOBER 2023

INTRODUCTION



THE ROCCO IOO REPORT 2020

In the second edition of the ROCCO IOO report, the results were presented of the biennial research to identify the 100 most influential people in Roaming, Messaging and Interconnect based on industry opinion, nominations and voting. This report was structured to start with a general overview that featured aggregated data of candidates based on a set of criteria.

The second part of the report featured the ranking of the ROCCO IOO including their professional information as well as the feedback provided by the nominators.

While the report focuses on the 100 most influential people, over 130 people were nominated for ROCCO IOO. Congratulations go to anyone who was nominated for being recognised, this is a tough global industry and to appear here in this ranking is a tribute to hard work and dedication to the industry.

ROCCO 100 TOP 25 2022

1. ANURAG AGGARWAL
2. NERMEEN SOBHY
3. FLORIN NEAMTU
4. GEOK CHWEE ONG
5. GIDEON NDOGO
6. MOUNTASSER HACHEM
7. SAMUEL CHIWANDA
8. RAJDIP GUPTA
9. SILVIO KUTIĆ
10. MANUELA MONTAGNA
11. DAVID BISHAY
12. ATIM AKEH-OSU
13. NASREEN IBRAHEEM
14. FABIO BOTTAN
15. ANDREAS CONSTANTINIDES
16. CHRIS LENNARTZ
17. DAVID VIGAR
18. ALEX PEREIRA
19. JORDI MARTINEZ
20. IVAN RAMOS
21. TRAVIA STEWART
22. JUAN FELIPE SANTOS SEGURA
23. ANDY GLADWIN
24. DMITRY STRELKOV
25. ADEEP MAHARAJ

FROM 26 TO 100

26. IRFAN ABUBAID
27. NABIL BACCOUCHE
28. MILENA DEKOVA
29. MOHAMED FAWZY
30. TAMARA AL-BAKRI
31. RAVINDER SINGH
32. BENJAMIN ZATO
33. OBAID RAHMAN
34. AVIRAM RONEN
35. TIM BIDDLE
36. ALEXANDROS MYGDALIAS
37. DEEPAK BISHT
38. WALID BEN CHAMEKH
39. ORNELLA SICILIANO
40. ELI KATZ
41. DARIO CALOGERO
42. ROBERT GERSTMANN
43. PATRICK GEORGE
44. HATEM DOWIDAR
45. JOSÉ GARCÍA
46. HENNING LAGERBIELKE
47. ANDREAS MANN
48. AHMAD DAAMOUSH
49. ISABELLE PARADIS
50. JOHN MURTAGH
51. HASSAN MANSOUR
52. ARNE CASTELEYN
53. NASSIA SKOULIKARITI
54. JAMES WILLIAMS
55. BRIAN D'ARCY
56. CEDRIC GONIN
57. ANNA GUSSMANN
58. SARAH BARAKAT
59. SUNDIP RAVAL
60. CAMERON DUNN
61. FREDRIK SÖDERLUND
62. MARK PAGE
63. NINA HURST
64. CHARLES BERNARD
65. SEBASTIAAN JOUSTRA
66. TAREK ZEID
67. JAYMY TEH
68. VANESSA SMITH
69. KATLEGO KAPARI
70. GIRINDAR SINGH
71. STEPHEN BREEN
72. TOLA WARD
73. ROBERTO LIMA
74. DAWOOD GHALAIENY
75. MANOS GARBIS
76. NICK MILWARD
77. JASON OLIVIERI
78. MATTIAS STILLNÉRUS
79. CHIAMAKA EZEH
80. BRUNO MOURA
81. MAJD SHEEHA
82. MIHAELA AMBROZIE
83. NILA ROHEEN NAZIR
84. SUNIL JOSHI
85. ORI SHARON
86. JOHN WILKINSON
87. ANDREAS NEOCLEOUS
88. FREDERIC SCHEPENS
89. SHALINI TAMHANKAR
90. ANDREAS SOMMERWERK
91. RIADH BOUKRIS
92. VIVEK JHAMB
93. NADEEM LADHA
94. SHIKHA GUPTA
95. KEVIN CHAN
96. TOM POSTI
97. MUHAMMAD DAWUD SAIFULLAH BIN FADLULLAH
98. RYAN ROCHFORD
99. ZANA NOVAKOVIC
100. MD MAHBUB HASSAN

Everytime that you see this quotation mark ” please note it represents a quote from a voter

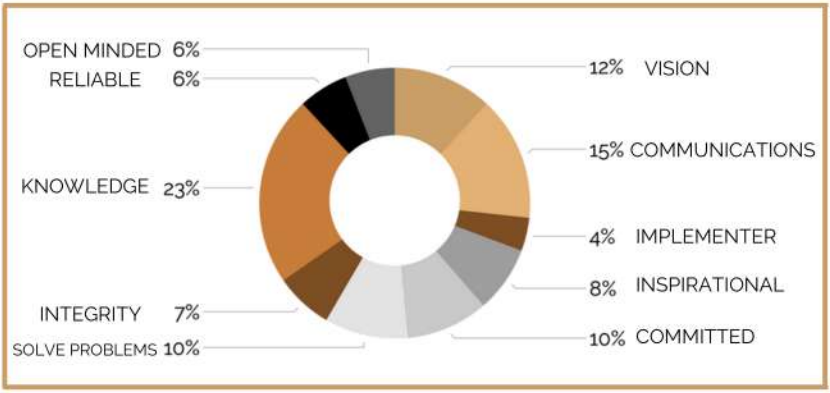
1

ANURAG AGGARWAL

VP OF PARTNERSHIPS & ALLIANCES
TANLA PLATFORMS LIMITED

"Anurag was instrumental in building the TATA business across a wide geographic business area. He started with a very small network and was positive, open-minded and eager to learn and meet new contacts during the course of his Telco career. His work with the MEF board proved him to be a great public speaker, easily discussing a broad range of products, industry trends, and key learnings from his experiences. Anurag is an all-around positive influencer."

ATTRIBUTES SELECTED BY VOTERS TO DESCRIBE THIS CANDIDATE



"Anurag Aggarwal comes with decade-plus experience in the CPaaS industry and has worked across telecom operators and solution providers. He has a great understanding of the overall A2P industry and CPaaS. He has built the A2P business for organizations from scratch. He has also contributed to the A2P industry across multiple forums and events."

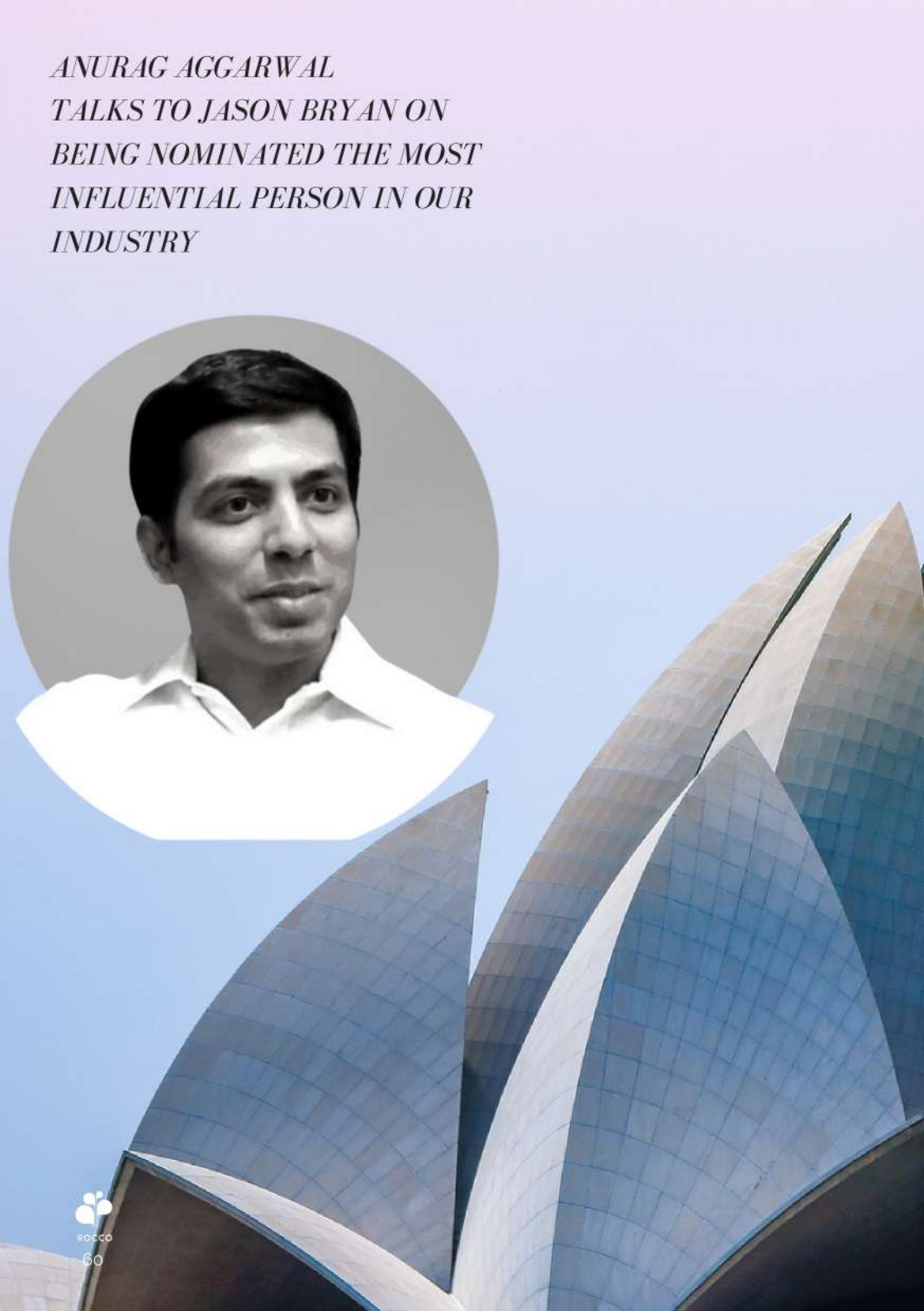
"I know Anurag from TATA day where he was instrumental in starting A2P business, continue to give strategic direction to the organization. I met in several events such as GTS and TATA communications and found to be thinking about innovative models, technology based on Blockchain, crypto. Anurag will support industry to create platforms to block frauds."

"Anurag has extensive knowledge in emerging technologies and market trends. He has added value in providing vision and guidance within the various departments in the Company."

"Anurag has been in the Roaming industry for many years while working at TATA Communications. He has recently joined Tanla but he keeps being an active member of i3Forum, MEF and other Telecom events. He participated as an expert in numerous online panel discussions & webinars over the last 2 years. He is an inspiration for many people and a true visioner in our business."

ROCCO 100

ANURAG AGGARWAL TALKS TO JASON BRYAN ON BEING NOMINATED THE MOST INFLUENTIAL PERSON IN OUR INDUSTRY



IN CONVERSATION

+

ANURAG AGGARWAL

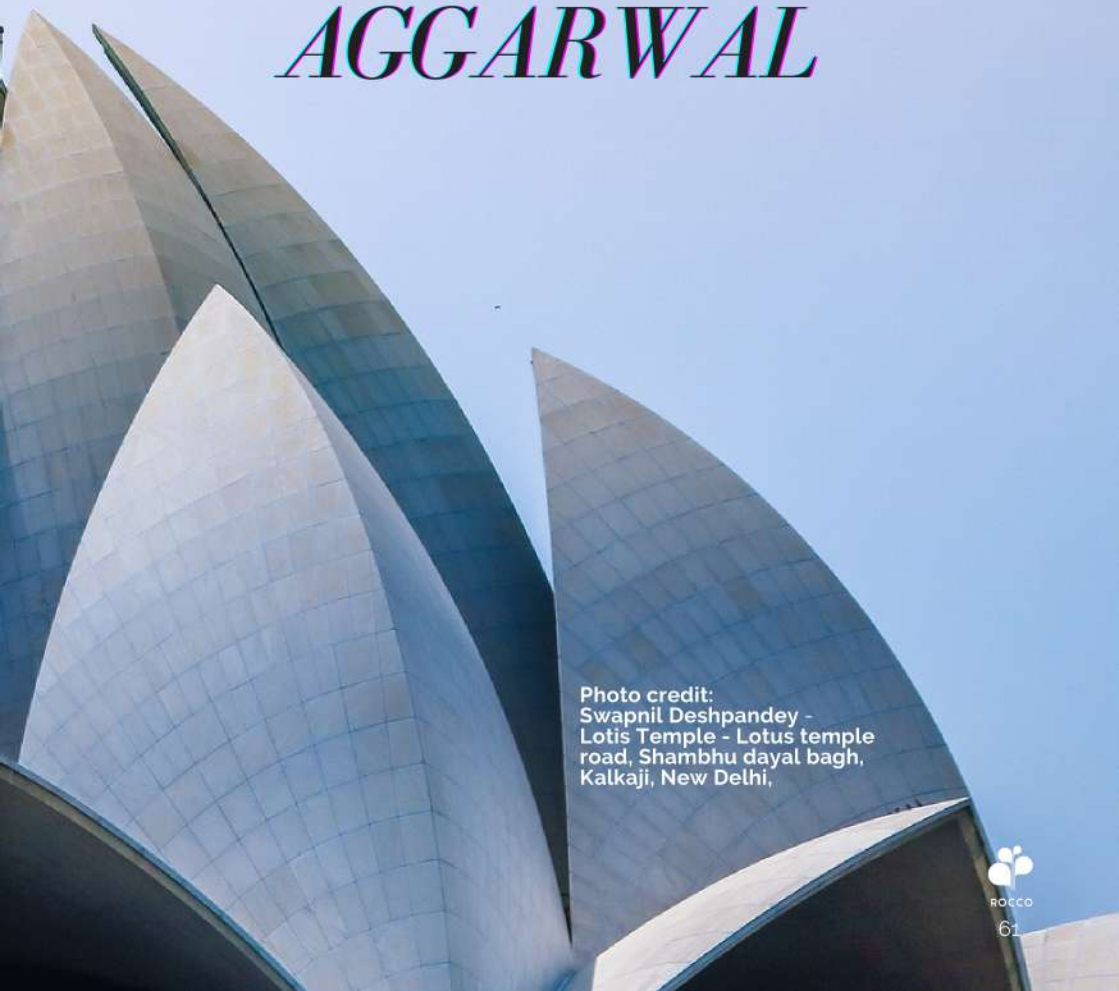


Photo credit:
Swapnil Deshpandey -
Lotis Temple - Lotus temple road, Shambhu dayal bagh, Kalkaji, New Delhi,

ANURAG AGGARWAL

In August 2022, following the announcement in May 2022 of Anurag being the No1 highest rated influential person in the ROCCO IOO research, Jason Bryan, CEO ROCCO Research conducted a podcast interview with Anurag Aggarwal. The following transcription picks up on the great insights shared about the life and career of one of our industries most highly respected colleagues.

Photo credit:
ROCCO GENESIS 2022

Jason Bryan
It's a real pleasure to be here with Anurag Aggarwal, it was great to see you at the "Genesis" event earlier this year and obviously, the amazing results that we saw at the Visionaries Gala of you being the number one most influential person in our industry. How did you feel about that?

Anurag Aggarwal
Firstly, Hi, Jason, and to the podcast and interview, thank you so much for this lovely opportunity to be on ROCCO Radio, I heard a lot about it. I never imagined I'll get a chance to feature on it. So, it's my pleasure and privilege to be here. About the Visionaries Gala and the Genesis event, and of course, the ROCCO 100. Yeah, I mean, it was, honestly a surreal experience, and something which I still can't believe that happened.

> **"It really was an amazing feeling to be in the presence of so many wonderful people, and especially so many wonderful friends and colleagues who I have worked with."**

I mean, to be honest, I was hoping to make it into the list. I never presumed that there is even the faintest possibility of topping that list. So, it was definitely a delight. I've spent nearly a decade now in this industry and it's been interesting to meet so many people from different walks of life, across this decade, and so many of them were there in that room that day, attending that event. So, it felt quite heartening and it really was an amazing feeling to be in the presence of so many wonderful people, and especially so many wonderful friends and colleagues who I have worked with in different avatars across the decades, and to be there to receive the award. So yeah, it was a wonderful experience. And thank you once again, for that.

Jason Bryan
It was, in fact, a real pleasure to have you there. Especially because over the course of the period,

when we're doing the work for the ROCCO 100 research, you start to see people's reactions, you start to see people's feedback on each other coming through. That is so heart-warming, to get those those feedbacks coming through, and about you, there were just so many, and they were from all over the world.

I have to say it was very inspiring, and interesting to see that. So, it's really a pleasure that you're a part of that for us.

Anurag Aggarwal

Thank you, you know, that I mentioned to you, that it's not so much about the ranking or a number one or a number 15 or 20, or something, I think the entire activity across the few months, you know, the amount of interest generated, the amount of conversations generated within, within our tiny little family of CPaaS and Roaming. I think it was amazing that one could interact with so many people and talk about each other. You know, I also nominated some of my colleagues. So, it was great to reflect on our relationships, and talk about that,

"My mother said to me, don't become a lawyer, anybody who has nothing else to do in life becomes a lawyer. So, any lawyers reading this, please don't mind this old fashioned opinion."

And similarly have so many people write to me. So, I think beyond just the mathematical scoring and the eventual ranking. I think the softer aspects of it were far more important. I think that's what was my biggest takeaway from it.

Jason Bryan

Yes, indeed, just the opportunity to talk about your friends and colleagues and what they have achieved and what they have contributed to, is great. Well, it's a real pleasure to have you here in the hot seat for this interview. So, I would like to get to know you a little bit better. I would like to get to know, some history. And let's start I think at the very beginning. So, going back to your school days, what did you actually study?

Photo credit:
ROCCO GENESIS 2022

Anurag Aggarwal

Alright, so a quick background about me, I come from the wonderful country of India. And within that I am from the capital city called New Delhi, which is quite up in the north. It's known for its culture, we have this over overarching sense of familiarity, which we build with each other, which leads to everyone taking each other for granted. Conversations can often be very brash and brutal also. Hence, it's a very different atmosphere when you blend into people from, say, other parts of the world, like, Europeans or Chinese or Americans. So, it's very interesting when you interact and see a very different tonality.

So, yeah, coming back, I, I grew up in New Delhi. I studied in an Irish convent school, called St. Columbus. And during those days, every year there was a typical essay, where we'd write what's our ambition in life. I've grown up in an environment of lawyers. Most of my family are actually lawyers, they've been practising law for a good part of their lives. And that's something which one just looks at and emulates very soon.

> **"I think it was amazing that one could interact with so many people and talk about each other.."**

And one presumes that that's the natural course of your future. But funnily enough, my mother said to me, don't become a lawyer, anybody who has nothing else to do in life becomes a lawyer. So, any lawyers reading this, please don't mind this old fashioned opinion. Because I think at some point in life later, she had to eat those words.

I did my engineering MBA, while doing my engineering, I very soon realised that technology is not my cup of tea. And that's when I went on to do my management studies. And I joined the Tata group after that. The Tata Group being one of the most well-known Indian conglomerates and within India, the largest business conglomerate, so I joined them. So that's as far as my education goes, firstly.

Jason Bryan

And you also did an internship in Kenya I read...

Photo credit:
Streluk
Humayun's Tomb, New Delhi

Anurag Aggarwal

Yes, I got an offer to do my internship at the Tata Group. And I, so it was very interesting. The person who was designing projects, he came up to me and said, Listen, you have a couple of options. We'll either send you to Spain, or to UK, or to Michigan, or to Dubai, and maybe to Singapore. So, there are some four or five lovely options available. And I'll let you know shortly which ones. So for me, I had not seen most of these countries Jason. So, it was like a dream come true. Till then I think I've barely seen like three or four. I mean, I could count the countries on one hand, which I'd seen. But ironically, once he finished that conversation, he said, but I personally feel there is a project in Kenya and I would like you to take that up instead. So I said, there are such fantastic places, the US, UK, you keeps hearing about them, what makes you want me to go to Africa and to Kenya? You know, we're still talking about days when smartphones had not really made their entry, internet penetration was still not high.

He said something which really, you know, even today, I remember that fondly. He said, Anurag, with God's grace, you should get enough opportunity to see all these other places, which are fairly common and often visited. And if you do well, in your career, and in life, you should get enough opportunities. But working in a place like Kenya would be something which is a once in a lifetime chance, and one that you shouldn't forego. And I just went by his words. And, Jason, I can tell you that until this date, it's still the best time of my life. Because I feel that in today's lives, you know, we've got a little too civilised. And you know, this civilization has come with its own merits and de-merits. It's a cookie cutter approach which we've all adopted towards life.

So, it was amazing to actually take a break on that and see how people in simpler parts of the world are living lives in a more natural habitat. Blending well with their surroundings, and co-existing peacefully. So, we would have a factory, which would be creating soda ash. And we would at the same time be having a lake full of flamingos. And we'd have the local Maasai tribe of Kenya, all co-existing peacefully.

So, it was an amazing experience to learn that, first and foremost... don't judge a book by its cover, don't go for the fancy glitter and glamour of some other options, which seem very nice at the start, but beneath the shiny surface, they're fairly plain and ordinary. And at the same time, take the path which has not been treated by many. And you could see some wonderful experiences which you never expected in life. So take your chances, and just follow your heart.

Don't go for the fancy glitter and glamour of some options, which seem very nice at the start, but beneath the shiny surface, they're fairly plain and ordinary."

Photo credit:
Bibhash (Knapsnack.life)
Banerjee
Nakuru, Kenya

Jason Bryan
Fantastic. Yeah, it must have been an incredible experience for you and a cultural clash, you know, in terms of what you'd experienced in Delhi, and then being in Kenya. And so, you were working, you were in an internship for Tata, Tata is a very well-known trademark, especially in India, I mean, what aspect of Tata were you working for in Kenya?

Anurag Aggarwal
So, there used to be a company called random wand, which had acquired a company in Kenya to make soda ash. So, what they would do, there was a lake, which produced natural soda ash, which was then extracted and converted into packaged soda ash, which was exported for use in the glass industry, and maybe also in the construction industry. I will say it was eventually acquired by the Tata Group, and the company was effectively called Tata Chemicals.

My job there was to work on a supply chain project, with regard to what's the optimum mechanism to transport soda ash from Magadi, which is within the heart of the country, to the coast, to the port of Mombasa.

> **"I feel that in today's lives, we've got a little too civilised. And you know, this civilization has come with its own merits and de-merits. It's a cookie cutter approach which we've all adopted towards life."**

So, basically working on supply chain efficiency, and ways in which the entire transportation can be done more effectively.

Based on my work in Kenya, I came back to India and presented along with some other fellow summer interns. And thankfully, I got an option to what we call a preplacement offer. So, when I completed my second year of MBA, after my internship, I had an option to immediately start working with the Tata Group. And this is pretty much one of the best options that one can get on campus. It's a very respectable group. And the programme is the flagship leadership programme of the Tata Group.

Anurag Aggarwal

So, units, like for example, in India we have the Indian Administrative Service, something which was started in much earlier days when the Britishers were still here in India. And it's still a very respectable civil service within India. So, similar to that the Tata Group, given that, you know, it's over 100 companies strong, it's almost like a parallel government of its own sorts. And because of that, there are so many avenues of working with different teams, different industries, different verticals, different functions. And I got, thankfully the opportunity to work with the Tata Group.

So, I started working with them in 2008. And I worked in a whole bunch of different companies, you know, I would be selling mineral water on the roads. We have a brand called Himalayan water.

We have a mobile phone brand called Tata Indicom. In those days, I worked with them, I worked with Tata Power, I even got a chance to come back to Africa. I worked with a company called Tata Africa, which is like a strategic arm of the Tata Group for investments in Africa. So, a whole bunch of different opportunities came through that.

Jason Bryan

Fascinating, I mean, It is a very diverse company and to imagine all the possibilities, it makes you wonder, so how did you pick telecoms? How did you get into telecoms?

Anurag Aggarwal

So, then what happened is that for the longest time I was working with a company called Tata Steel, it is one of the first few companies of the Tata Group and one of the flagship companies, right at the forefront. A lot of senior leadership of the Tata Group have worked within Tata Steel. Now, I was working closely with the CEO at that time, which gave me a wonderful opportunity to learn a lot about leadership aspects and leadership traits. I moved on to a marketing stint and post that, I moved on to a sales stint. So, I spent about five years with Tata Steel. And to be honest, I reached a point where I was bored of steel.

And then that's when you know, I wanted to venture out and do something else and have a change. And ironically, just like me, there were a couple of other friends of mine, steel colleagues, who were on the lookout. We formed a WhatsApp group, which we, we call something like the Tata Steel frustrated friends or something like that. And we were a bunch of three or four people who are constantly on the lookout and sharing notes and our rantings and frustrations were all voiced on that group. And then it so happened that one of my colleagues, she wrote to another one.

And it's a very interesting experience because I literally stumbled into the telecom world.

"I am from the capital city called New Delhi, which is quite up in the north. It's known for its culture, we have this over overarching sense of familiarity, which we build with each other, which leads to everyone taking each other for granted.

Conversations can often be very brash and brutal also. Hence, it's a very different atmosphere when you blend into people from, say, other parts of the world, like, Europeans or Chinese or Americans."

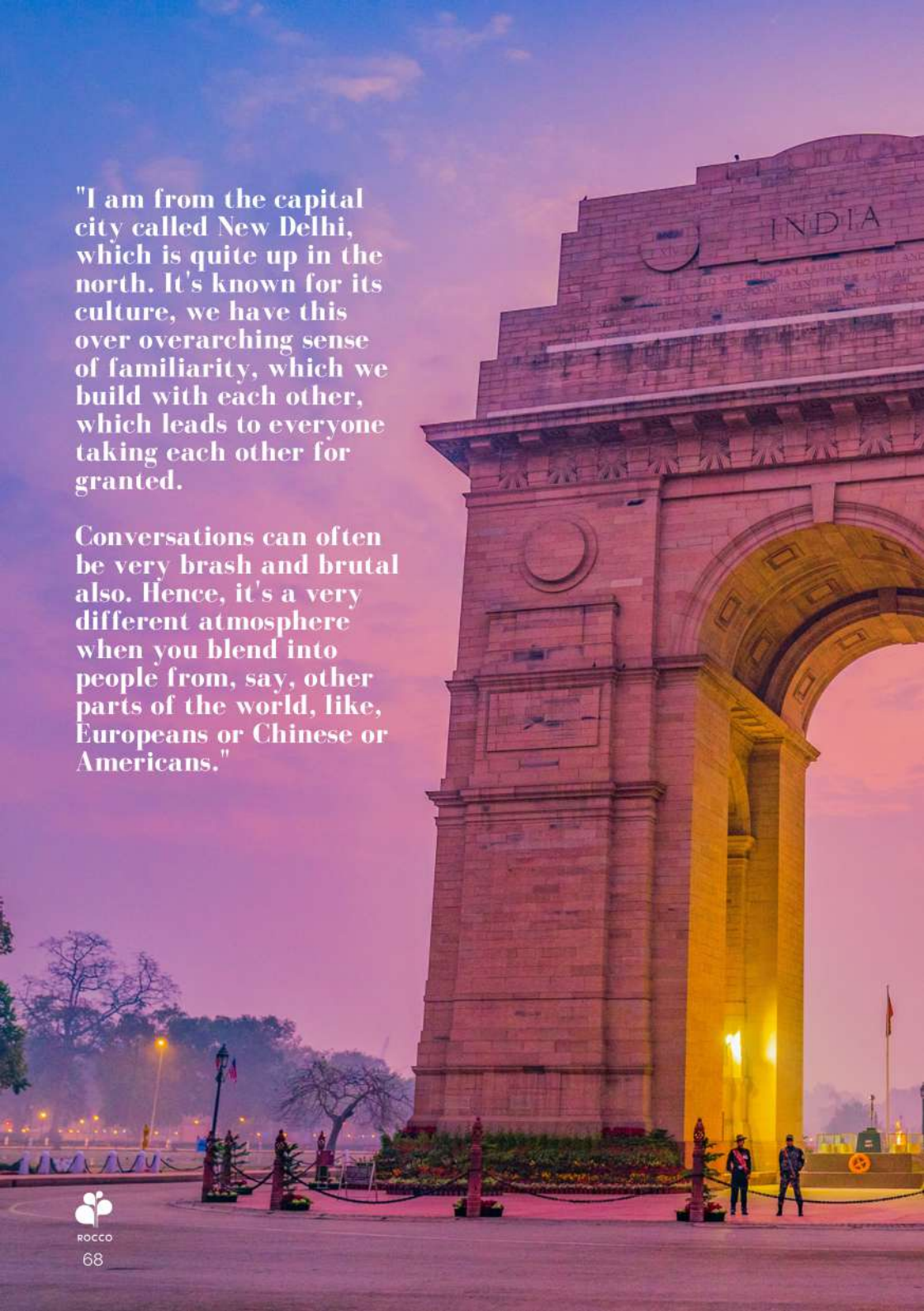


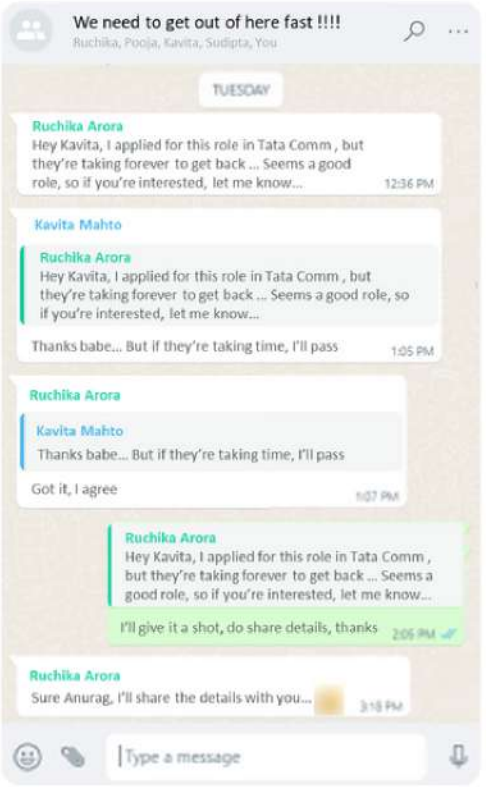
Photo credit:
Shalender Kumar
India Gate, war memorial
located astride the Rajpath

So, you know, person A said to person B, that, listen, there is this opportunity with Tata communications. But they are being superbly slow, as expected, in bringing candidates further. So, I've left it, but why don't you apply? And Person B said that listen, It doesn't seem my cup of tea. So, thanks a lot. So that's where, I was reading the conversation. And I swooped in, and I said, hey, listen, I'd love to know further about the opportunity, if you can share the details.

I started ground up. I mean, I didn't reach out to any senior leaders out there, I literally reached out to the HR personnel, he connected me to his manager, then there was a first interview and the second and the third and the fourth. So, the entire experience lasted about a month and a half, two months, and I made some very, very basic faux pas in my interviews, starting from asking the hiring manager – "doesn't voice and SMS travel in the same channel?". Thankfully, he was kind enough to ignore such conversations.

So basically, the role was about helping set up the A2P messaging business at Tata communications. And there was a requirement of a person to lead the entire commercial management, which means all the deals and helping grow business by interacting with the sales team, because the sales team is in direct communications is not limited to just selling SMS, you know, or CPaaS. So, there are a whole bunch of different offerings which Tata comm has, and they were needing some people to become subject matter specialists. So, there again, was an interesting experience for me. And, my key takeaway from that was that opportunities could literally be around the corner, one just needs to keep their eyes and ears open. And just take that leap of faith.

"I made some very, very basic faux pas in my interviews, starting from asking the hiring manager – "doesn't voice and SMS travel in the same channel?"



You know, it's very funny how life moves on and how things change. I had no clue about this role. I wasn't even sure if this is the right fit for me. But A) I was desperately looking at moving out of steel and doing something different. And B), this opportunity gave me a chance to spend one month in Canada. So surely, that for me was, carrot enough, the bait was good enough for me to bite. And I said, Okay, let's just jump in.

And little did I know that would literally be a turning point for my life, let alone my career. But in my personal life, you know, so many things changed my entire experience because prior to this, I'd never travelled west of Africa. I've never been to Europe; I've never been to North America. So, I was pretty much as fascinated by an opportunity to spend a couple of weeks in Canada. And what's interesting is eventually, I didn't spend a month, but I spent four months in Canada. And that also included a visit to UK.

And representing my team single handedly in a messaging event, which finally doesn't even exist today. It happened back then in 2014. And, you know, I was amazed by the confidence which my team reposed in me. Knowing that, you know, I just spent about two or three months in the organisation and expecting me to have that capability to represent the company represent our business, our team and be able to help successfully grow business.

So, it was a once in a lifetime opportunity, I'd say, and something which continued....

Many thanks to Anurag for his interview. Listen to the entire Well Connected podcast interview with Anurag at ROCCO RADIO on Apple Podcasts, Soundcloud and from the webpage at www.rocco.group

"I would be selling mineral water on the roads. We have a brand called Himalayan water. We have a mobile phone brand called Tata Indicom in those days."

Photo credit:
Laurentiu Morariu
New Delhi

Photo credit:
ROCCO GENESIS 2022

Listen to the rest of the interview at ROCCO RADIO
www.rocco.group

Also, watch Anurag's
Genesis talk at www.roccogenesis.com.

Most of Telecom operators are missing something in their Revenue Assurance and Fraud Management strategy. Don't be one of them! Reach out to LATRO.

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How did it go...

GENESIS 2022

"The camaraderie, engagement, and just overall interaction was indeed great to be part of"

How did it go...
GENESIS 2022

"Keep doing it this well."

"Brilliant!"

"Its one of the best events I have ever attended"

How did it go..

VISIONARIES GALA

ROCCO
VISIONARIES
Gala
COMING UP:
25TH MAY 2023

GENESIS 2023

ROCCO Genesis is an event designed to bring three perspectives on the challenges our industry is facing: innovative ideas, strategic insights, and training.

Genesis 2023 will be the second live edition of the forum as a continued effort made by **ROCCO** to showcase innovation after Virtual Genesis in 2020 and 2021 and Genesis 2022.

Genesis 2023 will be special. ROCCO, invites you to join us to experience a revolutionary new **Roaming and Interconnection Innovation Forum**, which will take place from 23-25 May. The location will be confirmed shortly.

www.roccogenesis.com

THE INNOVATORS

The Innovators is a research conducted by ROCCO to identify the most Innovative **MNO** and **Vendor** Solutions in our industry.

After the industry support of the MNO Innovators 2021 and the Vendor Innovators in 2022. ROCCO will continue to offer the Genesis event and the Innovators Programs again in 2023 to identify the most innovative solutions from MNOs and Vendors.

Categories are as follows for either an MNO or Vendor solution:

- Messaging
- Fraud & Security
- International Roaming
- Interconnect

OPPORTUNITIES TO SHARE AND DISCUSS INNOVATION

REGISTRATION OPENS ON 12TH SEPTEMBER AND CLOSES ON 12TH DECEMBER 2022.

Providing several stages of visibility for their solutions and a forum dedicated to Innovation.

Vendors and MNOs will present their innovations at the Showcase sessions on the 1st and 2nd February 2023.

All the presentations will be made by the industry at this event and then available on on the ROCCO Research website to review.

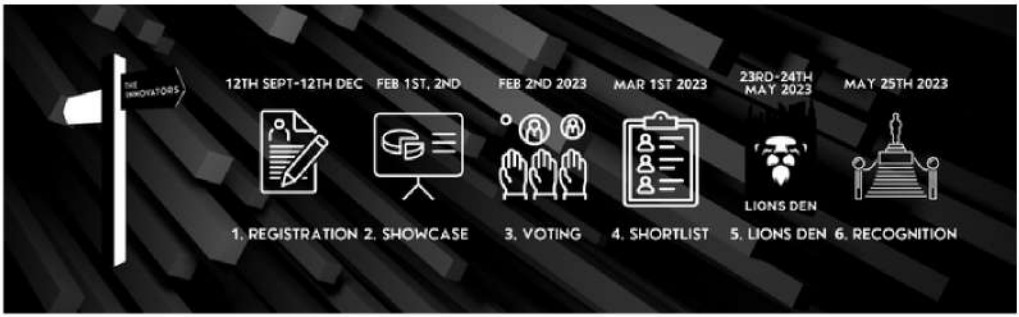
The industry will vote on the solutions they like the best and shortlisted solutions will be featured at **Genesis 2023 from May 23rd to 25th 2023.**

The final phase will take place in the Lions Den, where the shortlisted solutions will be analysed in detail.

Following receiving the Lions feedback on the best solutions, the top 3 solutions in each category will be awarded at the Visionaries Gala.

MNOS & VENDORS CAN NOW REGISTER

TO REGISTER FOR THE INNOVATORS 2023, PLEASE CONTACT US AT HQ@ROCCO.GROUP.



LION'S DEN

A Vendor/MNO pitches an innovative idea/product/solution which could help the Roaming, Messaging and Interconnect industry to generate revenues or save costs, become more efficient or offer more quality solutions to end subscribers.

They will present to a panel of "Lions", who are leading visionaries in the industry from MNOs, entrepreneurs and CEOs, who give live feedback to them in- front of the Genesis audience in the style of the TV Show "Dragons Den" or "Shark Tank".

THE LIONS (ADVISORS AND PEOPLE FROM MNOS) WILL RATE THEIR INNOVATIONS. THEN THE AUDIENCE AT GENESIS WILL ALSO HAVE A CHANCE TO RATE THE IDEA.

HOW THE LION'S DEN WORKS:

Companies/Individuals pitch their idea to the Lions, showing with a maximum of 5 slides the solution, its name, background, uses, time to market, and the team who developed it.

The Lions ask direct questions, debate among themselves the pros and cons of the idea and whether they like the idea.

The Lions may seem at first intimidating, not always nice, you don't know how they will react, but **they will ultimately provide good advice.**

Pitches in the Den are short, since the full presentation of the solution has been made during the showcase sessions a few months earlier. This leaves time for questions from the Lions and audience.

The Lions are always respectful and will give honest **feedback /constructive** criticism stating why they approve of the business idea/solution and provide a final opinion.

The Lions in Lions Den 2022 were from **Airtel Jio, AT&T, MTN Globalconnect and CNN Brazil.**

TALENT SHOW

The Masters of Billing and Charging Evolution

The Masters of Billing and Charging Evolution

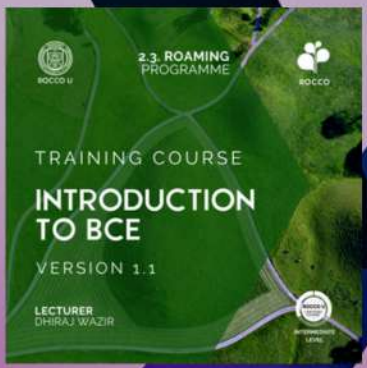
There's an Evolution Coming in Billing and Charging for Wholesale Roaming

Since 1991 the telecom industry has used the Transferred Account Procedures (TAP) for roaming billing and settlement needs.

Although TAP has served the industry well, and is here to stay, the process is too complex and rigid to support future technologies like IoT and 5G.

IDS working group has defined an alternative solution called the Billing and Charging Evolution (BCE) process to serve these industry requirements.

At ROCCO we produced a short 4 module training course on BCE which helps anyone interested to learn how it works. We are also developing a Roaming Clearing Report which will focus on the evolution of Roaming clearing coming with BCE and Blockchain.



What is the BCE Process...

The BCE process is a simplified and flexible optional settlement method tailor made for the future wholesale roaming settlement needs of operators.

The process is driven by new formats like Detailed Data Record, Usage Data Report and the Billing Statement Report which together build a robust framework for seamless revenue assurance.

Now to meet some of the companies and people behind BCE with short introductions of what they are doing for BCE...

Sometimes only the main representative is shown and not the entire team.

COMFONE

Comfone has contributed to shaping the roaming industry since 1997.
Even now, celebrating its 25th birthday, we still actively participate in the relevant GSMA's working groups to define BCE, the new clearing standards required to cope with the new challenges that 5G and the IoT world are already creating.

Comfone's unique attitude to innovations, combined to a significant clearing expertise, has led to the development of Phoenix, our state-of-the-art solution to support our customers during this clearing transition and beyond.

Designed for Big Data applications and fully compliant to the latest BCEstandards, Phoenix is a fully managed end-to-end service, catering for a large variety of traditional and innovative roaming scenarios, as well as supporting the sophisticated charging models that will help our customers gaining more out of their roaming business. Supported by the latest IT architectural environment, Phoenix is high reliable and scalable, therefore prepared to cope with the expected traffic volumes that the IoT world will generate.

Our Phoenix team assists our customers throughout the whole implementation process, then continues managing the service and providing operational support, according to the well-known Comfone's tradition to operate services with the flexibility that our customers require.

Contact Comfone to know more:

- **Mauro Mele: mauro.mele@comfone.com**
- **Antonia Gabler: Antonia.gabler@comfone.com**
- **Randy Peterson: randall.peterson@comfone.com**

ENGHOUSE NETWORKS

An introduction to Wholesale Revenue Management with Enghouse Networks.

The Enghouse Wholesale Revenue Management (WRM) platform, now in its 4th major version, will help you move to a post-TAP business universe.

That's because it's been designed to improve your operational efficiency, accuracy, and flexibility and creating innovative service packages with rapid time-to-market.

Its built-in Billing supports BCE and new use cases out of the box, for example, while WRM platform also offers support for APN, QCI, RAT, IMSI, Rating groups, Slices, Usage ranges—and in terms of tiers and thresholds, everything from flat per service or tiered per service aggregation to back to first,

Henning Lagerbielke - Director , BSS at Enghouse Networks

as well as per IMSI (or even per day) is supported by configuration directly in the application.

What you get with WRM from Enghouse Networks—whether you're an MVNO or a Tier 1 operator handling billions of daily transactions—is a comprehensive platform, a convergent, end-to-end wholesale mobile billing and settlement platform for the next generation, with the continuity to take you from TAP to BCE.

The WRM platform does not only allow you to seamlessly transform between TAP and BCE agreements but is also supports inbound and outbound file exchanges as stipulated by GSMA together with end to end reconciliation and invoicing. For more information:

www.enghousenetworks.com

NEXTGEN

As the industry is busy implementing new services like 5G, NB-IoT and LTE-M, and companies are providing roaming services to the general public, it seems TAP is no longer deemed useful. During the last few years, as TAP is still used for every roaming agreement, the GSMA is working on implementing a new standard, BCE.

BCE allows operators to introduce less complexity and more flexibility in invoicing and settlement, whilst moving away from a combined retail and wholesale billing environment. In BCE, a system is introduced where only aggregated, wholesale usage is taken into consideration for invoicing, settlement, and payment. The flexibility comes from the ability to invoice and charge high economically valuable operators monthly (or even weekly), and those that are of less economical interest every 6 months or perhaps yearly.

This can be done with BCE agreements. These new BCE agreements are bilateral and need to be agreed between operators which opens possibilities at operator level to diversify invoicing; this does require answering some internal questions before negotiating BCE agreement such as·

- What do we want to charge for as an operator? Signalling? Attaching a SIM to the network? Or just those IMSIs that have usage on the network?
- What information do we need to pull from our network elements? Is it different to what we did in the past, like Radio Access Type; NB-IOT or LTE-M
- How do we ensure invoicing data is made available? Do we add aggregated CDR levels in such a way that what we think is charged for, the roaming partner charges for as well?

These areas and countless others are where Nextgen can help. We have experience in delivering support to operators, from report creation to reconciliation and validation of incoming invoice report data, settlement, and payment. We can also assist operators to prepare for BCE agreement negotiations so you can invoice what is agreed and needed. **For enquiries: rob.vandebraak@nextgenclearing.com**

SYNIVERSE

Clearing and Settlement using TAP has been an instrumental enabler for the success of global roaming. However, as technology and business models evolve, TAP will no longer suffice for sustainable and efficient monetization of next generation services.

Consequently, the necessity to use TAP for retail billing is diminishing. GSMA's IDS working group identified the need for a simplified, flexible solution to clear and settle wholesale roaming and other services. This effort led to formalization of the Billing and Charging Evolution (BCE) standard.

BCE is now an approved GSMA standard, and its use is by bilateral agreement between business partners. BCE helps you to capture new revenues from growth services (e.g., IoT and 5G), inside and outside your home market. t also offers streamlined wholesale workflow where reports with aggregated data records and billing statements, that can be rated and reconciled, provide increased revenue assurance and transparency for MNOs and their partners.

Anna Gussmann
Senior Director Product Management
GSMA BCE Chair

In early 2019, Syniverse developed Universal Commerce, based on BCE with integrated blockchain technology and Smart Contracts. Syniverse evaluated the benefits of the new standard in combination with new technology, embedding the experiences in its solution. With Universal Commerce, Syniverse was the industry's first company to deliver a solution for clearing and settlement using BCE, including:

- Audit trail of commercial agreements and file processing history
- Automated reconciliations
- Automation of dispute process
- Invoices produced with projected funding for the invoice period
- Faster time to cash - settlement

For enquiries: Anna.Gussmann@syniverse.com

TOMIA

TOMIA's Billing and Charging Evolution (BCE) service offers efficient support for wholesale charging models for 5G and IoT use cases. TOMIA's BCE goes beyond the standard to support IoT permanent roaming agreements based on a number of roaming days or usage patterns.

The service offers fully automated reconciliation analysis at multiple levels with drill-down options aiming to accelerate dispute resolutions. Online and offline revenue assurance processes reject duplicated traffic in real-time and prevent double invoicing between TAP and BCE.

Unlike traditional cloud-based clearing, the BCE service can be deployed on-premises for those operators who want to retain control of critical data and are sensitive to GDPR and data protection guidelines. Its modular framework allows operators that want to invest in an in-house solution to complement theirs with BCE report creation and mediation, rating, reconciliation and dispute management, as well as settlement functions.

For enquiries: Marketing@tomiaglobal.com

www.tomiaglobal.com

Sheetal Maheshchand – Product Manager, Clearing and Emerging services

Giacomo Cuccureddu – Manager – DC, FC & BI Solutions

Allen Petrarca – Software Development Manager

THE ROCCO GROUP

Driven by **bringing innovation to telecoms**, our businesses each have unique industry roles, with distinct products and services but with the same core values behind them all. **We have built this capability to serve and make the telecoms sector prosper**.

RESEARCH

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VENDOR BENCHMARKING

MARKET INTELLIGENCE

ROCCO IOO

THE INNOVATORS

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LIVE TRAINING

ON CAMPUS COURSES

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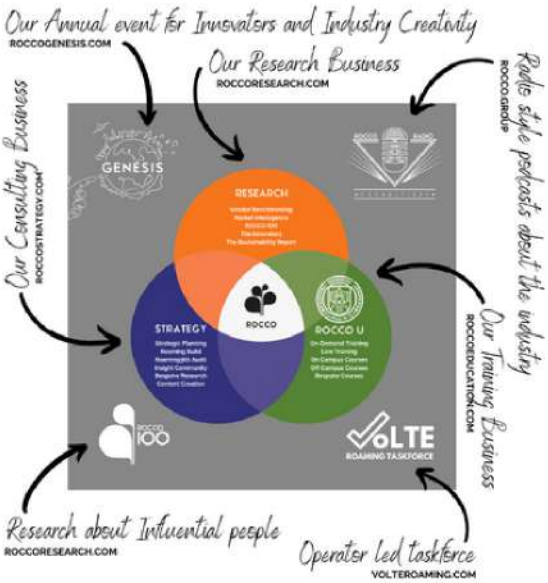


Nothing is so consistent in the telecoms sector as change. Faster, better, cheaper… Our zeal to consume more quality content, wherever we are in the world at a faster pace has turned us into an impatient crowd that stares at screens almost uninterruptedly and fidgets angrily at the smallest sign of a connection hiccup. But we all know that professionally and as businesses **we always need to start preparing ourselves for the next step** because there's always another generation and a new buzz to get excited about.

ROCCO has been around since 2012 and from our conception we wanted to be a catalyst for **innovation with Research, Strategy and Education** that wasn't biased, sponsored or boring. We now have **three companies**, and we're not afraid to start a fourth, if there's something new to deliver and a challenge to be met.

We create multiple types of reports on Roaming, Messaging and Fraud and Security and we deliver on-demand training and strategic consulting which together provide a rich foundation on which to wage strategic excellence. In telecoms, we face multiple unimaginable scenarios, but we face them with actionable insights, clarity of direction and purpose.

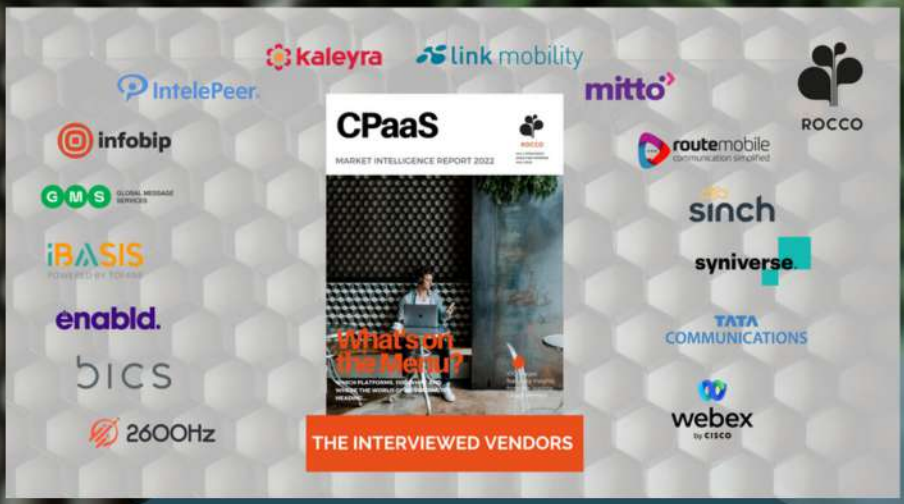
2022 REPORTS

CATALOGUE

www.roccoresearch.com

Analysis of the current state of the CPaaS market featuring the insights from the leading Vendors.

The second edition of the CPaaS Market Intelligence report complements the releases in A2P SMS from both an MNO and enterprise perspective, covering some of the issues featured. With **15 interviewed vendors** and more than **100 pages**, this study features the CPaaS solutions that these vendors are offering and their opinion on key aspects related to this topic. Moreover, the interviewed companies have shared their future expectations as well as key regional trends.



This report is aimed at:

- MNOs and enterprises that want to be better informed about the main services related to CPaaS.
- Vendors that want to understand what their competitors are currently offering and their stance on key issues in this space.
- Companies that want to have a comprehensive guide of the solutions to enhance their customer engagement.

Analysis of the top performing A2P SMS vendors based on Enterprise ratings.

In the fourth edition of the A2P SMS Messaging Vendor Benchmarking Report – Enterprise Edition, enterprises have shared how COVID-19 influenced on their SMS volumes over the last 2 years. Moreover, enterprises gave their views about grey routes and the role of vendors behind this issue. Finally, as in previous editions, the participant enterprises have commented on the main challenges affecting A2P SMS.

The Strategic Analysis version cointains **+100 pages** of analysis of the main providers in the A2P SMS market from an enterprise perspective.

This report is aimed at:

- Enterprises looking for A2P SMS providers that best suit their needs.
- A2P SMS vendors who want to check their position in the market.
- Newcomers in the A2P SMS market looking for partners.

A2P SMS MESSAGING VENDOR BENCHMARKING REPORT - ENTERPRISE EDITION

ROCCO

IN NUMBERS

THIS NUMBER OF ENTERPRISES
222

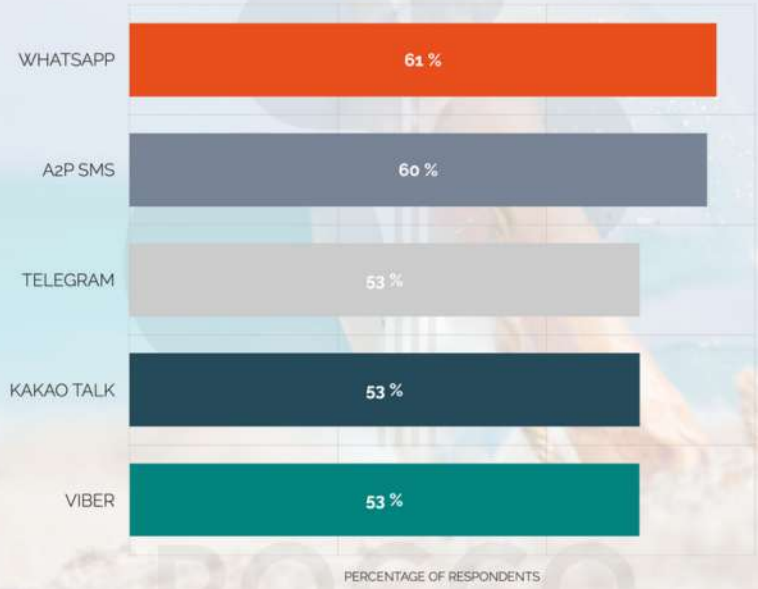
IN THIS MANY COUNTRIES
57

RATED THIS MANY VENDORS
20

REVEALING THIS MANY TIER ONE VENDORS
7

2022 HIGHEST VENDOR RATING
4.55

ENTERPRISES' TOP 5 MESSAGING CHANNELS BY EASE OF USE



Source: A2P SMS Messaging Vendor Benchmarking Report 2022 - Enterprise Edition

Analysis of the top performing A2P SMS vendors based on MNOs ratings.

The eighth edition of the A2P SMS Messaging Vendor Benchmarking Report with MNO ratings features new content about volumes. Specifically, operators worldwide have provided their views about the impacts derived from COVID-19 or the rise of OTT messaging. Also, this report features quantitative information about the main problem for operators regarding SMS, which is grey routes. Similarly to previous editions, MNOs have shared their views about the latest developments and current challenges in the A2P SMS space.

The Strategic Analysis version contains **+100 pages** of analysis of the main providers in the A2P SMS market.

This report is aimed at:

- MNOs looking for A2P SMS providers that best suit their needs.
- A2P SMS vendors who want to check their position in the market.
- Newcomers in the A2P SMS market looking for partners.

A2P SMS MESSAGING VENDOR BENCHMARKING REPORT - MNO EDITION

ROCCO

IN NUMBERS

THIS NUMBER OF MNO'S
165

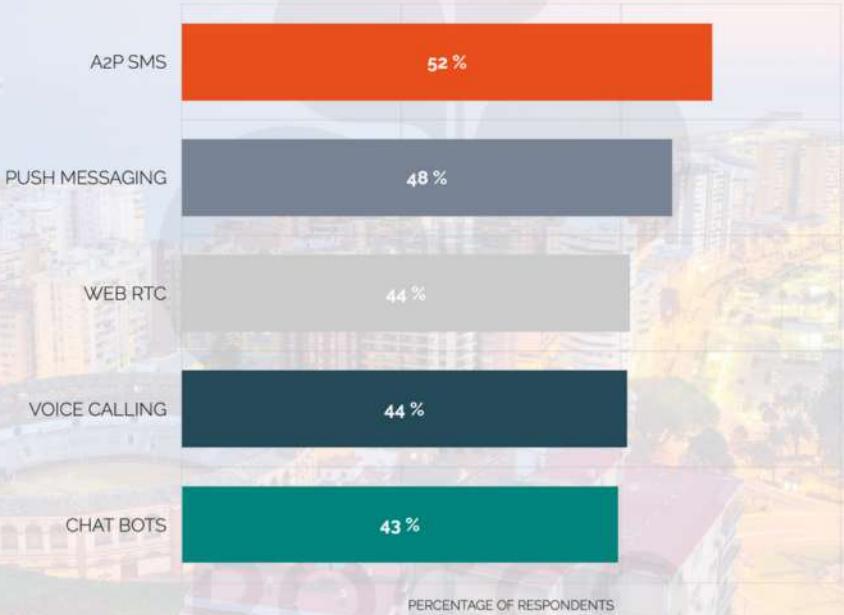
IN THIS MANY COUNTRIES
82

RATED THIS MANY VENDORS
36

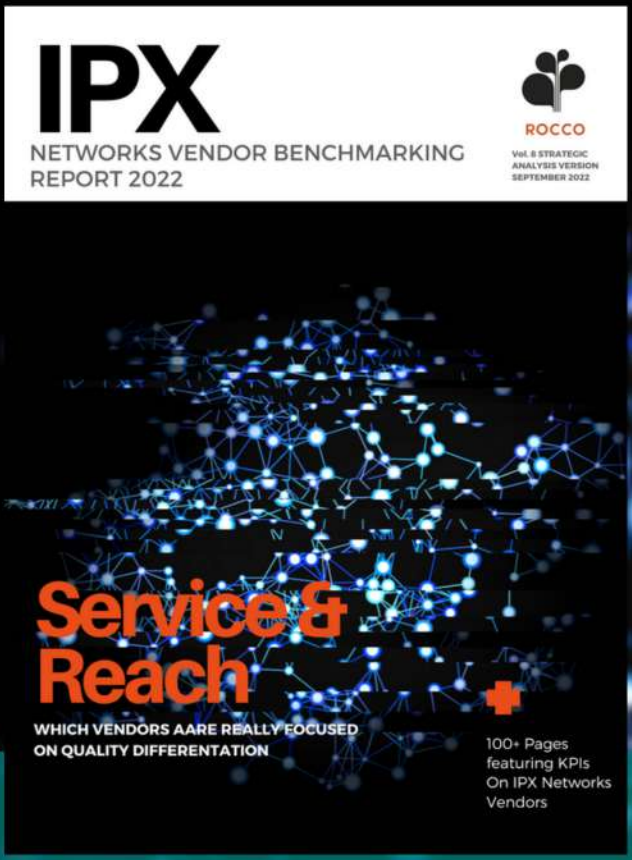
REVEALING THIS MANY TIER ONE VENDORS
7

2022 HIGHEST VENDOR RATING
4.42

MNOs' TOP 5 MESSAGING CHANNELS BY EASE OF USE



Source: A2P SMS Messaging Vendor Benchmarking Report 2022 - MNO Edition



Analysis of the top performing IPX providers based on MNO ratings.

The eighth edition of the IPX Networks Vendor Benchmarking Report features new content about expenditure in IPX services as well as 5G security. Participant operators have shared their views concerning what are the major challenges that they are currently facing concerning IPX. Knowing what MNOs need in this area is key in a context where VoLTE and particularly 5G deployments are gaining momentum. In this regard, this report also features operator's major concerns related to 5G deployment.

The Strategic Analysis version contains **+100** pages of analysis of the main providers in the A2P SMS market.

This report is aimed at:

- MNOs looking for IPX providers that best suit their needs.
- IPX Networks vendors who want to check their position in the market.

IPX NETWORKS VENDOR BENCHMARKING REPORT 2022

ROCCO

IN NUMBERS

THIS NUMBER OF MNO'S
170

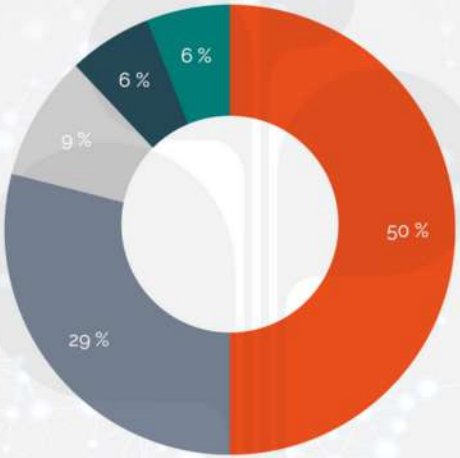
IN THIS MANY COUNTRIES
50

RATED THIS MANY VENDORS
24

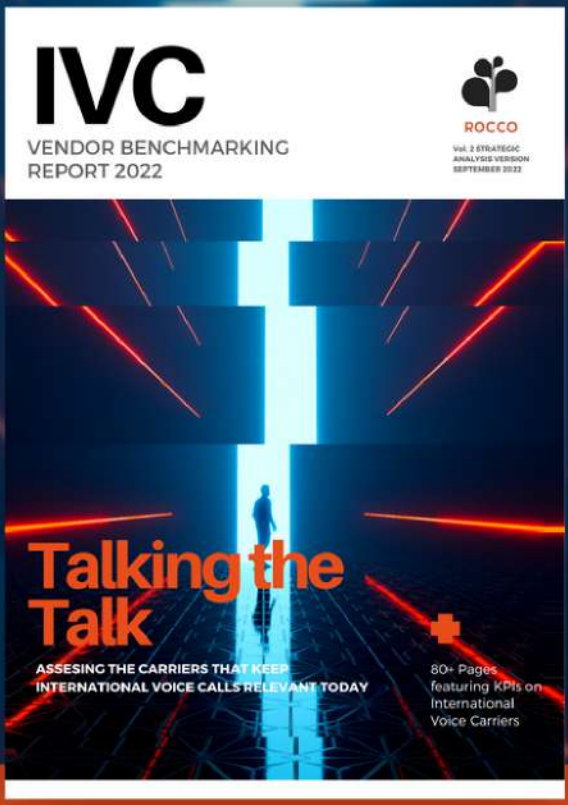
REVEALING THIS MANY TIER ONE VENDORS
6

2022 HIGHEST VENDOR RATING
4.62

WHAT MNOs ARE PLANNING TO USE FOR 5G SECURITY



Source: IPX Networks Vendor Benchmarking Report 2022



Analysis of the top performing International Voice Carriers based on MNO ratings.

The second edition of the International Voice Carrier Vendor Benchmarking Report features data about the impact of COVID-19 on international call volumes. Similarly, operators have shared information about the call volumes that they have received in their network. Moreover, the feedback provided by operators in this report allows understanding which are their major requirements as well as what needs to be improved in this space.

The Strategic Analysis version contains **+80** pages of analysis of the main International Voice Carriers.

This report is aimed at:

- MNOs looking for International Voice Carriers that best suit their needs.
- International Voice Carriers who want to check their position in the market.

INTERNATIONAL VOICE CARRIER VENDOR BENCHMARKING REPORT 2022

ROCCO

IN NUMBERS

THIS NUMBER OF MNO'S
132

IN THIS MANY COUNTRIES
76

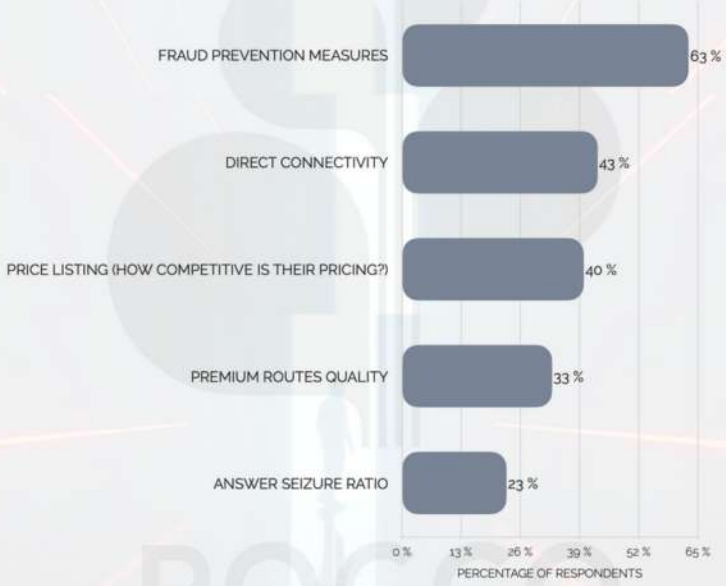
RATED THIS MANY VENDORS
31

REVEALING THIS MANY TIER ONE VENDORS
3

2022 HIGHEST VENDOR RATING
4.22

ESTIMATED

MNOs' TOP 5 REQUIREMENTS FOR INTERNATIONAL VOICE CARRIERS



Source: International Voice Carrier Vendor Benchmarking Report 2022

Strategy review of Wholesale Roaming based on MNO views.

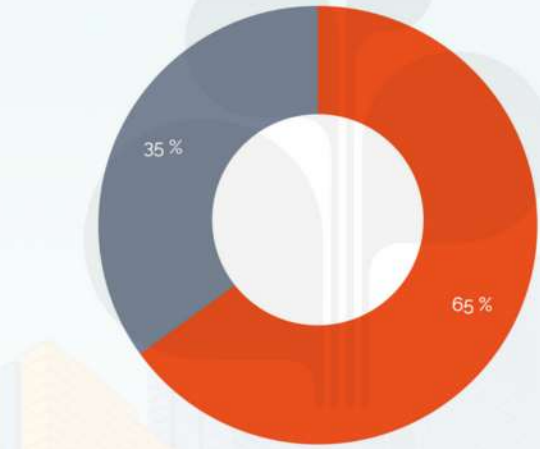
The third edition of How we do Wholesale Roaming Strategy Report contains strategic insights from MNOs about Wholesale Roaming. This is of key importance given that we are currently in a context where travel restrictions have considerably decreased, and VoLTE and 5G SA Roaming are bringing new challenges. In this regard, it is worth knowing what operators are satisfied about, but more importantly, which are the major pain points that need to be tackled.

The Strategic Analysis version contains **+50** pages of a detailed analysis of operational and organisational aspects of a fundamental function for MNOs.

This report is aimed at:

- MNOs that want to know the stance of other operators about crucial aspects of Wholesale Roaming.
- Roaming vendors that want to know better about the pain points that MNOs are facing with Wholesale Roaming.

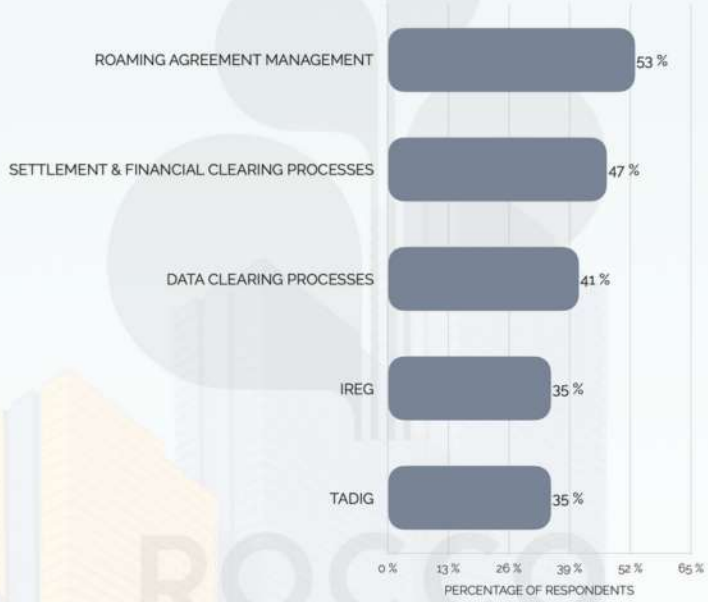
WHAT MNOs PREFER FOR THEIR OUTSOURCING STRATEGY?



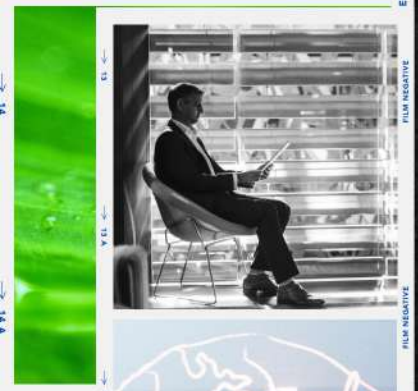
Source: How we do Wholesale Roaming Strategy Report 2022

ESTIMATED

THE TOP 5 ROAMING PROCESSES THAT SHOULD BE AUTOMATED FOR MNOs



Source: How we do Wholesale Roaming Strategy Report 2022



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With the emergence of Internet of Things (IoT) Roaming and 5G Roaming it has started to become clear that TAP is not a suitable mechanism for wholesale charging in this new all IP world with a plethora of devices with different profiles and usage behaviours. As such over the last few years GSMA has been working on a new wholesale billing standard. GSMA has announced that TAP will not be developed any further and envision that with time all wholesale billing will move to BCE.

Students will learn why and when to start working on BCE and how exactly it is different from TAP. We will go through various use cases that clearly demonstrate how BCE should and will be used.

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WHO IS THIS COURSE FOR?

Wholesale Roaming Managers and coordinators who are new to BCE and are looking to understand what it is and if and when they need to implement it.

Vendors interested to understand the new billing standards being developed and how they will be used by MNOs.

Anyone with a strong interest in wholesale billing especially how it is designed to work for IoT and M2M.

MODULE 1: Basics of BCE

MODULE 2: BCE Reports

MODULE 3: BCE Use Cases

MODULE 4: Experts opinions on BCE

The course includes interviews with Helena Bertovic (Comfone), Ruben Iversen (Nextgen) Henning Lagerbielke (Enghouse) and Randall Peterson (Member of the Standard Board of GSMA, currently working at Comfone)

The course includes a final exam that entitles to a certificate.

Combining more than 20 years of Wholesale Roaming knowledge with university trained strategic dialogue training, Jason Bryan takes you through several key management strategic modelling techniques he has used in his career and shows how they can be useful in thinking more innovatively about International wholesale Roaming strategy.

Starting with the basics about how strategic planning can help, the course enables students to think more openly, differently and deeply about how they can make an effective roaming strategy.

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The course includes a final exam that entitles to a certificate.

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Mobile Operator based International Wholesale Roaming Directors, Managers, Co-ordinators

Business professionals who work with mobile operators who would like to learn what to consider for international wholesale roaming strategy.

Anyone new to telecoms International wholesale roaming who wants to learn what to consider when creating a roaming strategy.

WHO IS THIS COURSE FOR?

MODULE 1: Roaming Strategy Overview

MODULE 2: Innovative Strategies

MODULE 3: The Macro Environment

MODULE 4: The Micro Environment

MODULE 5: The Local Environment

MODULE 6: Scenario Planning

MODULE 7: The Strategy Plan

MODULE 8: Action Planning & Delivery

ROCCO U ROAMING PROGRAMME 3.1. V.4.

With the emergence of 5G networks globally in 2019, 5G Roaming is already being developed and rolled out. It's clearly the next major project in Roaming delivery for Mobile Operators.

Combining the ROCCO's 5G Roaming Research with MNOs, ROCCO U has produced a 5G Roaming Course.

Students will learn why 5G is unique and how to handle the challenges and opportunities it presents. Moreover, this course also explains how to be better prepared for delivering 5G Roaming.

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"Thank you, ROCCO U for the 5G Roaming course. I highly recommend it to all professionals in the 5G Roaming business."

"Very well done. One of the best trainings I had and seriously, great presentation and preparation."

"I liked the fact that it was not just theoretical training, but the presenter also conveyed few opinions and his point of view on certain topics. This gives additional credibility to the work done."

COMMENTS FROM OUR STUDENTS

MODULE 1: 5G Roaming Overview: Concepts and Ecosystem

MODULE 2: 5G Roaming Challenges and Opportunities

MODULE 3: Deployment Options & Network Architectures

MODULE 4: Network Slicing

MODULE 5: End to End Roaming Delivery Process Overview Part 1

MODULE 6: End to End Roaming Delivery Process Overview Part 2

MODULE 7: Fraud and Security issues with 5G

MODULE 8: Spectrum and Regulations

The course includes a final exam that entitles to a certificate.

ROCCO U ROAMING PROGRAMME 3.3. V.1.1

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- DISCOVER ALL THE VENDORS BY SERVICE IN THE VENDOR DIRECTORY
- GET THE LATEST NEWS ABOUT WHICH VENDORS ARE WORKING ON WHICH SOLUTIONS

INDUSTRY DEFINITIONS

Definitions most searched for at ROCCOEDUCATION.COM

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- **5G NSA:** Non Stand Alone. A solution for 5G networks where the network is supported by the existing 4G infrastructure.
- **5G SA:** Stand Alone. Fifth Generation Network, Stand Alone Version
- **A2P:** Application to Person, a known mechanism for exchanging messages such as SMS between an APP of some kind and a person.
- **AA.14:** A document dedicated to the Commercial and operational information exchanged between MNOs to facilitate roaming
- **Access Point**: A standalone device that serves as a link between routers and local area networks (LANs) to enable device connections.
- **Bandwidth:** The capacity of a telecom line to carry signals. The necessary bandwidth is the amount of spectrum required to transmit the signal without distortion or loss of information.
- **BCE:** Billing and Charging Evolution, a new mechanism for exchanging
- **CPaaS:** Communications Platform as a Service. It's a model that allows companies to add various communication features to their existing business applications from a single platform.
- **IR.21:** A document dedicated to the Technical Information exchanged between MNOs to facilitate roaming
- **MNO:** Mobile Network Operator, some times called wireless operator or cellular operator.
- **National roaming:** This refers to the ability to move from one mobile operator to another in the same country.
- **OTT:** Over the Top is a media streaming service that delivers content via the Internet. It does away with traditional media distribution channels such as television and traditional telephone networks. Instead, viewers directly access content from the provider.
- **P2P:** Person to Person, for example and SMS sent between people as opposed to A2P.
- **Packet Loss:** Packet loss refers to the failure of transmitted data to reach its destination. Data is usually transmitted through a network in chunks, then assembled back together when it gets to the other end. Some of these data packets tend to get lost.
- **Permanent Roaming:** This refers to customers who purchase service with a mobile phone operator intending to permanently roam, or be off-network.
- **Push Messaging:** A push notification is a message that pops up on a mobile device, such as a sports score, an invitation to a flash sale or a coupon for downloading.
- **RAEX:** Roaming Agreement Exchange, a mechanism for exchanging AA.14 and IR.21 data electronically
- **RCS:** Rich Communication Services, an emerging messaging solution with wider and richer features than SMS
- **TAP:** Transferred Account Protocol, a mechanism for exchanging billing and accounting information for Roaming
- **Voice:** Making and receiving calls to or from home country, visited country or a third country, while abroad.
- **VoLTE:** Voice over LTE (Long Term Evolution)

IDEAS...

IDEAS...

IDEAS...

FOLLOW UP WITH:
X ABOUT Y

FOLLOW UP WITH:
X ABOUT Y

THANKS FOR READING!

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THE NEXT GENESIS MAGAZINE WILL BE PUBLISHED IN MARCH 2023.
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SEE YOU AT GENESIS 2023

23RD to 25TH MAY 2023

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