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telemedia MAGAZINE

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VALUE-ADDED SERVICES

Mobile: dominant across social, gaming, retail and dating



2021 was a boom year for mobile, with mobile-first markets spending as much as a third of their waking hours – 3.8 trillion hours, to be precise – on device, downloading 230 billion apps and spending \$170bn worldwide on mobile

So finds the State of Mobile 2021 report from App Annie, which points to a range of trends in mobile use that emerged across 2021 – and which will shape how 2022 plays out.

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MESSAGING & ENGAGEMENT

2022: the messaging comms revolution starts here

James Stokes takes a look at blended channels, 5G, RCS, SMS and beyond as he assess the comms trends of the industry in 2022.



We collectively started 2021 with a quiet sense of optimism, hopeful that this year had to be better than the previous 12 months. And though the start of 2021 saw the pandemic reach its very worst, we've made huge leaps towards a return to normality since then.

In the communications space, 2020 and 2021 saw a rush of digitisation projects and emerging technologies in response to the pandemic. And this strong trajectory towards innovation and the development of new channels hasn't showed signs of slowing. McKinsey predicts areas like the Internet of Things (IoT), for example, will see a rise in value from \$5.5 trillion to \$12.6 trillion by 2030.

Technology has cemented itself as the cornerstone of brands who want to build loyal relationships with customers in a world where the boundaries between physical and digital customer experiences have forever blended. With that in mind, here are my predictions for the communications trends set to shape 2022.

A RENEWED FOCUS ON BLENDED CHANNELS

It was important last year, it's been important this year, and it'll be important next year – getting the right blend of communication channels is always critical.

Take WhatsApp as an example.

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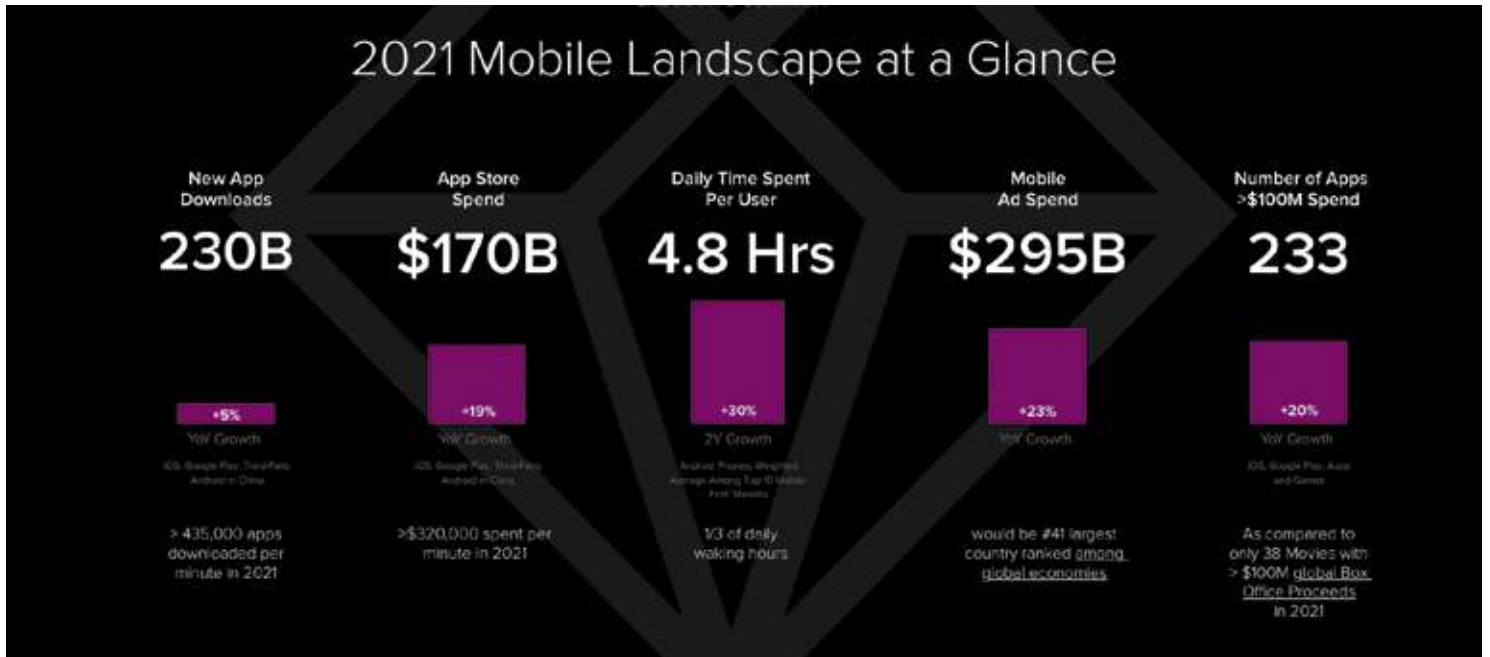
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Mobile dominant

<< 1 SOCIAL, PHOTO AND VIDEO STARS

By far the biggest draw for mobile has been social, photo and video apps, with 70% of all minutes spent on mobile spent doing one or other of these activities. The pandemic accelerated existing mobile habits, which have solidified in 2021, says the report and, while social dominates for time spent globally, regional differences in app preferences highlight unique market differences.

In fact, live streaming across social is a massive growth

area. In 2021, time spent in the top 25 live streaming apps outpaced the social market overall year over year by a factor of 9 — YoY growth of 40% com-

pared to all social apps at 5%. Live streaming apps are also driving consumer spend in Social apps as consumers 'tip' their favorite content creators — with global consumer

spend in the top 25 live streaming apps in 2021 growing 6.5x from 2018 and 55% YoY.

Social apps are the linchpin to connection in our mobile-first world. Live streaming apps are

TikTok was a standout winner in per user engagement among the top 5 social apps commanding the most time spent in 2021.

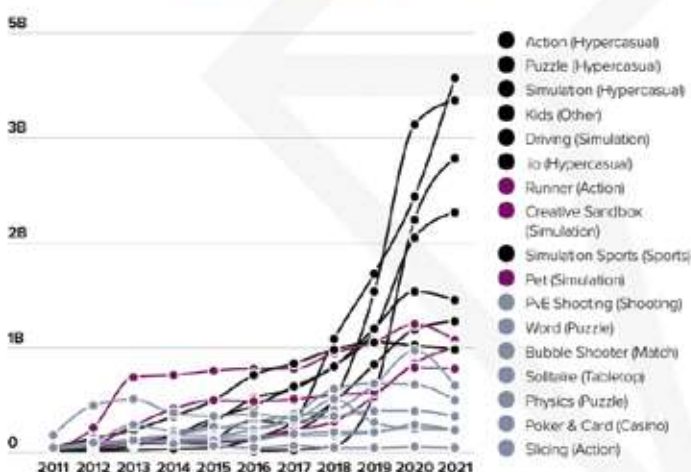
It is notable that TikTok has seen the greatest in depth of engagement over four years and had a standout year in 2021, off the back of an already record-breaking 2020.

Meta properties in India benefited from the TikTok ban in 2021, with engagement deepening in both Facebook and Instagram by 15% and 35% respectively.

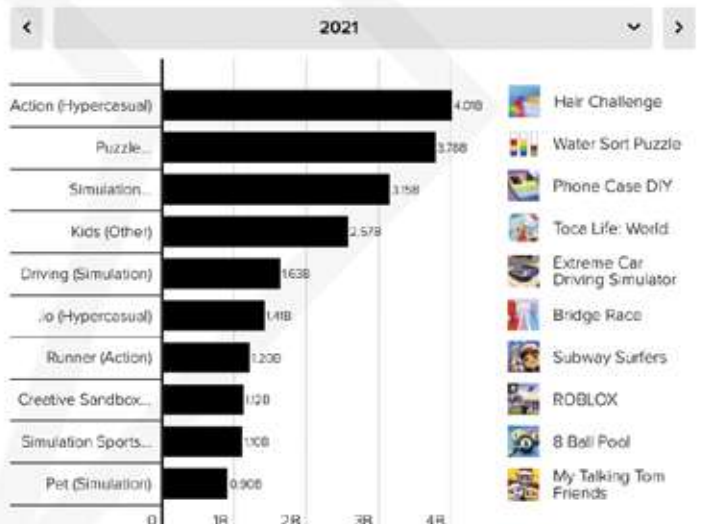
A key emerging trend in the social sector, which is likely to

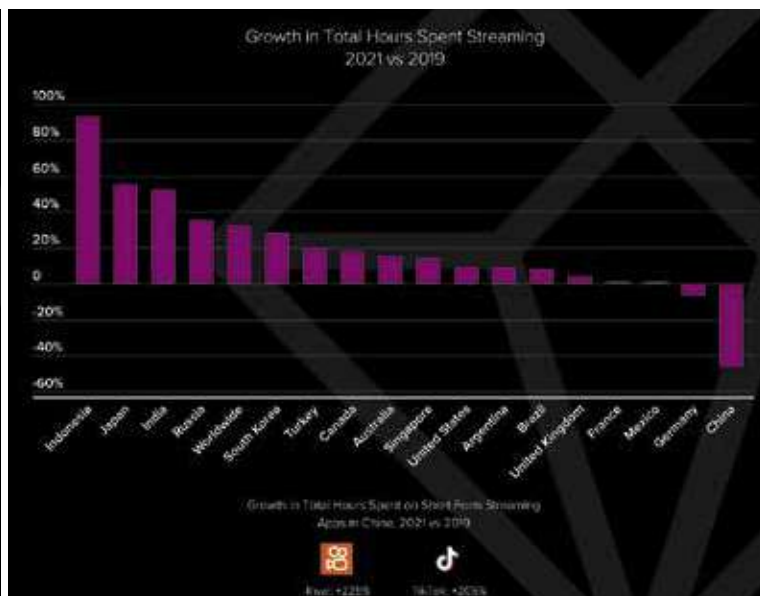
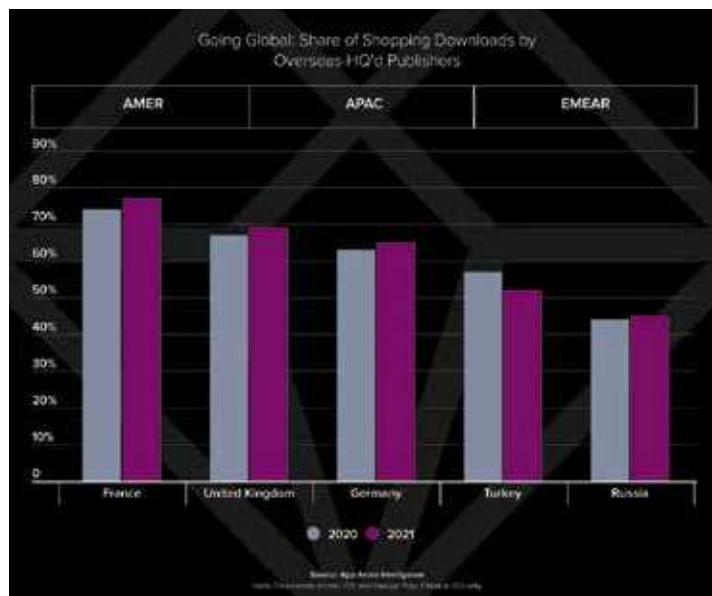
By far the biggest draw for mobile has been social, photo and video apps, with 70% of all minutes spent on mobile spent doing one or other

Yearly Evolution of Top Genres by Downloads
2021 Top Genres 2021's Top Genres in 2011 2011 Top Genres



Worldwide | Top Gaming Subgenres & Top Games by Downloads





Mobile dominant

<< 3

have a spill-over effect on the wider mobile world, are avatar apps. Demand for avatar social apps has grown amidst interest in metaverses in 2021, particularly H2.

Among the 3 select avatar social apps including Litmatch, REALITY by Wright Flyer and ZEPE-TO, downloads grew 160% YoY. Litmatch emphasizes matching with friends and using a simple avatar — highlighting the overlap of growing demand for avatar-based apps, even without a metaverse component — 2 converging trends. Lit-

match saw downloads grow 405% YoY amidst surging demand.

GAME ON FOR GAMING

Gaming is one of the biggest spending sectors on mobile and the increased use seen across 2021 has added around \$16bn in revenue to the mobile gaming sector — bringing the total consumer spend on gaming to \$116bn for the year.

In 2021, hit games such as Roblox and Genshin Impact saw further growth in consumer spend as mobile games are now capable of offering console-like graphics

and gameplay experiences. The gaming scene in China has seen renewed excitement over the release of Harry Potter Magic Awakened and League of Legends: Wild Rift in H2 2021, and we expect these to further occupy the top revenue charts in the coming months and further add to global mobile gaming growth.

Hypercasual games like Bridge Race and Hair Challenge were key downloads driver, but 2021 saw some well known IPs such as Pokémon UNITE, and PUBG: NEW STATE making major gains in downloads and usage.

MOBILE COMMERCE SELLS ITSELF

The shift to digital consumption ushered in by the pandemic has seen mobile commerce hit new highs, with time spent in retail apps hitting 100 billion hours globally.

Time spent in Shopping apps rose 18% year-over-year, with strong movement in fast fashion, social shopping, and mobile-savvy big-box players.

Among the countries with the fastest growth were Indonesia, Singapore and Brazil at 52%, 46% and 45% growth YoY, respectively.

APAC-HQ'd shopping apps have grown international downloads, shifting market share to non-native-based brands in many regions. Across AMER, overseas publishers grew in share of downloads. In the US, however, the mobile shopping market continued to be dominated by US-based brands (66% share), with only 34% from non-domestic brands.

Still, US-based apps lost 5% share of downloads to overseas publishers, driven by China, Canada, Australia, and Japan. In Brazil, Overseas-HQ'd apps dominated 52% of all shopping app downloads in 2021, an increase in share of 11% YoY.



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Mobile dominant

<< 4

VIDEO STREAMING STEALS THE SHOW

Total Hours Spent Watching Video Streaming Apps Grew 16% Worldwide Since Pre-Pandemic Levels, says the report.

Most countries in Asia saw growth in time spent among the top 20 video streaming apps, continuing the momentum first seen during the initial stage of the global pan-demic. Conversely, in China, video streaming apps saw substantial declines as consumers increasingly gravitated towards short-form video apps; Tik-Tok and Kwai saw total time spent in app grow by 205% and 225% since 2019, respectively.

Indonesia and Russia saw the highest increases in total hours spent across their video streaming apps in 2021, with India's MX Player being the primary driver of growth.

Despite access to bigger screens, consumers are still watching content on mobile. Competition is heating up in the space and exclusive content is a way of drawing in new viewer

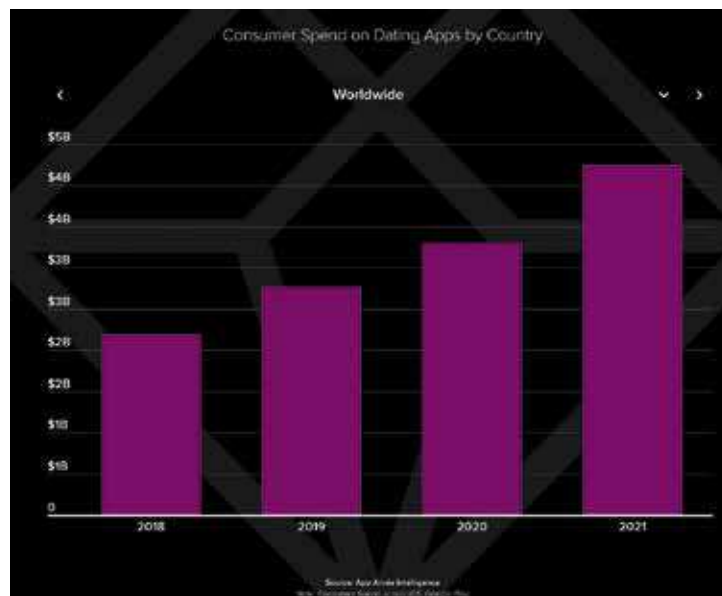
As more people were forced indoors due to COVID-19 and continuing to remain at home throughout 2021, demand for

video streaming apps surged. To remain competitive, providers leveraged exclusive content releases to capture market share.

The launch of Made for Love (TV Series) coincided with a 61% increase in downloads of the HBO Max app, while Squid Game's release in September 2021 saw a 6% boost for Netflix app downloads.

The demand among viewers for exclusive content is stronger than ever. Knowing what original content resonates with the target audience is crucial to staying ahead in an increasingly crowded space.

Netflix has the largest global footprint among video streaming platforms and a robust audience in each, with over 1



expansion are fuelling growth in the video streaming sector — a mobile-first strategy is needed to succeed.

China, the four largest markets in 2021.

For the US, Germany, Indonesia, and Japan, consumer spend more than doubled since 2018. Despite its population size, India is one region that saw declining consumer spend on dating apps, although it is still up 18% since 2018. India is a unique market where, although users of dating apps may not be spending heavily, more than 75% of Indian daters have started going on hobby dates and more than 50% are thinking of dating as a way to explore. Mobile is perfectly positioned to capture budding demand in this sector.

Users of Dating Apps With Generationally-Unique User Bases More Likely to Skew Male in Most Regions Except for Australia-Taimi, Hily, and Tinder tend to be more popular among Gen Z in the US.

Gen X and Baby Boomers in North America and Australia tend to use 'mobile-forced' dating apps; among those, Zoosk and Match.com tend to be popular. SCRUFF, Bermuda, and Plenty of Fish Online Dating bucked the trend and saw popularity among Baby Boomers despite being mobile-first providers.

Despite access to bigger screens, consumers are still watching content on mobile – and competition is hotting up, driving the need for exclusive content

million local downloads in 60+ countries.

Disney+ rivals Amazon Prime Video's global footprint, despite launching 7 years later on mobile.

Exclusive content, strategically timed releases, and overseas

DATING WITH DESTINY

Dating has also seen a surge in mobile use, with spend on dating apps hitting more than \$4bn in 2021 – a 95% increase since 2018.

The unabated growth in consumer spend was primarily driven by the US, Japan, the UK and



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A recent survey from MobileSquared estimates that 2.19 billion people were using WhatsApp at the end of 2020, which is forecast to reach 3.14 billion at the end of 2025. To maximise messaging opportunities on the platform, API spend will skyrocket, jumping from US\$312.9 million in 2020 to a predicted US\$16.4 billion in 2025.

Despite gigantic growth prospects, people do not live on WhatsApp alone. We know that customer profiles differ, which means brands must be present across multiple channels.

Our research exploring customer service during the COVID-19 lockdown found a strong appetite for different modes of communication. When contacting a company over lockdown, 31% would choose to do so via live chat and 28% via a phone call, for example. You need to embrace omnichannel communications to be where your customers are, rather than being bogged down by communication siloes.

Voice will have a huge role to play in 2022. 27% of the world's online population currently uses voice search and by next year, it's predicted that 55% of households will own a smart speaker like Alexa. I believe more and more customers will expect to search for their favourite product or communicate with their favourite brand via a voice assistant, so this is certainly a channel to prepare for.

THE MONETISATION OF 5G WILL RAMP UP

5G has been talked about for years, but it's safe to say that the technology is solidifying its importance as roll out expands across the globe. Yet network operators and providers still haven't cracked the code of monetisation.

In 2022, that will change. Solid growth in 5G subscriptions is

expected to continue, reaching 3 billion subscriptions by 2025. Average 5G download speeds are between 1.4 and 14.3 faster than 4G, which opens up many doors for new technological capabilities.

A big part of focusing on 5G will be the continued advancement of IoT. With vastly increased data transfer speeds, higher bandwidths and lower latency, 5G networks can boost the performance of connected devices. Over the coming year, we're likely to see more and more telcos taking advantage of this fact, offering IoT devices — such as cameras, intelligent door locks, even smart fridges — alongside 5G data plans. (For more on 5G see page 26-30).

RICH COMMUNICATION HEADING IN THE RIGHT DIRECTION

Rich Communication Services (RCS) has been hailed as the next generation of SMS, providing a mobile app's rich functionality from the comfort of a phone's native inbox. Although most Android devices can access the channel without any additional software, uptake has been slower than anticipated in recent years.

That being said, MobileSquared expects that by 2025, 176 networks will have launched person-to-person (P2P) RCS services over their own RCS messaging platforms — a 100% increase from 2019. We've seen a similar focus on rich messaging from our clients, with 14.2 billion RCS messages sent globally in 2021, up 3684% when we compare to 2020.

The launch of Google Business Messages and Apple Messages for Business is also helping shine a spotlight on the benefits of rich communications. By enabling rich messaging via common search engines and apps, with the likes of Google Search and Maps as entry points, brands can create efficient and automated conversations which prevent

customers from having to jump through unnecessary hoops. It will be interesting to see how these newer channels shake up the space in the year ahead.

SMS REMAINS AN ANCHOR FOR DIGITAL COMMS

SMS still stands out as one of the most effective channels. Next year, expect no change. Nine in ten people open their text messages, while more than half read them within a couple of minutes. Coupled with the forecast that there will be 7.26 billion mobile phone users worldwide next year, it's easy to see why SMS communication is still such an appealing strategy. No more so than during seasonal sales peaks, where from the 4.23 billion messages Infobip sent across all channels over the Black Friday and Cyber Monday sales period, SMS was the most used channel with 1.7 billion messages sent.

It's important, however, that companies recognise the risk of saturation, and strive to be as creative and engaging as possible with their SMS campaigns — especially as customers become savvier on how to opt out of texts that don't catch their attention.

A SECURE AND FRICTIONLESS EXPERIENCE

With people relying on their phones more than ever, there's been a renewed focus on cyber security in the telecommunications space. We've seen a rise in SIM swapping over recent years, where cybercriminals can intercept the transfer of an existing phone number to a new SIM. Recently a hacker from Missouri was imprisoned for his part in a SIM hijacking campaign, which saw millions of dollars' worth of cryptocurrency stolen from victims.

With dangers like this growing, what needs to happen, and what we might see movements made towards in 2022, is the establishment of a fresh security stan-

dard. Through a person's mobile phone, businesses and telcos have all the information needed to verify an identity securely but most importantly, in real time. This comes by checking the IMSI (International Mobile Subscriber Identity) number connected to the SIM card. If there is no concern, the authentication will happen silently in the background without interrupting the user experience. But if that IMSI number has changed, this is flagged as suspicious activity. The user will then be contacted by the service provider and asked for additional verification. It's about ensuring security is synonymous with customer experience and trust.

IN CONCLUSION

Developments in the industry will occur as part of a piecemeal process. In the realm of 5G, now a mature market, minds will be firmly on one burning issue: monetisation. Another key theme for businesses will be utilising blended channels to get their messages across, depending on whether the customer likes to receive messages via Snapchat, Instagram or WhatsApp. Rich messaging will grow in prominence. And we anticipate another strong year for everyone's favourite SMS, with security front of mind.

Communication requires strategic thinking. It's not as simple as throwing coins at projects to increase messaging options — sending the right message on the right platform at the right time — and ensuring a secure experience throughout — is the name of the game. 📱

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Social + messaging + payments = CPaaS boom

As global consumer use of social media and ecommerce continues to grow, the role of messaging and payments therein is creating an extended role for CPaaS services worldwide. **Paul Skeldon** ponders its future

The news that 58% of the world's population now regularly uses social media comes as no surprise: the rise in online use across the pandemic was always going to lead to more social media use. What is surprising are the knock on effects that this is having.

Research by Hootsuite and We Are Social in their jointly-produced Digital 2022 report, finds that 4.62 billion people worldwide use social media, spending on average some two and half hours a day using these sites.

While this chimes with figures from App Annie (see page 1), this Hootsuite/We Are Social report throws up some interesting facts about what this increasing use of social means for interaction, advertising and commerce. It also throws up something

very interesting for messaging players.

According to the study, WhatsApp is the most popular 'social' site globally, with 15.7% of working age internet users saying it's where they go for social interaction. This is potentially very interesting for telemedia, as it shows that the OTT messaging service is starting to outstrip all others. While it still has some way to go, it is going to give SMS a run for its money.

It also makes one wonder what it will do to the nascent RCS market: is there any point if they are all using WhatsApp? (see page 14).

THE CPAAS IMPERATIVE

Many CPaaS providers in the telemedia space have already cottoned on to the role WhatsApp has to play in

engagement and messaging and have sought to build it in to their platforms. Many corporates are increasingly turning to it as a comms channel with customers – not least seeing a potential 330% ROI on implementing such platforms, according to research into imimobile's CPaaS platform conducted by Forrester.

Hootsuite's social report only cements that growing use case.

Indeed, research by Juniper Research in late 2021 found that in the US alone, CPaaS was worth around \$3.7bn last year, driven by the need for conversational interaction and conversational commerce being the key differentiator for many consumers.

The study suggests that CPaaS vendors must then capitalise on the growth of mobile messaging via revenue-sharing agreements that allocate a proportion of commerce sales to their platforms as revenue. To maximise this new revenue channel, the report suggests that CPaaS vendors

prioritise the onboarding of key eCommerce retailers in the US and ensure that payment details are stored securely.

While much of this is driven by 'standard' services such as SMS and voice, that is starting to shift as consumers look at using the channels they tend to use everyday to also interact with businesses.

And this means WhatsApp and social are going to start to take a bigger slice of the pie.

Behind WhatsApp in the Hootsuite/We Are Social study, with 14.8% of users claiming it as their favourite, is Instagram – pushing Facebook into third place for the first time. Tik Tok, meanwhile, has seen the most rapid growth and, globally, is the social platform of choice for 7.3% of people. Tik Tok's reach among users aged 18+ now stands at 885 million.

All this interest in social media is having a profound impact on both ecommerce and advertising.

Social commerce continues to manifest its importance in Meta's advertising data. The company's latest numbers reveal that more than 560 million Facebook users now see ads in Marketplace each month, and 187 million Instagram users see ads in Instagram's Shop tab.

THE ROLE OF MARKETING AND PAYMENTS

The report also highlights the role of social media advertising in the marketing mix, with more than 1 in 4 internet users aged 16 to 64 (27.6%) saying that they discover new brands, products, and services via social media ads.

This comes with a caveat, however. Barely 1 in 6 working-age internet users (17.3%) say that they feel represented in the ads that they see, regardless of the medium. Older users feel particularly detached from advertising, with just 1 in 9

global internet users aged 55 to 64 saying that they recognise themselves in advertising.

This shift in use of social for marketing that drives messaging and ecommerce is also starting to feed into how people pay. Separate research by Juniper Research finds that ecommerce payments in 2021 topped \$4.9trn and are set to hit \$7.5trn by 2026 as ecommerce plays an increasing role in the whole retail experience – both online and the use of online while in stores.

Interestingly, according to Juniper, much of this will be driven by new payment tools, including Open Banking-facilitated payments and digital wallet one-click checkout buttons. Accordingly, it recommends that merchants ensure payment options match changing user expectations, or they will be rapidly left behind.

One such payment tool that is already garnering much interest is

the putative direct bank transfer – or Pay-by-bank – payment scheme, where consumers use a direct bank transfer to pay for their online goods.

Already in Europe, pay-by-bank is gaining ground, with DIMOCO and SignD teaming up in Germany to offer the service and and BR-DGE and Moneyhub partnering to offer similar services to merchants.

Now UK tool retailers Toolstation has also added it to its roster of payments.

This makes for an interesting shift in how retailers view payments for online and omni-channel sales. It also presents something of a challenge in some putative markets for DCB. Pay-by-bank is almost as frictionless and easy as DCB and comes with some inherent security that DCB can't match.

Ultimately, it will be horses for courses – different payment

tools will suit different applications – and many retailers and brands will start offer as many as they can to make it as easy as possible for consumers to actually purchase.

Coupling this with the rising use of social media marketing and, especially, the rise of use of WhatsApp presents a massive opportunity to engage consumers worldwide on the channel of their choice and instigate simple, frictionless payments. This is where the real opportunity for telemedia companies lies in 2022: blending messaging, marketing and payments into one offering across all manner of channels.

Issues with IBAN discrimination may yet make that harder to do across borders, but the ideal of getting this up and running and out to corporates worldwide should be priority number one for the industry for 2022. 📱



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CPaaS brings together many of the messaging and engagement technologies that telemedia has been selling for years. But it also brings a new business model, new opportunities – and some challenges. **Paul Skeldon** reports

CPaaS: the business model conundrum



And this has had a fundamental impact on the business model for CPaaS – in several ways.

According to Wood, it offers the ability to test and trial and then to scale and allows the companies that want to use it to pick and choose what they run. Voice, SMS, video services and more can all be turned on and off as they are needed.

It also allows companies such as C3 to add payments and other apps into the mix to make the offering even richer to end-user clients greatly reducing scope of regulatory compliance.

This has meant that many of the 'old skool' telemedia players that have long offered these sorts of technologies can open up what they do to a wider range of companies.

For many, it has seen them start to be able to target larger organisations, which have been caught on the hop with needing

For many the CPaaS model is nothing new. In the telemedia sector, many players have been offering the kind of communications tech that makes up a CPaaS offering for many years.

What has changed is where it is hosted and who is using it.

According to John Wood, CEO at C3, "we've been selling CPaaS and other SaaS offerings for years. It started as on-premises

equipment that we installed, then it moved to being hosted on private cloud. Today – and what makes CPaaS different – is that it is a public cloud hosted technology."

The ROI of CPaaS

A study, commissioned by imimobile, to evaluate the ROI on CPaaS systems installed in enterprises finds that there is a 330% return, even with costs, saving a business as much as \$1.2m.

The research, conducted by Forrester, which is based on the economics of using imimobile's CPaaS platform conducted interviews with two organisations that invested in imiconnect as a key part of their IT infrastructure, which formed the basis of its Total Economic Impact framework. This framework was then used to identify the cost, benefit, flexibility, and risk factors that affect the investment decision in order to evaluate the overall impact that the imiconnect platform can have on an organisation.

In addition, the study highlighted three business critical advantages. First, time to create and manage customer communication journeys reduced from days to minutes. Previous communication management platforms required one week's time to compose and manage customer journeys. The scale and low-code tools

that imiconnect provides reduced this effort to a couple of hours of FTE time, resulting in more than 50% increase in productivity efficiency.

Secondly, scalable SMS and mobile communications improved onboarding processes. With imiconnect, customers interviewed were able to automate the onboarding process and know your customer (KYC) information flows through SMS communications. The platform improved onboarding processes for 3.5m new customers per year, which in turn represented a \$1.2 million saving in both productivity and costs.

Finally, improved self-service capabilities increased efficiencies in customer support functions. SMS and WhatsApp capabilities provided end customers with easy and pervasive access to fulfill simple services in a self-service manner, and choice of communication channel dependent on the service request – reducing customer inquiries to the contact centre.

to add WhatsApp and other OTT messaging channels to their customer engagement portfolios. For others, however, it has seen many more, smaller companies come along looking for better and more cost effective ways to offer a wider range of contact channels to their customers.

"This is something new that CPaaS has ushered in," says Wood. "When we would have looked at building a bespoke solution on premises or even on a private cloud, it wasn't cost effective to do it for small companies. However, the CPaaS model allows us to build once and offer it to many, so that we get a massive economy of scale. This makes it much more viable to supply these services to more companies."

CAPITAL IDEA

While this is all very positive, the shift towards CPaaS for

these comms platform suppliers has had a different kind of impact on business, changing how comms service suppliers get paid.

"We have moved from doing a big install and being paid in 60 days to having to have a large capital outlay and recouping that over time from what is essentially rent," says Wood. "For C3 this isn't a problem as we have 30 years of legacy business so we are covered with regular payments and have already made most of the capital outlay. But for anyone looking to enter this market, they often overlook that they are going to have to spend a lot and then nothing will make any money until it all breaks even."

What is likely to happen down the road is that many of these smaller players and start-ups that look to make an entrance in the CPaaS market are likely

to be bought out by other more established players or will go under.

OUT OF THE CLOUDS

Another strategy that for CPaaS providers is that they can look to allow their clients to be more flexible with how they use their CPaaS services. For starters, it is possible for companies to have access to the platform to build their own apps or for the CPaaS host to individually tailor and tweak what is available to meet their specific needs.

"This is something C3 offers, allowing clients to take what are general solutions and adapt them to what they specifically want to do," says Wood. "This creates more value and can distinguish one CPaaS provider from another."

A different tack is to essentially take things back off the

public cloud. "As CPaaS users get bigger and more sophisticated with their use – and as their core businesses grow – they may also want to look at how to essentially buy the technology and put it on their own private cloud," says Wood.

This may seem counterintuitive, but it can be cheaper. The public cloud means using server farms run by AWS or Microsoft Azure and, while this can be great from a price point of view when you start, they can raise their prices as the client business gets bigger.

"This can suddenly make what was a cost-effective CPaaS model less compelling," says Wood. "It may actually be cheaper, easier and more flexible to run it yourself. We allow our customers to do that and I think this may become how this model works longer term." ■



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A war of words



RCS is growing, but while OTT messaging is seen as its biggest threat, SMS is still the giant in the market that seems to keep growing. **Paul Skeldon** referees

The total number of Rich Communication Services (RCS) subscribers will grow from 1.2 billion in 2022 to 3.8 billion by 2026; accounting for 40% of global mobile subscribers, according to Juniper Research.

This represents a growth of more than 200%.

For those that don't know, Rich Communications Services is a protocol for rich media messaging over operator networks that provides advanced business messaging services, such as chatbots and payments.

However, the new study, RCS Business Messaging: Monetisation Models, Competitor Leaderboard & Market Forecasts 2022-2026, predicts that OTT messaging apps, which control their own development, will provide fierce competition for rich media business messaging traffic. To combat this threat, operators must promote the greater reach

of RCS to subscribers over the fragmented OTT ecosystem to demonstrate its value.

Despite the competition from OTT apps, the research forecasts global operator revenue from Rich Communication Services will grow from \$230m in 2022 to over \$4.6bn by 2026. To capitalise on this growth and combat OTT messaging competition, it recommends these providers offer a simple price-per-message monetisation model that has already been established through the use of SMS business messaging.

This model will enable platforms to attract high-spending brands to RCS messaging over OTT apps, by offering a pricing model that brands are familiar using. By 2026, the research anticipates that 95% of RCS business traffic will remain on this model.

However, the research predicts that an increasing focus on omnichannel retail will drive

deployments of chatbot services in RCS messaging apps. This will require RCS platforms to offer new monetisation models, such as the session-based model, in which brands and enterprises pay for unlimited messages to a subscriber over a limited amount of time. In turn, the research urges RCS providers begin forming direct partnerships with online retailers and social media platforms to create frameworks that can support a session-based monetisation model, as RCS business messaging develops.

THE SMS THREAT

While OTT messaging may be seen as the biggest threat to RCS, SMS is still very big business indeed and it is hard to see RCS really even making any inroads into its dominance.

Research from TextAnywhere finds that more than half of UK consumers have no unread messages on their phone at any given time. That means more

than half of people read all their text messages.

The survey questioned 1,000 consumers about their messaging habits to give an insight into their mobile phone activity. The findings reveal that over half (60%) of respondents have to open a message once it's been received, and just over a quarter (28%) have a mere 1-5 messages marked as unread.

It's predicted that users send more than 6 million texts over the course of their lifetime, and so SMS will be a key marketing tool for ecommerce businesses in the future.

SMS also has the edge when it comes to the growing world of A2P messaging. Mobilesquared's Global A2P SMS Databook Report states that by the end of 2020, there were 5.2 billion unique SMS users, which is now expected to increase to 6.03 billion by 2025.

What industry saw as a temporary and enforced change in the way communities engaged with service providers has in fact created converts for whom having to walk to a bank or supermarket now seems outdated and bothersome. In other words, this consumer behaviour of 'click-to-receive' initially caused by temporary lockdowns and interim social distancing measures is not going away. If anything, it has ushered in a new era of convenience underpinned by application-to-person messaging (A2P) SMS.

The total opportunity for A2P SMS could reach \$27.48 billion in 2024 (based on 100% white route traffic). Considering the significant impact grey routes have on mobile operators' business, it is becoming imperative for them to deploy next generation SMS firewalls. We believe it is crucial for MNOs to be aware of the importance of next-generation SMS firewalls to realise an immediate uplift of their A2P SMS revenue. ■

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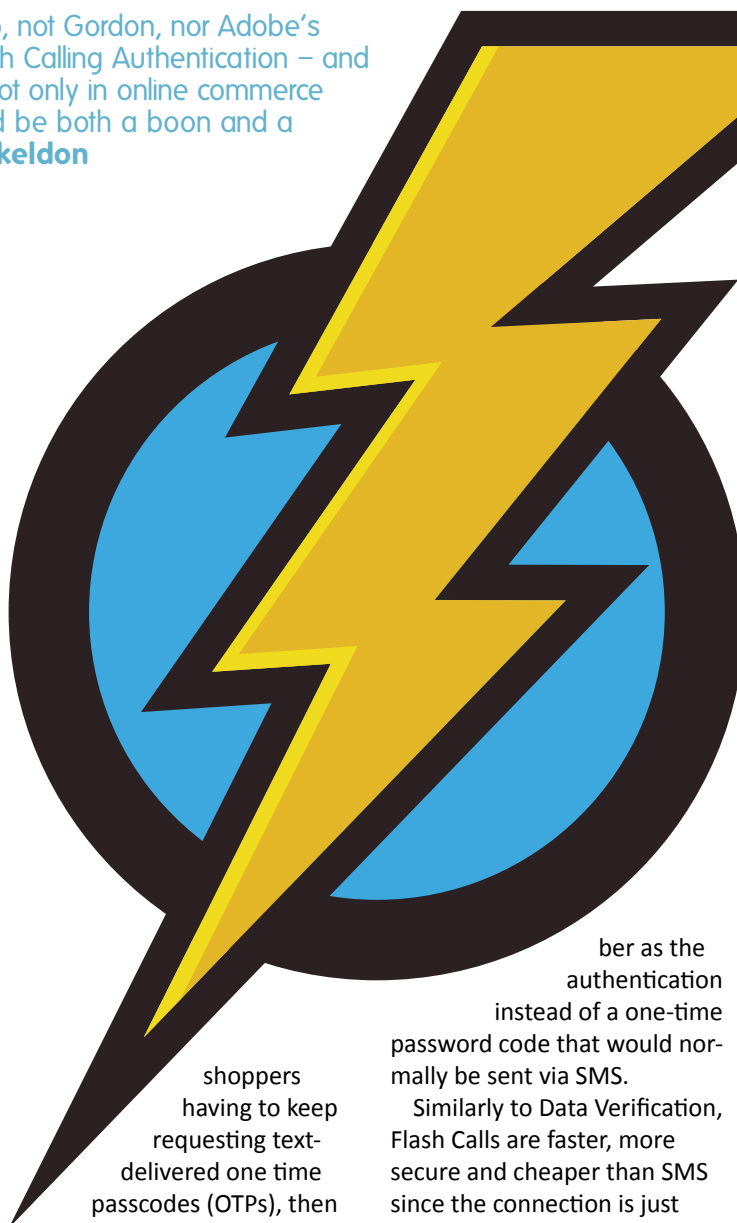
Flash is back in the news. No, not Gordon, nor Adobe's multimedia platform, but Flash Calling Authentication – and it is set to cause quite a stir not only in online commerce and payments, but also could be both a boon and a bandit for telcos, says **Paul Skeldon**

Flash Calling Authentication is a way of using mobile voice networks to authenticate a user or a transaction they are making via an originating phone number – the last few digits of the phone number being used to as an authentication 'key'. Their role lies in replacing OTP text messaging – where a code is sent via SMS to the phone, which is then manually added to the website to authenticate the user.

And its going to be big business. According to Juniper Research, the number of calls used for flash authentication will near 130 billion globally by 2026; rising from less than 60 million in 2021. This represents an astonishing growth of over 185,000% in the next five years.

The whole process of using the voice number to do this has some clear advantages: it is easy to do, it is really quick and it is, for the consumer, low friction. As e and mcommerce have taken off across the pandemic, there has been a surge in online purchases and the need for instant authentication. The rise in digital use has led to a rise in digital fraud, and everyone in the value chain – bar the fraudsters, I guess – welcomes that there are ways to make it less dangerous.

However, as more transactions have occurred and more authentication is required, it starts to get a bit of a bind to



shoppers having to keep requesting text-delivered one time passcodes (OTPs), then enter them. It can be slow, they can not turn up at all and they can be miss-typed. They are workable, not ideal.

Flash call authentication can park all that. Instead, a voice call is initiated from a randomly chosen number and sent to the end-user. An android phone answers the call automatically and uses the calling party num-

ber as the authentication instead of a one-time password code that would normally be sent via SMS.

Similarly to Data Verification, Flash Calls are faster, more secure and cheaper than SMS since the connection is just acknowledged by the Mobile Network Operator as an unanswered call.

In fact, we estimate that Flash Calls (with SMS as a fallback) can save up to 25% of the authentication cost and can be delivered up to 70% faster. That's important when you consider how some large enterprises use millions of SMS OTPs as their,

often only, channel for verifying customers.

This is great news for consumers as it makes life easier. It is less good for network operators and aggregators – many of whom have built very tasty and lucrative businesses

around sending millions of OTP SMSs.

In fact, Juniper predicts that flash calling has potential to threaten a significant part of operators' SMS business messaging revenue. Many operators are still unable to identify flash calling traffic and cannot fully monetise it.

Authentication-based SMS revenue will reach \$39 billion globally in 2022; representing 5% of total operator-billed revenue.

As enterprises migrate their authentication traffic to voice, operators must protect SMS revenue by adopting voice firewalls that can detect unmonetised flash calling and attain flash calling revenue.

The other threat comes from OTT providers getting in on the act. These platforms could catch a jump on MNOs by launching flash calling services, not only stealing a chunk of MNO SMS revenue, but also bringing more corporate clients to OTT platforms that can then be upsold into all manner of other messaging and engagement services.

As we move into 2022 and consumers continue to evolve how they interact with brands and businesses – not least the rise of video – they way they will want these interactions authenticated needs to be secure and seamless.

Flash Call Authentication can do just that and is set to be a winner. And it is going to be a massive telemedia opportunity too. 📞



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FROM THE EDITOR

Business very much *not* as usual

There's a good chance you are reading this while either standing in the Fira Barcelona at Mobile World Congress or watching Mobile World Congress on the internet. Either way, you are delving into the world of telecoms at a pivotal moment.

The pandemic is, hopefully, waning and we can assess where that has left us. Digital services have boomed over the past two years – growing even more than anyone who was at MWC in 2019 could have dreamed – but that has left the industry at a crossroads.

Consumers across the world are now mobile first and they expect exceptional, always on services, interactivity and they want to be able to communicate with the brands and entities that they deal with through

whichever channel they see fit.

This has caused both challenge and opportunity for many telemedia companies. On the one hand, it offers new markets and new openings to start to sell service to a much broader audience. It has created new markets for payment tools such as DCB and PSMS and it has seen messaging become central to all customer service and user experience tropes.

On the other hand, it has seen a raft of new technologies encroach on the services that telemedia companies already sell. OTT messaging – WhatsApp, Facebook Messenger et al – are very popular with consumers. Are they going to kill SMS? Possibly not, but they will erode its dominance, they may also put the kibosh on RCS.

Open banking is also creating innovative ways to pay online – such as pay by bank – have also come to the fore during the pandemic and offer some really frictionless ways to buy things.

The metaverse, too, offers unknown advantages to the tech industries – but with no one that clear what it actually is, those opportunities aren't yet known.

So, whether you are in Barcelona taking your chances with covid, or sitting in front of your laptop in your garden office, there is much to ponder – much of it in this issue of telemedia magazine. 📱

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Paul Skeldon, editor



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The Middle East and North African (MENA) region is one that has grown and developed rapidly in recent years. Here Telemedia Magazine talks to **MobiMind**, one of the region's leading aggregators, to assess what the opportunities are

MENA: a region ripe for growth

The market for value added services in the Middle East and North Africa (MENA) region is one that is growing rapidly. Ripe with opportunity and, while many of the services that are popular are the same as everywhere else in the world, it does offer some unique advantages.

According to the GSMA there are around 400 million mobile users in the region, predicted to grow to more than 450 million by 2025. 264 million of them are mobile internet users. 60% of mobile users have a smartphone, while there are 636 million SIM cards in use.

Together this makes for a massive mobile market and, with 4G penetration across the region rising rapidly to account for some 52% of connectivity, the use of value added services in the region is only set to grow and grow.

One company that is capitalising on its long-established presence across MENA is MobiMind. The VAS company turned aggregator operates in 13

key countries across the region, including Saudi Arabia, Kuwait, UAE, Iraq, Egypt and Tunisia – as well as making its presence felt in the wider African market with a new operation in Nigeria.

It has seen first-hand how this mobilisation of consumers across the region is reshaping the whole VAS market and offering unprecedented content, billing and network opportunities.

"The region has a very dynamic, tech-savvy and youthful population and so consumer demand for content and VAS on mobile has grown rapidly year on year and continues to grow," says Naji Bou Harb, CEO at MobiMind. "The market is very competitive, but offers huge potential. But to meet the demand requires a lot of technology and a lot of advanced products to keep attracting users."

CONTENT, RELIGION AND CARRIER BILLING

Bou Harb says that, as you'd expect, the content market on mobile is dominated by games, video streaming, music and entertainment services. Mcommerce is also increasingly popular – not least from the pandemic lockdowns. The market is also a world-leader in health and wellbeing and education.

However, these services only account for 70% of the free and paid for content market. The other 30% lies in religious content – something not seen outside the MENA region and which comes with its own opportunities and challenges.

"There is a range of religious education content and content for religious communities which is a mixture of paid-for and very low-cost, much of it paid for as one of payments using DCB and

others based around subscription services," says Bou Harb.

MobiMind sees most of the payments for all content, religious or otherwise, coming through carrier billing (DCB) and premium SMS (PSMS), often with the consumer not that bothered as to which.

"These payment methods are hugely popular in the markets we operate in because they really meet the needs of the customer base," says Bou Harb. "The youthful user base are mobile centric and want mobile payments – both because they are on mobile, but also because they just use mobile all the time for everything. It also fits better



Naji Bou Harb, CEO at MobiMind

with their financial situation. Most are young, don't have credit cards or bank accounts and are given money to spend on their mobile by their parents. Carrier billing/PSMS allows them to readily pay for what they want with their bill or credit."

Carrier billing is also key to content consumption because it is easy and secure. "It's such a simple process to pay that it really appeals to young tech savvy users," he says. "There is also the security around paying this way that requires no sharing of personal information, no card or bank details and is pretty anonymous."

MOBILE DATA IS KEY

Data from Statista suggests that across the MENA region, around 52% of network users are now on 4G – a number that

The impact of Covid on the MENA region

According to the GSMA, the mobile industry in the Middle East and North Africa (MENA) has largely risen to the challenge of sustaining social and economic activities in the region during the pandemic, despite the unprecedented growth in data traffic.

By the end of 2020, nearly 280 million people in the region (45% of the population) will be connected to mobile internet.

However, Covid-19 has highlighted the impact of the digital divide for the nearly 350 million people in the region still unable to connect to mobile internet. With digital connectivity expected to play an even more central role in society post Covid-19, it is more important now than ever before to address the barriers to mobile internet adoption and usage in the region.

While Covid-19 appears to have slowed the deployment of 5G networks in non-GCC markets, the 5G leaders in the GCC Arab states have continued to invest in the technology, and 5G activities in non-GCC countries are expected to gather pace again from 2021. Effective management of spectrum is key to maximising this opportunity, and the pandemic has shown how mobile operators and policymakers can work together to improve mobile capacity and coverage by providing temporary access to much-needed spectrum, as demonstrated in countries such as Jordan, Tunisia and Saudi Arabia.

is rising. This shift from 2 to 3 to 4G in a few short years adds to the competitiveness of the market across MENA, with users demanding ever more sophisticated and rich services to use on their smartphones.

The arrival of 5G – which is slowly creeping across the region, with Statista saying that, as of 2021, there were around 150m 5G subscribers in MENA – is only going to up the ante for service providers and VAS companies.

"5G will drive everything from video streaming to interactive games. It will force every player in the market to think more of the content quality and to create innovative new services on 5G," says Bou Harb.

"And this will drive DCB," he adds. "The more and better content that 5G will deliver will

see more consumers buy more stuff and that will mean using more DCB. There will be more of everything – more games, better video and more services. The same will apply to the region's religious content too."

This process is already well underway in some of the more

advanced MENA markets, including Saudi Arabia, Kuwait, Qatar and the UAE.

"I have been amazed already at how much content is already being sold and it will only get bigger and better. Now everyone needs to focus on the quality," Bou Harb concludes. ■

Getting inside the Mobi-minds

Started in 2011 as a VAS provider, MobiMind has quickly morphed into being a leading mass aggregator in the MENA region in 2016.

Working with some 35 operators across the region – including stc, Mobily, Zain, etisalat, du, Ooredoo, Vodafone and Orange – the company has garnered a reputation as one that is very focussed on meeting the total platform needs of its customers and clients.

Offering games, video streaming, music, e and m-commerce, educational, health and wellbeing and religious content – a must in the MENA region – MobiMind not only brings the kind of content that sells, it also plugs in the payments that the business demands.

"The sky's the limit and we are proudly focussed to win," says Naji Bou Harb, CEO at MobiMind. "Long term we want to be a global, international aggregator and this process has started with some exciting opportunities in Africa."



Marius Galdikas outlines the main forces that will be shaping the payments market in 2022, as well as what payments market players should keep an eye on

Building back better



Here in my car...

One area where payments are also likely to find a new home is in cars. In fact, the global transaction volume of in-vehicle payments – where payments are made via vehicle systems, without requiring the use of a smartphone to process the transaction – will exceed 4.7 billion by 2026, up from just 87 million in 2021, according to data from Juniper Research.

This extraordinary growth of over 5,300% in the next 5 years will be driven by increasing industry collaboration and initiatives from vehicle manufacturers, aimed at reducing the high level of fragmentation between different in-vehicle marketplaces. Payments vendors will need to quickly develop new capabilities in order to capitalise on this growing opportunity.

As a result, we anticipate the rate of acquisitions and partnerships to intensify to meet these urgent requirements.

The new research, *In-vehicle Payments: Opportunities, Challenges & Market Forecasts 2021-2026*, found that North America will have the largest in-vehicle payments share of transactions by volume; accounting for 42% of all transactions

globally by 2026. The growth is driven by a large installed base of payment-enabled vehicles and a high level of partnerships in place.

The recent collaboration between industry participants in North America will be beneficial in overcoming fragmentation and incentivising user adoption through rewards and loyalty schemes over the next five years.

The research found that vehicle fuelling will be the most common use case over the next five years; accounting for around 48% of total in-vehicle payment transactions by volume. This growth is being seen as the natural progression for fuel payments, which have evolved from cash to card payments, then to smartphone payments, and now to in-vehicle payments.

The report recommends that stakeholders look beyond fuelling and EV charging to develop additional use cases such as coffee shop and fast food pick-up payments via the vehicle dashboard; using existing infrastructure in developed regions. Enabling voice commerce will be critical in exploring these opportunities and will require vendors to develop new capabilities.

The business of payments has moved on rapidly as the world has digitally transformed. So, what are the trends and technologies that will be driving the industry in 2022 – and what does that mean for the telemedia industry, the VAS community and beyond?

There are a few megatrends reshaping the industry... here's what to look out for.

INTERNET OF PAYMENTS

It is estimated that by 2025, there will likely be more than 27 billion Internet of Things (IoT) connections. The growing number of IoT devices is rapidly shaping the everyday habits of consumers, including the way they choose to pay. This led the financial world to coin a new term—Internet of Payments (IoP)—which refers to a phenomenon that enables payment processing over IoT devices, for example, smart home assistants, like Amazon Alexa, or smaller everyday accessories, such as Apple Watch. IoP is currently at a nascent stage, however, as the market is becoming more saturated with IoT-driven devices, payments market players need to develop a blueprint on how to take advantage of this disruptive force.

The merge of IoT and payments brings consumers extraordinary convenience with reduced friction. As Open Banking enables third-party providers and fintechs take on the roles of IoP providers, this opens up an entirely new area for innovation. Also, IoT creates the opportunity for businesses to gather more data about the consumers, which will help to elevate user experiences.

BAAS CONTINUING TO THRIVE

Banking-as-a-Service (BaaS) allows embedding financial services into any company. This gave rise to a number of new market players, which took advantage of the Application Programming Interface (API) driven platforms

to enter the financial services industry. The BaaS market, valued at \$356.26 Billion in 2020, is now projected to reach \$2,299.26 billion by 2028.

BaaS enables companies to leverage market-tested infrastructure without the regulatory overhead, saving a significant amount of organization's resources. As the pandemic led many to redistribute their budget, outsourcing banking infrastructure became an even more appealing choice—leveraging banking-as-a-service enables them to direct more resources towards product innovation, rather than framework building. Therefore, BaaS providers will continue to fly high.

HYPER-PERSONALISATION

The need for personalized experiences followed consumers to the online space. While process automation will remain one of the top priorities for fintechs, the

key will be finding the balance between providing efficient service and not losing 'the human touch'.

The merging of IoT and payments brings consumers extraordinary convenience with reduced friction. And IoT also creates the opportunity to gather even more data about consumers

To secure future success, industry experts have emphasised leveraging real-time consumer data to provide personally tailored insights and proactive advice.

With practically every business pouring investments into upgrading their tech framework, hyper-personalization becomes the main driver helping banking service providers differentiate from their competitors. That's why refining their approach to be primarily customer-centric as well as proving it at scale will allow gaining a competitive edge.

LASTING FOCUS ON CBDCs

Throughout the year, central bank digital currencies (CBDCs) have

been gaining momentum, with countries all around the globe, such as Sweden, Norway, South Korea, China, and others pushing the rollout and testing their application in the real world. The interest in government-backed e-money is not wavering, rather the opposite, it spurred new ideas, such as launching multiple CBDC systems, that could potentially cut off billions of transaction fees annually.

CBDCs could provide a range of benefits, for example, lowering the cost of cross-border

transactions, increasing financial inclusivity, and enhancing economic resilience of domestic payments systems. This is a tool that, if implemented thoroughly, could outweigh the offerings of payment service providers, which will have to immensely step up their game.

As for the multiple CBDC network, the main question of 'how long will it take?' remains, as developing a united framework seems like a Herculean task, with each countries' efforts moving at a different pace.


The payments market is evolving as rapidly as ever, despite some of the challenges it had to face throughout 2021. The upcoming year is looking to bring more efficiency, personalization, and tech synergy, fueling the sector's growth even further. 📈

Marius Galdikas is CEO at ConnectPay



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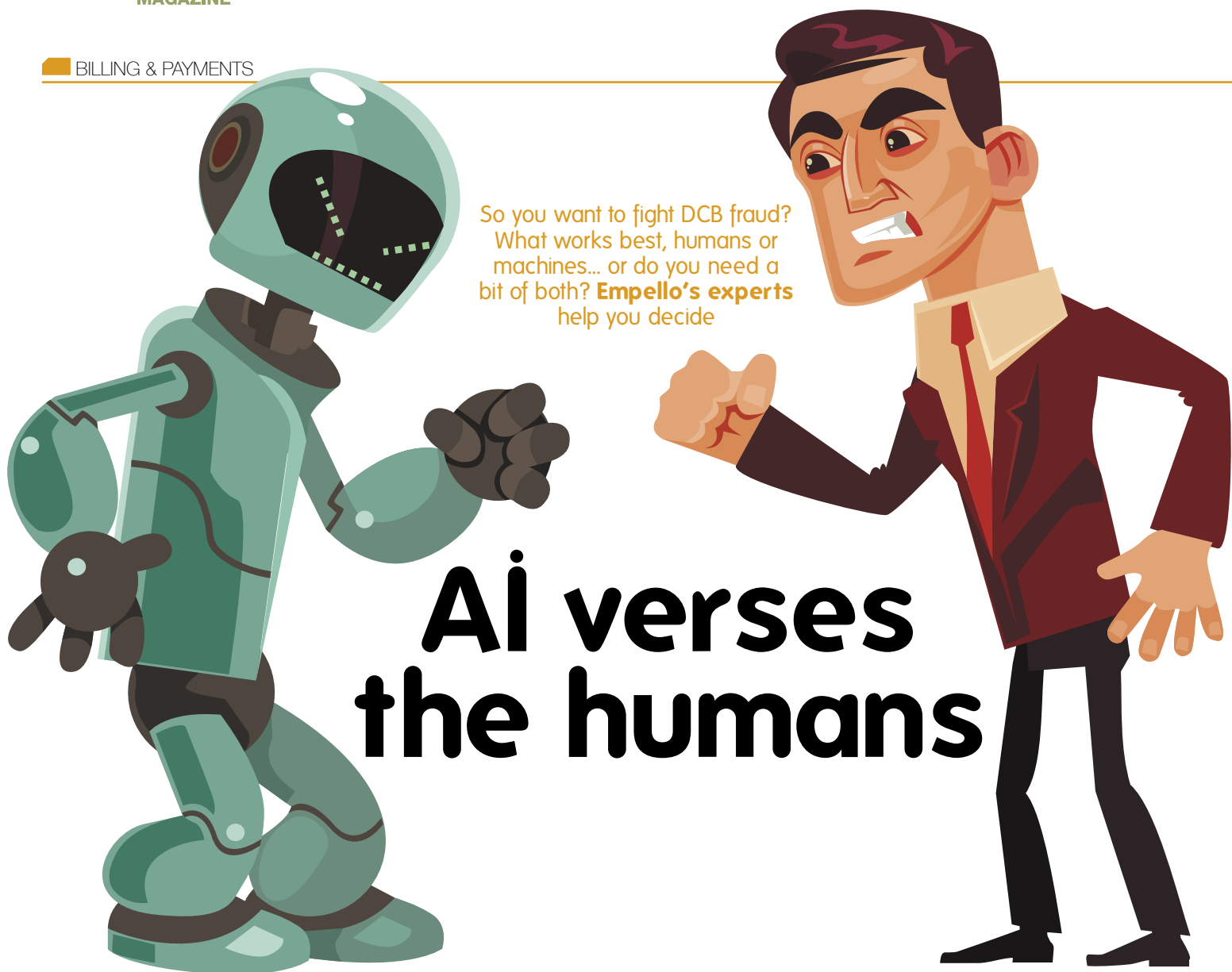
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AI verses the humans

What works best when combatting VAS and DCB fraud?

Fighting payment fraud is a never-ending challenge which requires on-going investment and extensive research and development by our teams at Empello. Once an effective barrier is put up, it is often only a matter of time before a fraudster finds a way around it. Some of the bad guys are extremely well resourced, use sophisticated techniques, and ultimately circumvent the barriers we put in their way.

What role does Artificial Intelligence (AI) have in this fight? Is it the most important tool in the armoury?

PROS AND CONS OF AI

Artificial Intelligence has much to offer cyber security companies in our space. Advanced machine learning algorithms determine which transactions are most likely to be fraudulent, while significantly reducing false positives.

Automated discovery and analysis of user behaviour can spot and block anomalies or unwanted transaction patterns both speedily and at scale. To give a simple example, the way the button is clicked can be an indicator of a bot in action as opposed to a genuine user, and

AI allows every click to be monitored in a way that no human monitoring could ever hope to achieve.

AI is also cost effective. Once set up it can be rolled out to multiple instances, without the need for bespoke human research and monitoring.

But the “machine” needs to be told what to do and this is where its limitations may become apparent. We are far from producing an artificial general intelligence (AGI) where a computer is solving brand new problems without human input, or devising completely different

approaches to a problem. Additionally, the datasets used to train an algorithm must contain high quality data that need human input on some level. In the context of fighting fraud AI can be useful for spotting variations on a known fraud technique, but falls down when presented with a completely novel technique.

LEARNINGS FROM OTHER SECTORS

One example of this is the financial services sector, where 2 factor authentication (2FA) is widespread as a means of reducing fraud attacks. 2FA was

a solution devised by humans, after observing certain types of attack and considering how best to mitigate against the attacks.

Banks have invested billions in developing algorithms to detect unauthorised spending, but how often do these either fail or trigger falsely when we're trying to complete a bona fide transaction ourselves? With all the years of experience in the financial services sector, it is still the human-invented 2FA approach which is by far the most effective anti-fraud defence.

SOCIAL ENGINEERING

Even ascertaining that a button really was pressed by a user is only part of the problem. Social engineering techniques are widely used by fraudsters to trick a user into buying or subscribing. Automated protection will not reveal that a user was encouraged to do something by a fake

message which appeared to come from their social network, from an influencer, or from a misleading marketing statement making a false promise, such as "Congratulations, you are today's lucky winner".

At Empello we believe that desk research carried out by experienced data analysts remains invaluable and is a key ingredient in both the fight against fraud, as well as informing our machine learning engine. Automated detection techniques can work well, but they can be vulnerable and, if overcome, then the fraud can persist without awareness that fraud is taking place, unless comprehensive desk research is undertaken.

So, it's important that technical approaches are augmented by hands-on human analysis. For instance, what are consumers saying on various forums? Complaints data is one of several

techniques which can be used to pick up advanced attacks which have fooled automated defences. This can then be researched by experienced staff, testing apps on real in-country phones and devices.

BACK-DOOR FRAUD

Apps infected with malware are far from the only threats which cause VAS/ DCB fraud. Malware is a so-called "front-door attack" as it's a direct visit to the payment page which is easier to detect via automation, but increasingly there are new threats from "back door" fraud.

Fraudsters employing back-door approaches exploit weaknesses in the back office infrastructure between the network, merchant and payments aggregator. MSISDNs are spoofed or changed during the payment transaction. Precise diagnosis is needed to identify the vulner-

ability before a customised fix can be designed and deployed and this is where hands-on human research plays a key role in identifying this type of back-door fraud as well as determining the patterns and behaviour.

AI VERSUS HUMANS

Just as in civilian police work, automated technology such as CCTV and DNA profiling have become important tools in the fight against crime, but they are still no substitute for great detective work. Detectives make use of new technology and it can be vital in solving a case, but we could never replace those detectives entirely with AI?

The same applies in the fight against payment fraud. Great cyber security solutions require great detectives to research and engineer them. ■

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What if DCB and value-added services could get more rapid pay-outs? That would be a game changer. And one company is looking to do that, as well as reshape the whole way the telecoms sector operates.

Paul Skeldon reports



Shaking up payments

One of the biggest hurdles faced by carrier billing providers has been the long pay-out times. In many cases it can be 60, 90 or even 120 days or more for the money to actually filter through the operator-aggregator-publisher value chain and arrive in the company accounts.

But this problem is not limited to carrier billing; it is a problem across the whole digital content industry. The value chain across publishers, aggregators, content providers, marketing services and operators is a complicated web of connections, each with their own payment terms and times and it can take many weeks for money to arrive where it needs to get.

This holds back the telemedia industry in a number of ways. Primarily, it reduces the available cash at any one time that is available for reinvestment in

content, services and marketing. Following disruptions to earnings or with the usual season run of peaks and troughs of consumer usage, it can be difficult to promote and create without access to funds – funds that you know you have, but which you can't yet access.

The other problem this causes is that, for many sectors that could well be potentially avoid users of services such as carrier billing, DCB doesn't look good. While carrier billing can never compete on fees with credit card or other payment tools, where it really looks unattractive to many sectors are that it can take a very long time to get the money.

This impacts content provider and publisher investment too, and has held back DCB from realising its true potential across many nascent sectors.

In fact, it could be argued that DCB has done very well to find new use cases in gaming and other services despite this.

However, this could all be set to change. Leading fintech company Lenderwize is shaking up the premium content and telecoms industry with a service that looks to accelerate payments across the digital sector so that everyone in the value chain gets paid much more rapidly.

"We were created to do this in the voice market, where we have been very successful. Now we are expanding invoices payment acceleration to the wider digital content market," explains Faissal Houhou from Lenderwize. "We created Lenderwize to essentially make sure that aggregators and telcos get paid rapidly for invoices, free them up to invest quickly in marketing and

services to keep on growing and expanding. Now we are offering the same service across content, publishing, DCB, SMS, marketing and advertising and more."

Targetting aggregators and telcos – as well as direct to content publishers too – the service aims to pay out on invoices within 48 hours of their issuing and then collects the money down the line, minus a small fee.

"For example, consider a content publisher in Spain doing business through an aggregator in the UK. We would take the invoice and pay the publisher and then collect the money from the aggregator when it came in, minus a percentage of between 1.5 to 1.9%, depending on the size of the bill and the size of the company," says Houhou.

"We are essentially giving funding for a fee, but with a lot

of extra security and surety for all parties.”

DUE DILIGENCE

What makes the service attractive is that it can offer rapid funding and excellent cash flow to business, as well as removing much of the risk associated with the payments chain.

“We ask to see all the invoices and our AI does all the due diligence and looks at the risk before we issue a contract and work with anyone,” says Houhou. “We are also totally insured, so for the companies that use us, it’s a good way to manage risk.”

NEW SERVICES

This low risk way of getting paid quickly has attracted a raft of companies to use the service. While many of its existing premium voice clients are on board, Lenderwize is also seeing airtime

top up brands using it. The company is also actively courting DCB providers and MNOs to help them create new services that could potentially be easier to sell to customers as they can provide much better pay out rates.

“DCB providers could benefit

from offering rapid payout rates to customers, while MNOs could create new services for aggregators again based on more rapid payouts,” says Houhou. “Gaming companies too are interested as they can get the money from DCB in-app

purchases and Google ads more rapidly.”

With this in mind, Lenderwize is looking to expand its reach from its UK HQ – the 39th floor of Canary Wharf – to create a network of offices and resellers around the world. ■

Shaking up consumer investment

Lawrence Gilioli founded Lenderwize in 2016 and is rare among Italian Americans in having left the US to become successful in Italy. But the company he founded is shaking up both the telecoms industry and the investment world.

Uniquely, Lenderwize’s platform provides investors with proof of service by sharing characteristics for each commodity such as call duration, origin, destination and cost. It verifies this data in real-time to validate the services rendered on each invoice.

“Telecoms wholesale operators need cash; it’s a very capital intensive business and we help this by providing more working capital by mitigating risk and managing how they get

paid,” says Gilioli. “We also help investors invest in telecoms safely and securely – bringing both more capital into the sector and helping businesses have working capital.”

Having recently secured €100m in funding from investment firm Fasanara Capital, the company is on a roll and is looking to not only shake up the flow of payments in telemidia, but also investment in the whole telecoms sector.

“We are looking to democratise investment,” says Gilioli. “The next phase of our work is to look at how to help consumers invest in telecoms. We want to take their phone bill – which to them is a cost centre – and help them turn that into a way to securely invest in telecoms.”

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Consumers are ready for the next generation of live experiences: 5G holds the key to delivering them. **Dr Paul Carter**, explains

The UK's live events industry has gone through something of a resurgence since the lifting of Covid-19 restrictions. What many of us missed so much during our time in lockdown was the human-to-human contact, anticipation and emotion that can usually be found in sports stadiums and music arenas up and down the country.

Now, producers and stadium owners are looking to capitalise on this renewed thirst for live entertainment and offer more value to enthusiastic fans – who have shown an increasing willingness to spend on new digital technologies in the past couple of years and are now more receptive than ever to new technology-led experiences.

Unfortunately, in-stadium mobile technology has been inadequate for many years. Live events currently provide a real service challenge for mobile network operators, with demand for data vs. available capacity being particularly problematic at key moments, meaning that consumers cannot stream and post content in a reliable way. The investment required to overcome this issue by increasing bandwidth does not always stack up financially, for stadiums

(by their very nature) are not in permanent use.

However, cutting edge mobile technologies – and in particular, the ongoing rollout of 5G in the UK – present a valuable opportunity for event producers to revolutionise the way we experience live sports and music in venues and address existing pain points.

This is why GWS, along with other innovators in the telecommunications space (Ateme, Digital Catapult, Digital TV Group,

I predict a riot... of 5G at live events

Research from O2 predicts that 5G is set to be a real boon for the recovering live events sector, predicting that it could boost the sector by as much as £2.3bn in the UK alone over the next 10 years.

Indeed, by 2028, O2 predicts that 78% of live entertainment consumer spend will be driven by 5G-enabled sports experiences. The 2021 Olympic Games help accelerate this growth, with sponsors marketing their 5G tech capabilities throughout the event, while many event venues have started to look at how to use the tech for all sorts of things – all part of what is being dubbed 5th Generation Entertainment, by O2.

Within 5th Generation Entertainment, O2 has predicted how 5G-enabled innovations will transform in-venue experiences. It forecasts a revolutionised pre-event experience thanks to smart ticketing and connected venues, offering fans the chance to seamlessly access and enjoy activities ahead of the show. Innovations such as AR-assisted shopping will mean shorter queues when purchasing merchandise by allowing fans to try on their most-wanted pieces and accessories virtually, before collecting at a nearby stand.

Queuing for drinks at the bar could too become a thing of the past, thanks to the reduction of latency which enables order-in-advance systems, real-time analytics of the busiest bars, and apps using way-

finding to get spectators around venues, as well as meeting up with friends easily. A 5G network will provide greater speeds and more capacity to ensure fans have strong signal to fully use all these tools, as well as share their experiences live across their social platforms.

Immediately after the show, fans will be able to get their very own personalised highlights reel sent directly to their device as event organisers harness the connectivity of multiple camera angles and the superfast network to create quick videos for fans to enjoy on the way home.

Fans not able to attend in person will be able to pay to live stream gigs no matter where they are – and will have the ability to personalise their experience. Fans not able to attend in person will be able to pay to live stream gigs no matter where they are – and will have the ability to personalise their experience.

Choosing from multiple camera angles or opting to focus on specific elements of a performance or match, such as a particular member of a band or sports team, will not only boost the entertainment experience – they serve to generate revenue by enabling brands to target advertising during live events. O2 has continued its relationship with music pioneer MelodyVR to further explore the possibilities of 5G and targeted customer journeys in this space.

Imaginary Pictures, Ori Industries, Rohde & Schwarz, University of Surrey's 5G Innovation Centre, and Virgin Media O2), joined Project Vista: a government-backed initiative designed to demonstrate 5G's potential to deliver new and exciting digital experiences for consumers in live event spaces. Project VISTA aims to highlight the commercial opportunities of 5G broadcast technology (using FeMBMS) in sports and music venues. Our end goal is to demonstrate the extent of consumer demand and deliver the business case to enable 5G-powered events in the future.

This is one of the first significant applications in the UK where low-cost 5G FeMBMS broadcast technology is being employed to deliver real-time content to mobile handsets, demonstrating that the technology now exists to empower

content providers to offer multi-angle views of live action as well as up-to-date information about events, direct to hundreds or even thousands of devices at a time with no quality issues.

This innovation allows us to re-imagine what is possible through experience-enhancing technology in venues, delivering a broader range of immersive content to sports and music fans. For example, the project is exploring viewers being able to access an unprecedented amount of content instantaneously – including a choice of multiple camera angles to in-depth background info on their team. For music events, the possibilities are equally expansive. Multi-angle viewing is one aspect, important in increasingly large arenas, but also the ability to turn the venue into part of the experience with up-to-date information about queuing or

other backstage content.


Whilst the technological challenge has been met, which has been by no means an easy feat, the question of whether (and how) consumers will buy into this kind of technology remains.

The sceptic might suggest that people do not, nor should not, want to use their mobile phones at live events. This ignores the reality that for many consumers, mobile phones have become life's remote control meaning that people are already using their phones to enhance the live experience.

According to our research, 76% of live music goers and 77% of sports fans typically use their smartphones when attending events, with taking photos and videos, messaging, and voice calls the most popular functions. Whilst some respondents predictably express reservations about phone usage during

events, over a third of sports and music fans who regularly attend live shows say they would be interested in using a mobile app that helped to enhance their enjoyment of live events.

Consumers have already signalled their desire to have the best possible experiences at live events. We know that fans already spend thousands each year on food and drink, merchandise and other in stadium perks: technology of this kind could become an important addition to that roster, and a potentially very affordable one.

As the live events industry comes back to life after a very difficult couple of years, 5G broadcast technology promises exciting new opportunities for industry and consumers alike. 

Dr Paul Carter is CEO, Global Wireless Solutions





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Private practice

One of the selling points of 5G has long been that it can be rolled out as a private network to offer super-fast broadband to venues, offices and even residential building. **Paul Skeldon** takes a look at how that's going so far

Headlines may have been grabbed by airlines refusing to fly into US airports because C-band 5G can upset altimeters, but while all that hoo-hah may have grounded travellers, 5G continues to take off as a technology – not least in the build out of private networks.

A report from NTT shows that there is a significant and growing interest in private 5G networks, with 90% of executives surveyed expecting that private 5G will become the standard network choice.

The report, 'Private 5G here and now', reveals insights from a survey of 216 CIOs and senior decision-makers from the UK, US, Japan, and Germany, examining the industry challenges around the implementation and adoption of private 5G.

WHERE IS PRIVATE 5G BEING DEPLOYED?

The research shows that just over half of companies (51%) planning to deploy a private 5G network will do so within the next six to 24 months to improve security, reliability, and speed, with 30% of these respondents already deploying or being in the process of deploying a private 5G network.

The most significant interest is from German organisations, with 40% of German businesses deploying private 5G networks. This is followed by 28% of UK firms, 26% of Japanese firms and 24% of American firms.

The majority (80%) of executives agree that Covid-19 has made it easier to secure the budget needed for 5G deployment. This attitude is strongest in Germany (93%), followed by the US (83%), the UK (77%) and Japan (65%).

SECURITY DRIVES ADOPTION

With ransomware on the rise, the CIO and CISO are looking for ways to shore up their defences against increasingly sophisticated attacks. The report finds that 69% of executives agree that the security of their current infrastructure is not strong enough.

Other pain points include the control of enterprise data (48%), coverage and speed (43%) and the response time (latency) of their current service provider (40%). When compared with technologies such as Wi-Fi and Public 5G, private 5G networks provide significantly more security capabilities.

83% of executives rate improved data privacy and security as a very important outcome they expect to achieve with the implementation of private 5G networks. It is clear that CIOs want security and control while also enabling digitalization – and believe a local private 5G network will enable these critical business requirements. This is encouraging enterprises to build and run their own private 5G networks.

CHALLENGES AND SUCCESSFUL DEPLOYMENT STRATEGIES FOR PRIVATE 5G

The report identifies that the most common (44%) barrier to deploying private 5G networks is integrating the technology with legacy systems and networks. The complexity surrounding the deployment and management of private 5G networks is also cited as another significant barrier by 37% of respondents. Employees lacking the technical skills and expertise to manage 5G networks is the third most common barrier facing 30% of firms.

This is one of the reasons why outsourcing to a managed service provider is the preferred

approach by 38% of CIOs when it comes to implementing private 5G networks. Buying private 5G network 'as-a-service' can accelerate time to adoption and offer a better end-user experience and return on investment.

POWERING DIGITAL TRANSFORMATION

"The research highlights that the adoption of private 5G is happening now. The companies leveraging private 5G will have an unprecedented competitive advantage. Whether a company owns a factory floor, distribution centers, storefront or office space, private 5G can dramatically help digitize their businesses securely," says Shahid Ahmed, Group EVP, New Ventures and Innovation at NTT Ltd.

Ahmed adds: "It's no surprise that the pandemic accelerated digital transformation initiatives around the world, as organisations transitioned to new ways of working by combining the physical and virtual world. A key initiative was the adoption of private 5G networks, which we expect to gain further momentum in 2022. In fact, according to recent research from Economist Impact, commissioned by NTT, over 80% of CIOs and senior leaders have

either already deployed or plan to deploy a private 5G network within the next 24 months.”

Ahmed concludes: “Offering improved security, greater reliability, and increased speeds, there is no denying the benefits of adopting private 5G, especially as organisations look to realise the promises of new technologies such as automation and IoT. With executives expressing serious pain points with their current network infrastructure, including security (69%), control of data (48%), coverage and speed (43%), those who adopt a private 5G network will have an unprecedented advantage over those who don’t. Whether the company owns a factory floor, distribution centre, storefront or office space, a private 5G network will significantly help them digitise their businesses and thrive within today’s competitive landscape.”

Where the money is

For tech companies and even network operators, private 5G networks are potentially a very nice side-line. Annual spend on network hardware and services looks likely to top \$12bn by 2023, up 115% from the \$5.5bn spent in 2021, says a study by Juniper Research.

5G deployments have a key role to play here: over 60% of base stations used in these deployments in 2023 will be 5G, thanks to its ultra-low latency, and signal propagation properties that allow deployment in environments where conventional networks struggle.

So finds a new report, Private Cellular Networks: Spectrum Assessment, Business Models & Forecasts 2021-2026, which notes that these networks will be almost entirely business driven. The most prominent sectors will be manufacturing, mining, and the energy industry; accounting for 59% of spend in 2023.

The report notes that, despite their dominant position in public cellular networks, traditional operators risk missing out on much of the private network market. Instead, Juniper Research believes that telecommunications network

vendors, like Ericsson and Nokia, are in the best position to capitalise on private networks; offering their hardware and value-added services directly to businesses looking to utilise private networks.

“With private networks frequently entirely separate from public networks, the role of traditional mobile network operators can be minimal in many cases”, says research author James Moar. “This means that hardware providers and systems integrators will play more dominant roles, given the right regulatory framework.”

The report notes that private network deployments are uneven globally, with the largest markets being those with the most open or flexible spectrum allocation. Germany and the United States are among the most advanced in this; offering localised leasing and general spectrum availability. As a result, these two countries will account for 30% of global private network spend in 2023, although this will decline as other countries release spectrum for private network usage.

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5G: the road ahead

From the need for standalone networks to open vRAN, 5G is stepping up a gear in 2022. Here, **Stephen Douglas** outlines some of the big developments to look out for this year

Operators worldwide face stiff competition to provide as much 5G coverage in their markets, as quickly and cost efficiently as possible. To that end, more carriers are set to use dynamic spectrum sharing (DSS) to raise their 5G profile with consumers.

However, while DSS does ensure that more subscribers see that they're connected to "5G" on their handsets, it can't deliver data speeds that most consumers associate with 5G. Gradually, more operators will recognise that this effort is not enough to compete with non-DSS 5G services.

, operators will begin undertaking the more onerous and expensive process of real-locating/re-farming spectrum and expanding their cell site footprint.

HYPERSCALERS

More operators will deploy standalone 5G core networks—and turn to hyperscalers for help. A few operators began deploying 5G SA networks in 2021, and those numbers will grow in 2022. What will be different is that many operators will be looking to partner with hyperscalers to do it, aiming to host cloud-native 5G core capabilities on cloud providers' infrastructure.

This process began in 2021, as operators began to grapple with just how challenging cloud-native infrastructure presents for traditional operations teams—and how much they can benefit from economies of scale by working with hyperscalers like Google, Microsoft, and Amazon.

AI+ML

Based on testing, we see significant growth in AI/ML and automation to enhance network performance and fault management. In particular, more operators are investing in active testing and assurance systems to inject synthetic traffic into their networks to emulate real users and services, instead of relying on static, passive probes. And they're



seeking to pair these systems with AI/ML algorithms that can make good decisions in real time for where, when, and what to actively test to improve services or isolate faults, without requiring human intervention. We also expect to see early efforts in using AI/ML to enhance security, and in running testing workloads from public cloud.

CLOUDS

The first wave of telco edge cloud use cases will hit the mar-

ket. 2021 saw the first fledgling edge cloud partnerships between operators and cloud providers or other third parties. In 2022 though, we'll see these initial test runs get serious business attention and investment. Look for activity around two basic offerings: public cloud-hosted edge services, which will focus on consumer applications like gaming, augmented reality, and video content delivery; and private cloud-hosted edge offerings for enterprise and industrial use cases. In particular, expect to see commercial launches of private

All three are viewed as less risky than other types of deployments, either because they will not support mission-critical services, or because they will be able to fall back on the traditional macro network if needed. Some challenger service providers (Rakutan, DISH Network) may start rolling out live Open vRAN deployments in denser urban areas, but the major incumbents likely will hold off until 2023/2024.

BEYOND 5G

The service provider industry has already begun vision-setting in earnest for future wireless systems. As they do, many are searching for opportunities to bring some of those future technologies back within the umbrella of 5G architectures over the next eight years. Based on the testing we're seeing, we expect to see these efforts in two major areas.

First, integrating low-Earth orbiting satellite technology into the 5G system to enhance 5G coverage for specific use cases and specific areas of reach. Second, we're seeing early testing efforts in the use of reconfigurable intelligent surfaces and meta-materials, with the goal of creating intelligent reflective surfaces that can direct or even amplify radio signals.

These technologies, which likely won't be integrated into 5G systems for several years, will help operators cover hard-to-reach areas by enabling RF signals to travel longer distances and avoid interference, reduce the required density of radio towers, and potentially reduce energy output and carbon emissions. ■

Stephen Douglas is head of 5g strategy, Spirent Communications

cloud edge services for security and video surveillance, as well as secure desktop-as-a-service offerings for home-based workers.

OPEN VIRTUAL RAN

Another incremental change in the coming year, Open vRAN will move from small-scale pilots to small- and medium-size live deployments. Based on testing, we expect to see early Open vRAN deployments in three key areas: rural regions, indoor, and non-dense urban deployments.



Meet the PEOPLE

Raymond Gomez, VAS2Nets Technologies

VAS2Nets Technologies is a leading VAS and Infrastructure Applications Service provider (VAS/ IASP) with business operations in Ghana, Nigeria and Cameroon. Here country manager Raymond Gomez outlines what that means and how Ghana is the next destination for players in the mobile and PC gaming ecosystem

What opportunities do you identify in this business sector?

The increased use of technology and the internet has opened up the mobile and PC gaming sector to a larger market. People are more inclined to view, browse and get into a mobile or PC game now the more because it is up in their faces more this time than ever and the need to unwind and de-stress from working in this era or limited movement and person-to-person interactions means games have moved up the ladder of person entertainment.

In addition, technology is growing in Ghana and Africa. And there is that market which is the “next destination” for many tech companies including those in the gaming ecosystem. The population demographics also provide a fertile ground for gaming service providers to operate. And as the sector grows, many people are exploring ways to monetize their gaming activities which makes the sector more attractive to the target market.

How can sector players take advantage of these opportunities?

Sector players looking to enter and grow in the Ghanaian

and African market must first develop to meet the needs and desires of the market. Research shows that gamers have been predominantly male. The ability to develop and align games to the desires of the female population is key to entering and growing within the Ghanaian and African Market.

The population is seeking varied ways of generating income. This is evident in the growth of social media activity all aimed at monetizing the content people make available to viewing. Play-2-Earn is a critical growth and success factor for gaming ecosystem players within the Ghanaian and African market. The platform that offers the opportunity to earn will generate a strong attraction to the market.

Infrastructure has been a major challenge for Ghanaian and African game developers. Local players have the ability to develop games with the right context for the local market. Companies that can provide the right support and collaboration in terms on infrastructure and access to operators and the social media market will be in pole position to benefit from the market.

Which player within the gaming ecosystem are you expecting to have a great year?

Platform owners and Aggregators: Platform owners bring increased access to games. The increase in demand for games and the expected growth will require that players and the population have access to games. In addition, local developers are waiting for the platforms to help them showcase their output. Platform owners and aggregators who are able to bring together varied games in various categories are destined for a great year.

What's the most effective business model for growth in the gaming industry?

Partnerships and collaboration are the best launch pads for growth of gaming in the Ghanaian and African market. Just as gaming sector companies are consolidating in the established markets, these two present the most viable and sustainable channels to growing the gaming sector in Ghana and Africa. There is need for a harmonised effort by various players, from game developers, through platform owners, aggregators and operators to players and

promoters. Players within the ecosystem will see growth when they exploit common synergies.

How would you describe VAS2Nets Technologies in the gaming ecosystem?

Our experience and understanding of this near-virgin industry positions us as subject matter experts in mobile and PC gaming in Ghana and Africa. Our key relationships with other players within the industry allows us to provide the best guidance to gametech companies looking to enter the market. We have also invested in technical relationships with operators, building and integrating platforms that allow us to aggregate games and make them available to the target market on one gaming platform. Our position as a VAS company positions us to support platform owners who want to go the route of collaborating with network operators in Ghana with the capacity to support in several other countries in Africa. 📱

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