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Carrier billing has a huge potential market in games and cryptocurrencies. Here's why



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No longer a dirty word

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BILLING & PAYMENT

Carrier billing to dominate VAS market payments and see \$5bn growth by 2023, telemedia study reveals

As a payment mechanic, carrier billing now dominates the VAS market, accounting for 62% of total spend in 2018, increasing to 73% by 2023. The VAS market itself is worth \$25.63 billion in 2018, and is projected to increase to \$29.35 billion in 2023.

So finds the latest research by Mobilesquared in conjunction with Telemedia magazine which, on interviewing 124 DCB and VAS service providers worldwide, has found that DCB is now a real force to be reckoned with in payments.

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BILLING & PAYMENT

DCB's African dawn: How m-wallets and DCB are revolutionising payments



One of the biggest growth areas for carrier billing lies in Africa. By the end of 2018, a total of 43 out of 55 African countries (or 78%) will offer 4G services, according to GlobalData, a leading data and analytics company.

Over the last few years, African countries have been rolling out 4G mobile networks across the continent at break-neck speed. In the last 24 months, even minnows such as Djibouti,

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DCB dominates VAS

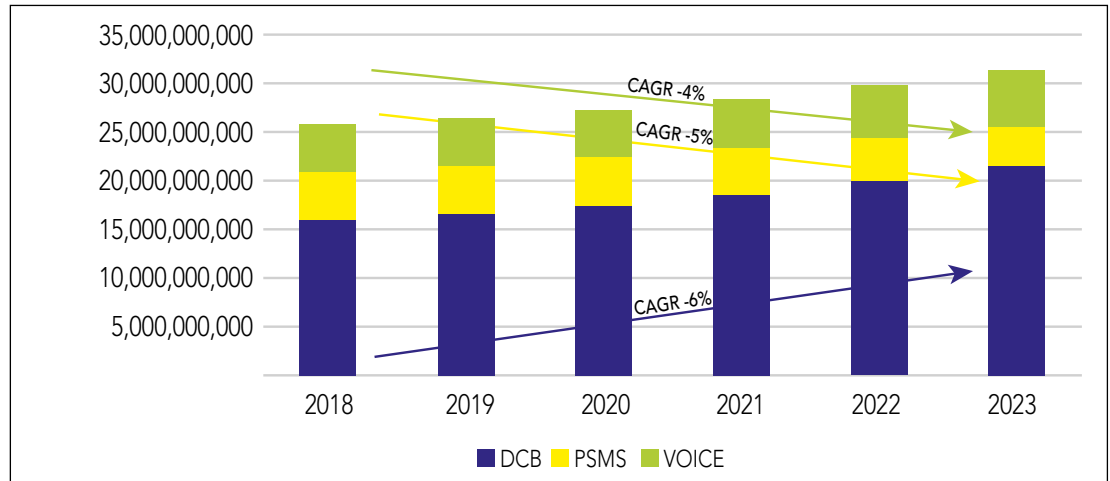
<< 1

The study finds that direct carrier billing (DCB) was worth \$15.86 billion in 2018 and projected to grow at a CAGR of 6% to \$21.56 billion in 2023.

The growth of DCB, while potentially spectacular, comes at the expense of PSMS and PVOICE, which are expected to fall from 20% and 18%, to 14% and 13% respectively. The sharper decline in revenues of PSMS compared to PVOICE can be attributed to the migration of PSMS services on to carrier billing, whereas PVOICE around the world has been in decline for a number of years as smartphone penetration increases, changing consumer behaviour and using free online information and services which previously resulted in a premium rate voice call.

Based on year-on-year revenue change carrier billing spend will remain stable between 2019 and 2020 before experiencing steady growth for the remainder of the forecast period. From 2020 PSMS will experience dramatic falls in revenues, while spend on PVOICE is expected to experience a consistent year-on-year fall in revenues.

Games accounted for 31% of total carrier billing spend in 2018, followed by music and video, each on 11%. In total, games, music and video accounted for 61% of total spend. And this remains consistent throughout the forecast period, as existing services grow organically, but there are very



few shifts in consumer behaviour brought about through new services. Based on the research, and the current view of the carrier billing ecosystem, very little is expected to change in the marketplace. Services, such as health and fitness, information services, lifestyle, publishing and ticketing, are not expected to have a big impact on revenues during the forecast period.

Asia accounted for 78.1% of total carrier billing spend in 2018, and that is expected to increase marginally to 79% by 2023. China, Japan, South Korea, and Taiwan accounted for 65% of total global spend in 2018. West Europe, in contrast, accounted for 9% in 2018, falling to 8% in 2023. Over the forecast period, Africa to experience largest CAGR (12%), followed by Latin America (10%).

DRAGS ON DCB

However, the research finds that,

while DCB is growing, its growth could be higher and is being held back by a number of factors.

According to report author Nick Lane: "Despite the carrier billing market expanding by \$5.7 billion over the forecast period, this is significantly smaller growth than expected for a number of reasons highlighted during the research process."

Lane cites new services not emerging quickly enough, regulation negatively impacting customer flows and mobile operators still looking to receive in excess of 10% per transaction, as the key drags on DCB growth.

"In Europe [the MNO take] figure typically stands between 10-15%, but beyond Europe, it is not uncommon for mobile operators to still request in excess of 50%. The target figure needs to be closer to 5%," says Lane. This, he avers, is one of DCB's biggest headaches, along with on-boarding of new merchants taking up to 18 months in some markets.

"Also," warns Lane, "the unique selling point of carrier billing – convenience – no longer relevant as other payment mechanics such as credit or debit cards, now matching the convenience of carrier billing, using wallets and the short security code on each card."

WHAT OF PSMS AND PVOICE?

While DCB is set to dominate, it will be at the expense of PSMS

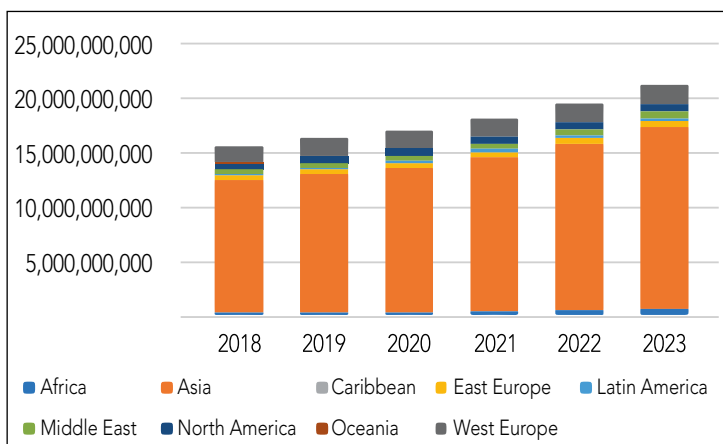
and Premium voice, the study finds.

PSMS was worth \$5.1 billion in 2018 and will be worth \$3.98 billion in 2023, with a CAGR of -5%. PSMS accounted for 20% of the total VAS market in 2018, but will fall to 14% by 2023. The payment mechanic is expected to grow to \$5.34 billion in 2020, where it will peak, and then steadily decline as the migration from PSMS to carrier billing intensifies.

Asia accounted for 45% of spend in 2018, and is projected to increase to 46% by 2023. West Europe accounted for 20% in 2018, falling to 17% in 2023. Over forecast period, Oceania to experience largest CAGR (20%), with Africa and North America to grow 1%. West Europe to experience greatest contraction, with CAGR of -9%. Middle East and Asia to experience CAGR of -5%.

PVOICE will fall from \$4.69 billion in 2018 to \$3.8 billion – a CAGR of -4% – by 2023. The global adoption of smartphones has severely impacted voice services, as consumers find free online alternatives to information and content previously accessed via premium voice services.

The research reveals that voice continues to have a role to play but this is diminishing, as preferred communication migrates from voice to chat and messaging. In developed markets, spend on voice is expected to bottom-out during the forecast period.



Carrier billing: where are the hotspots?

Carrier billing is gaining traction around the world, but where are the growth hotspots and what sorts of services are using it? **Paul Skeldon** takes a look

Carrier billing is starting to gain some mainstream traction in Europe, but that belies how it is already a force to be reckoned with out in the wider world. Research by Juniper Research shows that, in 2018, total value of digital content paid for via DCB was \$27.7 billion world-wide, 38% higher than 2017.

The Indian Subcontinent will account for 44% of this, principal analyst Elson Sutanto says, dwarfing Western Europe's 19% by 2023. LatAm will account for 35% and, in China, DCB will account for 26% of the total.

Similarly, Juniper has found that games dominate where

carrier billing is being used, along with video content, something that will be even more prevalent by 2024. According to Juniper, the total spend of \$89.9bn globally using carrier billing will be possible by 2024, with \$41.8bn spent on games, \$22bn on video – including OTT TV – \$3.9bn on physical goods and \$2.2bn on tickets.

Operator revenues from DCB are likely to reach \$13.8bn globally on the back of this, says Sutanto.

So what is driving these numbers in these regions and is growth going to carry on, or are there drags on its seeming

unstoppable success?

The main drivers lie in monetising the unbanked and underbanked, as well as tapping into younger demographics. Much of this will be around capitalising on consumer impulse purchases and micropayments in emerging markets.

While 5G will give a boost to DCB, says Sutanto, monetising content beyond mobile will be key, especially in new markets and new verticals.

According to Sutanto, OTT groups, such as FAANG – Facebook, Apple, Amazon, Netflix & Google – and BAT – Baidu, Alibaba and Tencent – are aggressively dominating the streaming content landscape with the breadth and depth of their respective offerings across

a range of regions and markets.

"Netflix and Amazon typically dominate OTT TV, but Hulu, Facebook, YouTube, Facebook and Twitter have challenged them by launching monetised video streaming services," says Sutanto (See panel).

For FAANG, China's 1 billion-plus population is profitable, but highly difficult, to enter due to regulation. Instead, the opportunity here lies in BAT, the expansion of which is being driven by strong growth in the country's GDP capital since 2000, a lack of sufficient fixed Internet capability (enabling mobile-first players to flourish online), and a regulatory environment that has stopped FAANG members from entering.

"BAT has grown bottom-up in China and competes against FAANG in international markets, such as developing markets – for example, India – and high value markets such as Australia and in South East Asia," says Sutanto.

"Non-FAANG US companies, like technology start-ups, outnumber non-BAT Chinese companies," he adds. "Competition between both Non-FAANG US companies and non-BAT Chinese companies is disrupting the established business models

OTT TV a key driver

One of the key drivers globally of DCB is going to be the rise of the adoption of OTT (Over The Top) TV video streaming services is increasing greatly worldwide.

According to Juniper Research's principal analyst Elson Sutanto, OTT TV content providers are developing quality and region-specific content to compete in the growing content market.

"The increasing demand for OTT TV content is propelling the adoption of DCB as a payment method," he says. "OTT TV players are offering

bundles to increase user spend, reduce churn and increase market share."

However, OTTs rely heavily on card payments to monetise consumers, which is challenging when launching in emerging markets with low credit/debit card penetration.

With network operators and carrier billing providers, OTT players reduce marketing costs, leverage the brand name, and subscriber base, of local operators while monetising content via DCB.

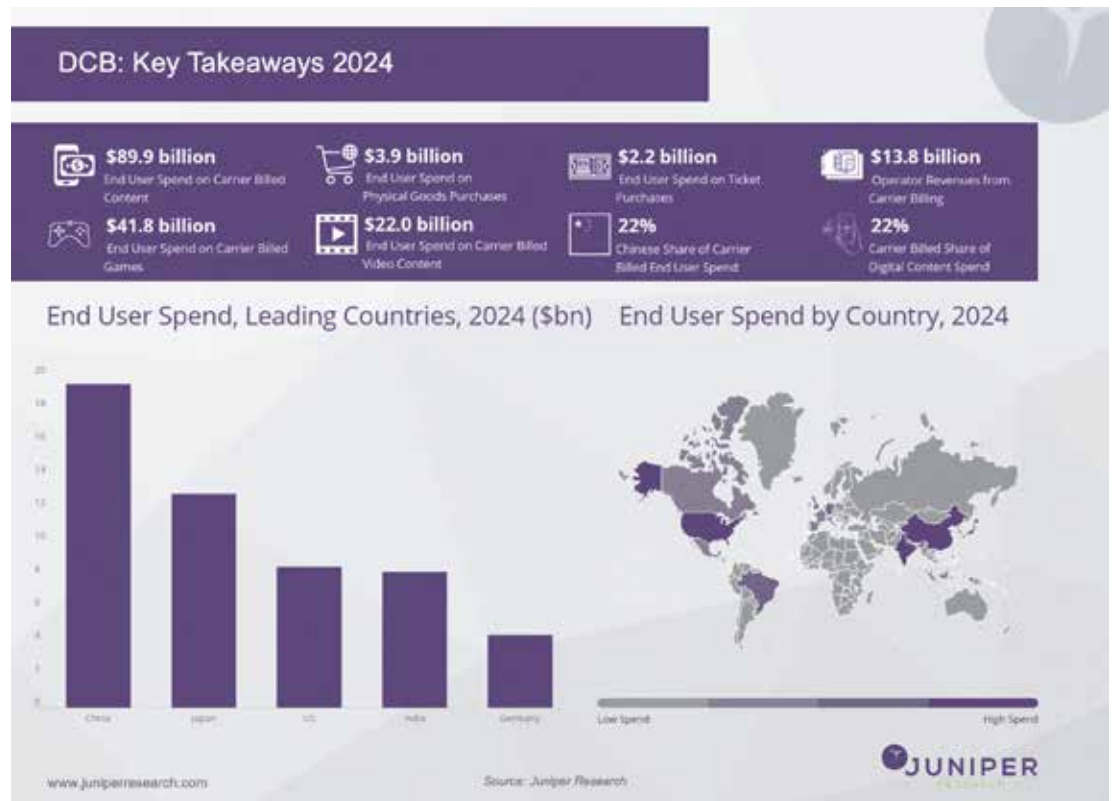
of BAT and FAANG globally.”

CHALLENGES FACING DCB

While there are plenty of drivers to DCB, it isn't going to have an smooth ride in its growth, with a number of challenges facing the roll out of broad DCB services across the world.

According to Sutanto, fraud and security of consumer data – that is personal data compromised by click jacking or iframe masking.

Credit card billing verses DCB for high value transactions in prepaid-centric markets is also a problem, he warns, as is tackling challenges in developing markets around high taxes and the need for billing aggregators and MNOs to collaborate. There is also an issue with driving increasing customer awareness of DCB services, warns Sutanto. 📺



DRIVING VALUE-ADDED SERVICES MONETISING CONTENT



1 DIRECT CARRIER BILLING
APIs to facilitate mobile payments for digital goods and services, safely and securely.

2 PSMS
Spontaneous payment solution to monetise interactions that are offline or in an interactive environment such as donations, chat, broadcast response and interactive services.

3 MESSAGING & RICH COMMUNICATIONS
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4 VOICE SERVICES
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Is direct carrier billing the key to unlocking the potential of virtual and crypto currencies?

There's a unique opportunity for mobile operators to help push blockchain-based content and crypto currency into the mainstream, **Tony Pearce**, co-founder of Reality Gaming Group, thinks there is

In the nascent days of mobile games in the early-Noughties there were two issues that dominated industry discussion: solving fragmentation of Java-based handsets and determining publishers could leverage Direct Carrier Billing (DCB) to push what were rapidly evolving business models.

As it turned out both conundrums were solved by the iPhone and its App Store. Suddenly there was a huge target market of smart devices with its own billing ecosystem outside of the mobile operator 'walled gardens', with delicious APIs for developers to use that hooked into the slick user experiences Cupertino began to roll out.

Over a decade on and with the help of Apple's peers such as Google and its Android platform, mobile game developers have a raft of options open to them when it comes to monetising their content: paid downloads, subscriptions, in-app purchases, or a heady mixture thereof.

But we think there could yet be a significant role for DCB to play in helping grow a new segment of games – one that has

the potential to utterly disrupt established video game business models.

Here's why. A little over two years ago my company, games studio Reality Gaming Group, decided to forgo traditional forms of fundraising to conduct an Initial Coin Offering

AR combat game Reality Clash, which soft launched earlier this year. But planning the ICO got us thinking – what if we could use our own crypto currency within the game, allowing players to buy and trade in-game

items such as weapons? But why can't they sell these items to their friends when you have finished the game? Why can't they use these items

in other games, after all they paid for the item. And what happens if the game goes bust or if the publisher decides to stop supporting it? The player loses everything they paid for.

The blockchain, however, has the potential to blow this restrictive model wide open – what we're talking about is a rapidly-emerging 'crypto collectibles' segment in video games, all managed using so-called smart contracts connected to the Blockchain. These are known as NFTs (Non Fungible Tokens).

In short, games like Reality Clash can use the blockchain to allow players to actually own the items they buy. These items are limited edition weapons which can be traded online or used in the game. The items are purchased in the Armoury Store with the Crypto token called RCC Gold - the player can buy RCC from online crypto exchanges and transfer their RCC



We think there could yet be a significant role for DCB to play in helping grow a new games segment

(ICO) – we raised \$2.5m via a completely new financing mechanism that leveraged the blockchain and the crypto currencies that run across it.

The capital was ostensibly used to build and launch mobile

items such as weapons?

You see, the 'traditional' market for in-game virtual items, on both mobile and console platforms, is very restrictive for players, with publishers and platform holders retaining con-

directly into their account in the Reality Clash game.

The assets are tokenised and registered to the player on the blockchain and as such are theirs to do with as they wish (the assets can even be used in other compatible games from different publishers), without any interference or control from us as the game's publisher.

The potential is eye-watering, with estimates of \$200 billion in terms of an addressable crypto collectibles market.

There's a snag, however. How many times have you spoken to someone about crypto currencies or the blockchain and felt your eyes start to glaze over? It's a complicated ecosystem to get your head around, and it can be an equally bewildering process to actually buy a crypto currency such as a Bitcoin in the first place, let alone use it

to buy virtual items in a mobile game.

We factored this steep learning curve into our planning, making sure Reality Clash is playable without any need for

In short, games like Reality Clash can use the blockchain to allow players to actually own the items that they buy

the player to get involved with buying RCC from online crypto exchanges. Indeed, if a player wants to get involved but isn't familiar with crypto exchanges we've made it possible for them to purchase bundles of RCC Gold via our website using just a debit or credit card, with no need to visit third party crypto exchanges.

But not everyone has a credit

or debit card, especially in emerging markets, and this is where DCB could have a crucial role to play. Think about it: buying crypto or games tokens on a phone account shouldn't really

sumers and merchants, understand DCB (subconsciously in terms of the former) – it's why it's so popular as a means of payment all over the world.

The issue for us as a content provider is that the DCB ecosystem can be fragmented and confusing place to do business. So we've opened up dialogue with operators to discuss how we can work together to unlock the potential that lies within. It's like travelling back to 2003, but with less WAP.

Ultimately, there's an amazing multi-billion dollar opportunity for creators of crypto collectibles (plus wider blockchain-based businesses) and for the platforms that can facilitate the associated transactions possible. Let's grasp it. ■

Tony Pearce is co-founder of Reality Gaming Group.



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Let's get physical

Imagine if you could use carrier billing to buy physical goods? Well, thanks to some clever thinking, it may yet be possible. **Paul Skeldon** finds out how

Charity has long been a fan of carrier billing for donations. In many ways, the charity sector has driven the acceptance of carrier billing to the point where today it is being talked of in glowing terms across a range of sectors (see pages 1-7). So what if you could take carrier billing that step further and see it used to (audible gasp) buy physical goods?

That is exactly what Chris Newell's team at Donr are looking to do. While Donr has been set up to build a great mobile donations platform for charities,

of payment, since carrier billing can't be used for physical goods.

So how has Donr got round this? Well, it is simple and complicated all at once. Concentrate.

In essence, what Donr does is create a virtual gift card – which is non-physical and so can be bought using carrier billing – that is then used instantly to buy the goods from the charity. The carrier, which has essentially provided the 'credit' to buy that gift card then sorts the money and forwards it on, minus its DCB charge, to the charity under its normal Ts and Cs. The carrier

other DCB transaction for anything non-physical.

Newell uses the analogy of shopping in a store. "It is like me going into Waitrose and buying an Amazon gift card with my Amex card," he says. "I can use that Amazon card to buy whatever I like, with Amex having paid Amazon for it then charging me. In this scenario, Waitrose is the charity and Amex the carrier."

In Donr's model, the 'virtual gift card' exists for a split second before being redeemed to buy what it is the customer is trying to buy from the charity. It effectively makes it possible to buy physical goods.

The key thing is that Donr has an e-money licence and so can do this with the money protected by e-money rules. This is what makes it possible and why it could help propel carrier billing to bigger things. Right now, says Newell, carrier billing is reaching just a fraction of its potential.

"The PSA protects the con-

sumer experience," he says, "but the Financial Conduct Authority protects the funds."

While this is a big deal for the charity sector, the model is one that could catapult carrier billing into a whole new dimension. While ideal for selling digital engagement and digital services, the potential to sell things too through a virtual gift-card model could transform how it is used.

That could not only see it start to proliferate as the way to pay – as it is quick and easy – as well as, with volume, start to see it become a means of payment that starts to be comparable with credit and debit cards in terms of charges – which will lead to more merchants in more verticals looking to use it.

From a consumer point of view, this offers the potential to revolutionise mobile content consumption and m-commerce. But, for now, it could be something that revolutionises charity donations and once again shows how charity can not only do good in society, but also can help to develop new ways to use technology. ■

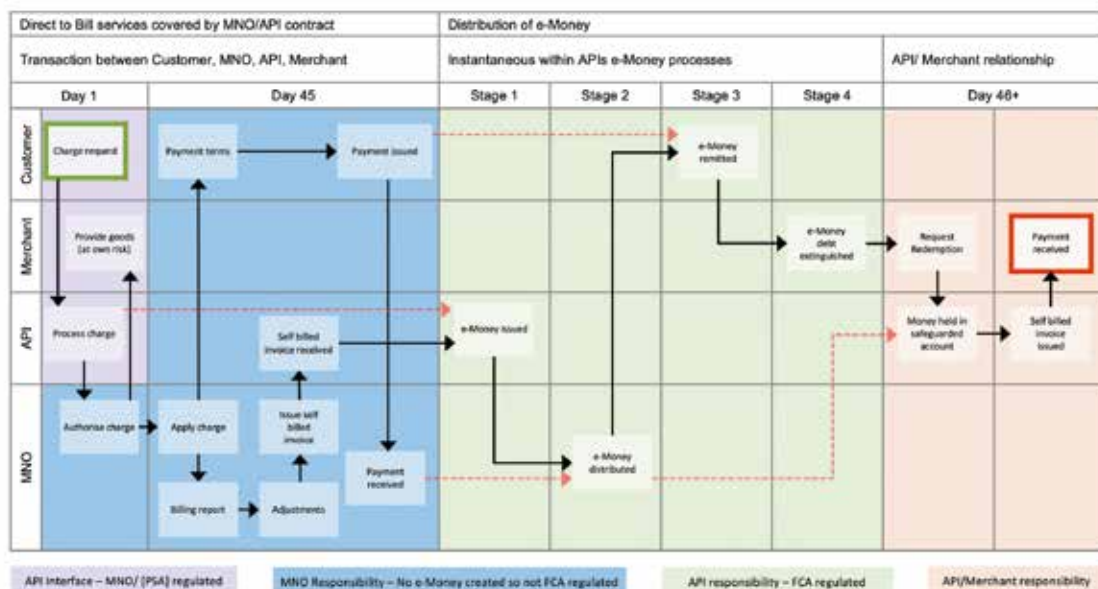


it has also worked very hard to come up with a way of letting users use carrier billing to buy things.

"Many of our charity clients love using carrier billing to get donations – even long running regular donations," explains Newell. "However, many of them want to follow up donations with the ability to sell goods: a red nose, a wristband and so on. And they want that to be mobile and a direct follow on to what they have just done using carrier billing."

This, of course, would typically mean that any charity that wanted to look at upselling a donor to something tangible as part of the SMS flow can't – they would have to switch them out to a webpage with other means

then recoups this 'credit' on the user's bill as it would with any



African m-wallets

<< 1

The Gambia and Guinea-Bissau have launched new fast 4G services.

The provision of 4G data speeds, in conjunction with recent smartphone usage trends – fuelled by falling device prices – is sure to further spur data revenues for mobile network operators across both the urban and rural parts of Africa.

But while these countries are the leaders in terms of 4G, the whole of the African continent offers a huge billing and content opportunity for telemedia companies and merchants. One such player tapping into this is Mobivate, a mobile billing and messaging company that specialises in Africa.

It has rolled out Mobipay, a mobile payment service that looks to use an m-wallet approach to carrier billing, allow-

ing users to pay for things with their mobile, but not out of their airtime.

“The African opportunity is huge,” says Daniel Balfour, head of Mobipay. “We offer PSMS and DCB and with millions of subscribers in Ghana and Nigeria, there are huge opportunities for digital content providers to tap into this market.”

He continues: “If you look at Europe and North America and parts of Asia, smartphone penetration is at 100%, in some place more than 100%, but in Africa there is predominance of feature phones. To neglect these millions of features phones would be a mistake.”

To this end, Mobipay is tapping into how to do in-app billing on feature phones as well as smartphones to help users do everything from playing games, to streaming Netflix, buying

through Amazon or paying their utility bills.

“In Ghana we have mobile money solution rolling out for digital goods and service and we can also do physical goods,” says Balfour. “Pay-outs are much better than on PSMS and traditional carrier billing and, as a result, we are seeing traditional merchants and new entrants looking to take this on. Ghana is a nice new viable market for them.”

The interesting thing, notes Balfour, is that by making sure that the consumer payment comes out of their wallet – which they top up with DCB – it doesn’t come off their airtime. This makes them much more likely to convert.

“It also allows us to roll out services much more quickly for merchants,” he says.

David Umoh, head of products and services at operator Tigo

Tanzania agrees that new models are just what are needed across the continent to drive DCB use for the unbanked.

Tigo is second biggest carrier in Tanzania and is a leader in African digital lifestyle services. “DCB cuts across everything we do and we use it for basic VAS for customers right through to Google app stores and for access to other digital services. Carriers have a lot of power in Africa as they are the ones where people touch the internet. Adding a layer of paid-for services and a way to pay for them is a huge opportunity.”

“But it needs new business models,” he says. “One thing that DCB in Africa has brought about is that it has made airtime – or the mobile bill – like a secondary currency in many countries and we are looking at how to make this something useful to consumers.” 

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Where next for messaging?



SMS is ubiquitous and perfect for B2C engagement. But with 2G networks being decommissioned, where is SMS going – and what is waiting in the wings to replace it? Paul Skeldon reports

Messaging was one of the least expected developments of mobile comms when mobile phones took off in the 1990s. SMS was added to give phone engineers a means of communicating with each other that didn't clog up the phone network. However, the neatness of trying to converse asynchronously via words in 160 characters tapped into a demand that no one knew was there.

I remember it well: why go through the (expensive) rigmarole of calling someone to say that you were running late, when you could text them that you were "10 L8"?

Today this messaging model to mobiles has morphed into a multi-billion dollar global business, so it is no surprise that many are trying to develop the next messaging standard that

can reach like SMS, but deliver even more.

So where is messaging going? "I think SMS is important to enterprises as it is on everyone's device and you can talk to people – and people like it and enterprises know that. It's a great way to deliver a notification," says Jason Bryan, CEO, ROCCO. But that is going to change.

"Many MNOs are starting to shut down their old 2G networks and eventually 3G will be closed too," says Bryan "What does this mean for SMS? Well, you can still run it even without 2G but then this old model of SMS won't exist so how will they continue to supply that? What happens to m2m, IOT and voice traffic as well? These are all things that people are asking."

In the midst of SMS's rise –

and indeed now spurred by the near-future decline of the networks that make it work – many other OTT messaging services have risen up. Facebook Messenger and Whatsapp are front runners, while in China WeChat is huge. But none of these can touch SMS's ubiquity and utility. Also, for business to use them to connect with consumers, the consumer needs to opt in to allow them to do it: this makes them less 'reach-y' than SMS.

RCS IS A-COMING

Enter Rich Communications Service (RCS). RCS is Google's attempt at rebooting SMS to make it rich and interactive and to offer the ability to take much of what corporates want from SMS into the truly interactive, 5G world.

However, it is limited – for now – to Android devices and, for that reason, lacks the reach of SMS. That said, there is a lot of interest in RCS as both businesses and MNOs explore

where it will fit in the messaging paradigm.

"RCS is interesting," says Bryan. "My personal belief is that there is an omni-channel approach to messaging. There are many ways of delivering messaging – including RCS – but no one messaging type will dominate. It all depends on each customer and what engagement they want. Do they want a notification or a conversation; is that an ongoing conversation, or just the transaction you are dealing with? It will depend on how people behave when they see RCS in action. The big question for me is whether it's seen as useful or obtrusive."

Nick Lane, chief analyst, Mobilesquared, which has done extensive analysis of RCS and its potential market agrees. There is a strong role for RCS, but as part of an overall idea of business messaging.

"RCS won't replace SMS, but SMS will decline from 2022 as

some 2G and 3G networks start to be decommissioned and as 5G sees more people use RCS. It is a balance that will slowly shift," he says.

However, "Corporates that we explain RCS to see it could be favoured channel, with some 12% of businesses saying they would use it. What is interesting is, when you add SMS to that and call the combined entity 'business messaging' you find that a third of businesses want to use it. That is way ahead of all others other than email and phone – way out in front of FB Messenger and Whatsapp."

WHERE IS RCS AT?

According to Lane's research, RCS is happening. "It's starting to move along quicker with the next 18 months being about acceleration and growth," he says. "Google has rolled out Google

Guest so that, in theory, anyone with an Android device in the UK, France and Germany can access RCS. So it can become a service that generates revenue."

Lane continues: "RCS is here today, but in terms of scale it will be mid-2020 before it starts to get critical mass. We expect the main 36 MNOs in Europe to have it in place by the end of 2020."

While many RCS detractors claim that Whatsapp is the clear heir to SMS with its 1.5 billion users, you have to get them to opt in... "It isn't the go to channel," says Lane. "RCS will let you use your existing SMS database to message them. That is very powerful."

And, he says, we are starting to see some interesting case studies emerging in the coming months (see page 12). "So far, we have only had the same few

trials to draw on to showcase RCS, but that is now changing with some pretty big names now using it. That should get things moving."

Another area that has been seen to potentially hold back RCS has been pricing. Until now, it has been looked at as something that will be sold on a 'per session' model, priced as a multiple of SMS charges, often at quite a mark-up. Now, we are starting to see some service providers look at simple per message pricing.

In fact, mGage, which is one of the leading aggregators – along with IMIMobile – in pushing RCS has been one of the first to declare a price per message model of 6p, about three times the cost of an SMS.

"RCS is very rich and engaging so the value is there," comments Nick Millard from

mGage.

Mobilesquared's Lane agrees: "Pricing models are being sorted and it very much needs a price per message model. This will really help."

The other advantage that RCS brings and why telemidia needs to watch its development closely is that it could be a huge driver of carrier billing. "DCB fits perfectly with RCS: it is on-mobile, doesn't affect the flow and could well be a massive driver for carrier billing as users start to see how convenient it is," says Lane.

And that is why we are going to see more RCS in 2020 and how it will start to become the de facto experience for messaging. As SMS starts to decline as networks are switched off, it is a natural heir and one that offers huge opportunity for telemidia. ■

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RCS is slowly garnering fans in the corporate world. **Paul Skeldon** takes a look at some of the trials and partnerships that are taking shape

RCS in action

Rich Communications Services (RCS) is touted as the next generation of SMS by some industry watchers, while some are already predicting the demise of text as we know it.

Of course, SMS isn't dead yet, but RCS is starting to garner more of a following and there are an increasing number of partnerships and trials out there that are starting get RCS in front of consumers.

So what is happening out there?

OUT THERE MEDIA

RCS has taken a big step forward as Out There Media (OTM), a global leader in mobile advertising and data monetisation, partners with Vodafone Group for its Rich Communication Services (RCS) offering.

The deal follows two highly successful campaigns with The Walt Disney Company Africa and McDonald's, with OTM being the first company in the world to trial this technology with both these major brands.

Using the Vodafone network to facilitate the all new 2019 Lion King release and McDonald's Rewards program RCS projects, the campaigns saw a 72% and 73% Read Rate (RR) respectively with a Conversion Rate of approximately 3%. Engagement Rates were 44% with the McDonald's campaign and up to 82% with the Lion King campaign, without the need for subscribers to leave the native messaging app on their phone.

Kerstin Trikalitis, CEO, OTM, says: "Our proprietary technology platform, Mobucks™, produces a level of RCS experience not yet seen in the marketplace and a viable alternative to current over-the-top (OTT) apps. By joining forces with Vodafone, we have created a unique, end-to-end, cloud-based and fully-managed Rich Communications Services solution, taking

mobile operators in particular, to tap into the US\$616 billion global advertising spend."

DOING THE BUSINESS

IMImobile, a global communications software provider, has partnered with Mavenir, a US-based leading network software provider, as part of its RCS Business Messaging Ecosystem to accelerate market adoption

casts an additional 27 operator launches by Q1 2020.

BG Kumar, President Communication Services Group at Mavenir said: "At Mavenir, we embrace disruptive innovative technologies that drive service agility, flexibility and velocity. By working closely with IMImobile we can innovate to meet the growing demand from customers who prefer to communicate with businesses over more interactive channels such as RCS."

IMImobile's Enterprise CPaaS (Communications Platform as a Service), IMIconnect, enables businesses to intelligently create, manage and automate end-to-end customer communications across multiple channels. Earlier this year, IMImobile announced the release of its unified RCS messaging API. Through the API and alongside IMIconnect's low-code tools and visual workflow builder, enterprises can design, build and launch RCS messaging journeys at speed and scale. Mavenir will be leveraging these communications orchestration capabilities as well as IMImobile's AI software to automate customer journeys.

Jay Patel, Chief Executive of IMImobile, commented: "We are delighted to work together with Mavenir to accelerate market adoption of RCS for leading enterprises worldwide. Our recent acquisition of 3Cinteractive has established the Group as a leading global provider of RCS solutions." 

This is a clear sign that major brands are taking RCS seriously and are starting to see the potential of the channel

full advantage of the channel's ability to allow users to interact with brands without leaving their native messaging app."

Liz McCord, Principal Product Manager, Vodafone Group, adds: "The Disney and McDonald's campaigns run by Out There Media and Vodacom demonstrate the first large scale commercial RCS campaigns by big brands on the continent. The results were spectacular and prove the value of this new messaging channel for mobile customers and brands alike. RCS Business Messaging is the game-changer the industry has been waiting for."

Nick Lane, Founder and Chief Industry Analyst, MobileSquared, concludes: "This is a clear sign that major brands are taking RCS seriously and are starting to see the potential of the channel. Using an advertising model will allow the RCS ecosystem, and

of this richer, more interactive channel.

IMImobile and Mavenir will work together with global operator mutual customers, integrated RCS enablement technologies and a shared vision to increase adoption of this new channel globally.

RCS is the evolution of mobile messaging; an upgrade to SMS on a global scale that enables businesses to deliver incredibly engaging interactions. RCS removes the need for consumers to download multiple apps; instead users can directly communicate with businesses from within the messaging app itself, allowing them to engage with virtual assistants to book flights, buy clothes, confirm restaurant reservations and more. The GSMA revealed that RCS has currently been launched by 81 operators worldwide and fore-

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WINTER 2019/20 WILL BRING...
5G

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FROM THE EDITOR

Telemedia: success at the nexus of VAS, 5G and payments

Telemedia has come of age. The delivery of premium content and value added services (VAS) and the messaging that creates demand are now all intertwined with the direct carrier billing (DCB) that pays for it into a coherent and efficient offering. And the world is taking note.

Europe and North America still struggles with a perception problem – although that is changing – much of the rest of the world is lapping up this telemedia offering of marketing, delivery and billing so that they can access all the trappings of a digital life in the 21st Century: the want Netflix, they want Amazon, they want dating, they want all the things – and they want it on mobile.

These developing markets have no history with premium

rate and carrier billing. There is also a lack of choice. Everyone is mobile, no one has Apple Pay and everyone wants to stream – it's a no brainer: carrier billing makes it happen.

In the developed world, it is a different story. Recalcitrant network operators who, to be fair to them, don't want the cost and hassle of bearing the brunt of complaints are backward at coming forward about promoting DCB.

Aggregators, while keen to get it out there, have little means at their disposal to get the message across. The brands themselves that may use it also shy away from it because... well because they are either unaware or also worried off by the lack of buy-in from MNOs.

It is also fiendishly hard to get on-board, especially if you want

to offer DCB across multiple geographies. A vicious circle.

But slowly this is changing. A whole new generation –X, Z, millennials; take your pick – are not so aware of premium rate's history. They also want to be sated now. They are ripe to be offered carrier billing.

The brands and content owners that they interact with are also keen to monetise as many of these interactions as possible. They ideally want long-standing and repeating subs, but will settle for mopping up the one-off hits they may get. We just need to bring the two together. 📱

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Paul Skeldon, editor

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No longer a dirty word

Fraud used to be talked of quietly in dark corners, not out loud. But with growing use of carrier billing being part of the global move towards 'digital life' it is now an everyday part of business. So let's talk about it, says **Paul Skeldon**

Fraud used to be such a dirty word – especially in connection to telemedia. However, as was proved at this year's World Telemedia show in Marbella, it is very much an accepted part of doing digital business – and one that the industry has never been more on top of.

Back in the day, fraud in telemedia was often something perpetrated by a few bad apples within the industry. Now that telemedia sits very much in the mainstream of the digital economy, it is falling foul to cyber crime just as much as all other ecommerce and digital businesses.

However, it is now one of the leaders in fighting that fraud.

Click jacking, rogue adverts,

bad traffic, DCB fraud, cyber hacking, fake sites and fake apps are all things that the digital world has to contend with – but using monitoring techniques that are getting ever more sophisticated the likes of Opticks, Empello and MCP are all helping to keep the industry just one step behind the criminals.

ITALIAN JOB

And fraud comes from some unlikely places. Asking the audience to guess the top five countries of origin for fraud, Geoffrey Cleaves, head of Opticks, surprises us all when he reveals that top of the list – which already contained Ukraine, Belarus, Russia, Iraq and India – was in fact Italy.

"Regulators have to be on top of it" Cleaves says knowingly. Italy stands out as there is probably – and these are my words, not Geoff's – rife with corruption.

How Opticks tracks fraud is a closely guarded secret, but I can reveal that it involves more than just odd looking traffic patterns, but also odd ways things appear on the screen.

Tracking fraud means looking for patterns and anomalies, who people are looking and screens and many more factors. But keeping up with the fraudsters is always a challenge.

FAKE APPS

The key thing with fraud is that it is now happening at an alarmingly fast pace – and in many new places. "Back in the day it used to take hackers two or three weeks to create a new hack and for it to spread," says

Shwetank Tamer from OnMobile Global. "Now it is more like two to three days and so we are constantly catching up. Add in that all these new things like Alexa and smart TV are also getting hit and the problem is huge."

The proliferation of new devices and new apps only adds to the complexity. Apps are already a huge problem.

Recent research by digital security management experts RSA Security finds that the fraud risk from fake mobile apps is on the rise.

Data gathered by RSA's Fraud and Risk Intelligence (FRI) unit – a team of experts who infiltrate cybercriminal groups to unearth fraud campaigns and track their proliferation – shows that the total number of global fraud attacks the team detected in the first half of 2019 was 63% higher than the number detected in the second half of 2018,

rising from 86,344 to 140,344.

According to the research, fraud attacks originating from fake mobile applications rose by 191% in the first half of 2019, to more than 57,000, as cyber-criminals continue to abuse legitimate brands as a channel to commit fraud.

E-commerce payment fraud attempts originating from a 'trusted' account – such as one known to the RSA fraud system for 90+ days – but a 'new' device increased from 20% to 80% of total e-commerce fraud, as perpetrators double-down on account takeovers as a means to evade fraud detection.

There was an 80% rise in financial malware attacks in the first half of 2019 and fraudsters have been spotted using adapted versions of the old Ramnit Banking Trojan to circumvent defences; for instance, the fraud team found it's now being distributed via executable files that are downloaded and opened by unknowing users.

Daniel Cohen, Director of the Fraud and Risk Intelligence Unit at RSA Security says: "The digital transformation of finance is well underway and yet, this transformation is a double-edged sword; while digital has created opportunities for organisations to improve customer experience, it also introduces new digital risks that need to be managed. Take for example the number of digital touchpoints that consumers can engage with to access financial services: these have increased dramatically through initiatives such as open banking and this widens the attack surface that fraudsters can take advantage of."

Cohen continues: "The fact that fraud via fake mobile applications tripled in the first half of 2019 is testament to how perpetrators will constantly seek out weak points. Here, they are exploiting consumers' growing trust in mobile apps as

Carrier billing: how to stop it driving fraud

Carrier billing is growing globally in use, with more consumers than ever using it all over the world for often mainstream purchases from app stores and more. But fraud is becoming an issue, and the mobile industry needs to clampdown on this now if DCB is to survive, industry players warn.

Speaking from this year's Global Carrier Billing Summit in London, Dimitris Maniatis, head of Upstream's security platform, Secure-D, warned mobile industry leaders: "We must safeguard digital carrier billing against the ever-growing threat of online transaction fraud that's targeting mobile operators and their subscribers worldwide."

Direct carrier billing is growing fast, but is also in danger, Maniatis says: and the proof is in the numbers. Mobile subscribers and smartphone penetration are rising and the number of people going online is increasing, especially in emerging markets. It is expected that 1.4 billion more people will be using mobile internet by 2025, mobile data usage will grow 5X by 2024 and DCB will increase 3X by 2022.

This presents a lucrative opportunity for data generated revenue for MNOs. The rapid evolution of DCB, however, is also gaining the attention of fraudsters whose sophisticated tactics are putting its viability at risk. This threat calls for effective solutions that will safeguard MNOs' digital revenue growth against fraud related to online transactions.

He continues: "In 2018 alone, Upstream's innovative security platform processed over 1.8 billion mobile transactions, detected and blocked over 63,000 malicious apps in 16 countries and identified 30 million malware-infected users."

Steps that MNOs need to take to protect themselves include implementing:

- Real-time blocking
- Subscription pattern analysis
- Billing clearing processes
- User-level malware protection
- Real-time reporting
- Security profile configuration and ad compliance monitoring.

a means to interact with brands and make purchases. To keep pace with constantly evolving tactics, banks need to take a layered approach to proactively

"OTP messages can be hacked by bots and are a nightmare for consumers and expensive for brands," we need better solutions," he told delegates.

It then looks for the kind of kit needed to perpetrate the fraud on the dark web and reverse engineers it all.

From a consumer point of view RSA's Cohen believes that the key weapon is vigilance. "It's essential that, as consumers, we all stay vigilant of new digital risks and there are several simple steps we can follow.

"Firstly, avoid clicking on links in text messages or emails from unfamiliar senders as this lowers the chance of having your bank details stolen, or malware being installed on your device.

"It's also important to keep track of bank transactions; often, fraudsters will start with smaller purchases to test the water, so monitoring bank accounts closely is vital to catch fraudsters early.

"Finally, in light of the rise in fake mobile apps, download new applications with caution, make sure to verify the publisher and pay close attention to what data permissions each app requests." ■

Industry needs to take more responsibility for fraud and work collectively together to beat it

manage the risk of fraud across all channels. This will help them embrace the opportunities that come with digital transformation whilst maintaining confidence in their ability to detect and respond to fraud, protecting both themselves and their customers."

WHAT CAN WE DO TO COMBAT FRAUD?

The big question is what can be done about it? From an industry point of view, Jonathan Redvik from Appland AB believes that the industry needs to take more responsibility for fraud and work collectively together on it.

This was backed up by Jacqui Jones from Worldplay in South Africa, which has seen all the main network operators and aggregators get together out there to form WOSPA, a collective body that shares data on fraud and works together to beat it.

Or you can think like a fraudster. The other tack being taken to combat fraud is to think like a fraudster. David Lotfi from EVINA says his company does just that.

EVINA has devices set up all over the world to get infected and to be hacked, so it can see precisely what is going on and how the fraudsters are operating.

Love is in the air



Online dating apps are now mainstream and widely used... and that presents a massive direct carrier billing (DCB) opportunity. Here **Ollie Allum**, Commercial Manager at Fonix outlines why dating is so hot right now and what it means for DCB

Nearly 80% of UK adults believe they can find love online and, in the age of the smartphone, love is quite literally 'in the air', with many turning to dating apps to find their life partner – and it is a massive opportunity for billing, messaging and marketing partners.

Top dating apps like Elite Singles, Zoosk and OKCupid now include advanced features to improve the mobile dating experience including; flirting tools, messaging and video chat – which will of course enjoy a further boost as 5G networks continue to roll out across the globe.

Other unique features that set mobile dating apart from online include push notifications – informing subscribers that a new match has been found, text conversations and of course geolocation functionality – allowing people to search for someone in their immediate proximity. Primary users tend to be young high tech, on the move, paying adults. Studies suggest that an incredible 75% of the 18- to 24-year-olds already engaged with mobile dating apps and

the trend looks set to extend across demographics.

With 1 in 3 relationships starting online, dating apps are well and truly established as part of modern day life.

Gone are the times of having to pay a subscription just to send a message; this has been replaced by the freemium model widely used in the market today by the likes of Tinder, Bumble or Coffee Meets Bagel. Extra features can either be bought individually or a subscription to access all premium features, which usually consist of: unlimited swipes or likes, extra super likes and more control over who users see and who sees them.

Tinder really brought dating apps for the mass market and has grown significantly since launch, just this year Tinder replaced Netflix as the top grossing app on both the Apple App Store and the Google Play store. Around 70% of Tinder's revenue is from subscriptions; the other 30 percent is a combination of add on features, and a small amount from advertising, showing the true power of subscription value added services.

When it comes to converting consumers from free users to premium users, understanding the way in which users interact with the service is imperative to knowing how to capture the audience's attention for a premium service.

Many users interact with dating apps in a casual way, 44% said they use Tinder as a procrastination tool and an ego booster. The peak times of use indicate that consumers are most frequently interacting with the app at quiet times throughout the week, such as Sunday or Monday evenings, between 8pm and 9pm, and once they have arrived at work and settled down (around 10 am).

So therein lies the challenge of converting casual users to paying customers.

SO WHAT CAN YOU DO TO IMPROVE DATING APPS?

Dating apps are the epitome of convenience; no more dressing up and leaving the house in hopes of scouting a date, now that can be completed from the comfort of your living room.

Dating apps are accessible

anywhere at anytime with an even bigger scope of potential dates. This convenience should extend to the payment process as well.

Direct carrier billing is a slick payment process that charges the payment direct to the consumer's mobile phone bill. The only thing that users have to do is enter their mobile number, then enter the pin they receive via text and ...done! instant access to premium dating features. Product and payment all on one device: the ultimate convenience.

The ease of carrier billing allows for impulsive micro-purchases, perfect for the average dating app user leisurely scrolling in the evenings as well as those serious about finding love.

Keep it casual, without the hassle of entering lengthy card details. The addition of a carrier billing payment option boasts up to 3 times as many conversions.

Share the love with direct carrier billing. 📱

Ollie Allum is Commercial Manager at Fonix

Media companies have long been at the forefront of trialling telemidia tools to deliver value added services. Now, with ad revenues dropping, the media is taking it seriously. **Paul Skeldon** finds out more

Making it for the media



Value-added services that can be propelled by telemidia services such as carrier billing have long been touted as something that the publishing and media world could leverage. And, to be fair, we have seen many trying it. However, right now, it seems that media is more interested than ever as it looks to tap into the increasingly mobile – and increasingly fickle – consumer base.

According to research into carrier billing use for VAS conducted by MobileSquared for Telemidia magazine (see page 1), publishing currently only accounts for about 8% of VAS spend, but it is on the up – and there are some key offerings, particularly around coupons, that are making it happen.

“VAS alters depending on who you ask,” offers Mark Challinor, CEO of Media Futures. “What is value added for existing readers and viewers: if you subscribe already, do I give you more or is the value added service a service to deliver new people to the publication?”

The two things require slightly different approaches, but the

key thing is, says Challinor, is that they are adding value.

Of course, newspapers have long been offering added value with reader offers and holiday deals, products tailored to their readership and which the publisher takes a cut. But, today, with data and AI how this happens is getting smarter.

Understanding what readers want can be now done on an almost personal basis based and, with readers and viewers being increasingly mobile, it is creating a range of new monetizable services that can be delivered using telemidia services – not least carrier billing to pay for snacking on this content.

“Podcasting and downloadable content that is ideal for mobile are increasingly popular as they are ideal for download, can be personalised and they can be sponsored,” says Challinor. “Similarly, newsletters can be turned into a monthly paid for service that adds value to the perhaps free or free-mium main news content and again can be personalised.”

Challinor also sites monetising social media as another area of

VAS interest for publishers, but that it may not necessarily be just about money. “I think much of this may well be ‘monetised’ for data rather than money,” he says. “Newspapers have a lot of data and data is what really underpins the value added services model these days.”

COUPONS AND BEYOND

It is early days for truly exploiting value added services, but many are already trying. While the dream is to deliver personalised mobile homepages and individually targeted experiences, one area that is working in the here and now is in couponing.


“Almost all ecommerce sites today feature and ‘enter discount code’ box at checkout,” says Challinor, “and so shoppers go off looking for one. If those discount vouchers are on your site then they are potential new users coming to you.”

For this reason, coupons are starting to become important to media. Couponing has become really popular with publishers worldwide. It requires less work and it brings a new

audience and is a big revenue stream.

There are many brands who want to boost sales and find new customers and they do that by discounting using couponing. Affiliates can link these coupon ‘ads’ to publishers, effectively providing the link between the brand and the publishers. All the publisher has to do is create a sub-domain and it runs itself – the publisher taking a cut and, potentially, getting a new audience.

“All the media company has to do is choose a carousel of their hero brands and off they go,” says Challinor. “It brings a new audience to the publisher’s site, who may subscribe or engage from there. The publisher can then add in more value added services – such as dating (see page 16) – once there.”

And it doesn’t end there. This is just the start, believes Challinor. “It’s big potential going forward is mobile. The future lies in voice activated and geo-fenced coupons that can help link media and driving people to stores, with the all the brand halo effect that produces.” 



Chris Wood explains why radical change is essential if TV companies want to take OTT to the next level. It's time to build Platform 2.0

You wouldn't build a house without proper foundations and expect it to last. So why – if you're a traditional TV company that's made the move to OTT – would you persevere with patchwork infrastructure that's been cobbled together on poor foundations? You wouldn't – or at least you shouldn't. Unfortunately, many arguably do. However, as technology advances and consumer expectations change, those organisations are reaching the stage where tinkering with the wiring to improve the user experience is no longer making any discernible difference. As OTT quietly continues to steal audience from traditional TV, incremental change is not enough. If companies don't think radically and prepare to re-dig the footings, their lofty ambitions for DTC growth could quickly subside. It's time to build Platform 2.0.

Engineering: the UX battleground

The argument for OTT has long been won. The growing popularity of Video On Demand

and subscription TV has persuaded many media companies to go DTC – with research suggesting that all major networks will have introduced OTT-powered services by 2022. Some are already there. However, of those that are, many find themselves teetering on the edge of glory. They're at the cusp of providing a high-class experience, but the piecemeal way their platforms have been constructed makes it difficult to push on to the next level. As viewing habits shift and consumers enjoy greater choice and control over what they watch, UX has become the industry's biggest competitive battleground – a key driver of audience retention and commercial success. Improving it is a question of engineering that depends heavily on laying the right foundations.

A high number of platforms have been built incrementally, with companies reactively bolting on new functionality in response to emerging innovation, market challenges and App Store ratings. As brands have

evolved, organisations have patched in shiny new technologies from their ever-expanding list of vendors, stitching everything together in the hope of transforming the user experience. The marketing story sounds brilliant, but the reality is less impressive. The piecemeal approach typically culminates in 'patchwork quilt' architecture that reflects a lack of strategy and soils the user experience. What's more, it leaves brand owners out of control of the roadmap, requiring them to pick through complex wiring across multiple vendors to make seemingly simple improvements. Too often companies identify a problem only to find themselves at the behest of vendors' development plans – preventing them moving at the speed and velocity that their businesses require and their customers expect. As fixing UX becomes painfully slow, the risk of audience abandonment increases.

The challenges are unsurprising. Traditional players built their heritage around broadcast

engineering, so making the journey to a software environment was always likely to be tricky. But despite the bumps in the road, many are delivering decent experiences where users are prepared to stomach UX difficulties in exchange for high quality content. However, they won't wait forever – and neither should you.

JOURNEY TO PLATFORM 2.0

So what can be done? How can you move from the edge of glory to the promised land of Platform 2.0? It's time to take a deep breath, think differently and rebuild from scratch. Sure, that's a bold and radical approach, but it doesn't need to be scary. With a clear strategy, expert advice and a structured roadmap, rebuilding from the ground up is not only feasible, it will lay the foundations for future growth. Every business is different and a one-size-fits-all model doesn't exist. However, there are five basic steps to building an OTT platform that delivers a great user experience.

#1: LOOK UNDER THE HOOD

Start by auditing your existing architecture to identify current problems and how they might impact the vision for your brand. It's important to examine things from a customer perspective. Too often, companies focus on features and benefits and forget the customer at the other end. The key to an effective audit is to take your 'product hat' off, log in and start exploring what's under the hood. Companies rely heavily on tools, SDKs, libraries and vendors to monitor individual parts of the chain, but few ever pull all that data together to understand what it means. You need to know your customer's world. So lift the lid and find out what happens when you click that icon. Where does it go? What API does it get? Where's the API deployed? How long does it take to process

and respond? What goes on behind that service? A deep, agnostic audit will highlight poor performance – the spinners, slow load times and application crashes – that silently determine your App Store ratings.

Similarly, it's easy to focus on the features you think your customers want without properly considering the downstream impact of bolting them in or checking that they actually want or need said features. What's the engineering cost? What does it do to load times? It's only by lifting the bonnet and understanding the ecosystem that decisions can be made in context. Fundamentally, UX isn't about products and features, it's about engineering.

#2: DEVELOP A STRATEGY – AND OWN IT

The trend for outsourcing every

component to third party vendors is well established – but the cracks are beginning to appear. Therefore, step two is to develop a strategy that builds on the learnings from your architectural audit to create a roadmap that prioritises the functionality that's most important. Once you've decided the key areas of focus, identify which components can be offloaded to third parties and those where you need to exert greater control. Take ownership and responsibility for the critical components – and put plans in place to monitor and manage performance.

#3: INVEST IN THE RIGHT SKILLS

The best way of taking ownership and responsibility for priority components is to ensure your teams have the requisite

skills. This is likely to require investment in engineering capability. Leaders understood early that to deliver a first-class service, they needed to invest properly in software engineers. The rules haven't changed. Deep technical knowledge is a pre-requisite of DTC success.

#4: INVEST PROPERLY

Developing the optimal OTT experience requires genuine investment. Disney has invested astronomically in its new streaming service, whereas other new entrants are trying to get by on tiny budgets. Success is about investing in the appropriate resources, rather than fiddling around at the edges. This doesn't mean breaking the bank – it means developing a proper plan that identifies Critical Success Factors (CSFs) and focusing resources accord-

ingly. It's the antithesis of the piecemeal approach.

#5. BE BRAVE

Companies are acknowledging that their OTT infrastructure has reached the limit of what it can do – they can't keep bolting on innovation and hoping for the best. A radical rethink is required.

Fundamentally, tomorrow's leaders will be those who are brave today. Companies that take the bold decision to rebuild from the ground up will lay the foundations for long-term success. It's a big call.

However, with a good agnostic partner to help you design the right architecture and roadmap, the next level of OTT delivery might just be within reach.

You're on the edge of glory. It's time to be brave and build Platform 2.0. 📺

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5G adoption: The UK leads the way

5G is here and nowhere is it seeing such an exciting roll-out as across the UK. **Paul Skeldon** takes a look at who is doing what



5G adoption is robust in the UK and Europe and the technology's adoption is forecasted to reach over 26% of total mobile subscriptions by 2024, according to GlobalData, a leading data and analytics company.

EE was the first network to launch 5G in the UK, but two other networks have since launched their 5G strategies to try and make it to the top spot.

Lorenzo Solazzo, Technology Analyst at GlobalData, explains: "During the 5G City Tour (#5GGearUp) organized by Huawei, network operator 3UK showcased its new 5G

strategy to compete with other telecommunication operators (telcos). The firm was the third operator to launch 5G in the UK, after EE and Vodafone. 3UK will continue the rollout of 5G to 24 additional cities throughout the UK by Q4 2019."

Initially, 3UK is focusing on the 'Plug and Play' 5G home broadband, challenging the fixed broadband market by claiming to offer higher speeds at a relatively low cost with no waiting time for the installation.

Solazzo adds: "The network currently offers 5G home broadband for £35 per month

on a 12-month plan without an upfront cost and with optional same-day delivery. The telco is also targeting small and medium enterprises to strengthen its position in the vertical market."

At the 5G City Tour, 3UK demonstrated its download speeds by recording 5G speeds of 301Mbps and 14 milliseconds of latency at its flagship store in Oxford Street, London. The operator advertises its 5G as 'Real 5G' due to its unique position in the UK to offer 100MHz continuous bandwidth, which is ideal for 5G services and results in higher obtainable speeds.

In contrast to 3UK, EE and Vodafone have focused on the 5G adoption across the smartphone market and have already covered six and 15 cities, respectively.

EE's 5G strategy focuses on bundling the technology with value-added services (VAS). For instance, the company offers 5G on a SIM-only plan (12-month contract) with unlimited data for £44 that comprises three 'Swappable Benefits' allowing users to interchange between six VAS options including free roaming to certain countries, unlimited data usage for video, music, gaming and/or unlimited access to media content such as Amazon Prime Video and BT Sport. Furthermore, the telco offers a wide range of 5G phones such as the OPPO Reno for £44 per month on a 24-month contract, which includes 10GB of data and two Swappable Benefits.

Vodafone offers 5G at no extra cost for mobile customers. However, the company focuses on monetizing the new technology by offering plans with varying maximum download speeds. For instance, its SIM-only 12-month contract plans with unlimited data varies in price from £23 to £30, with maximum speeds ranging from 2Mbps, to the maximum speed available (up to 1Gbps).

Solazzo concludes: "While GlobalData expects increasing competition in the UK, telcos appear to have shaped their 5G strategies to target different customer segments. EE is focusing on relatively higher-end packages, while Vodafone has to offer 5G based on a range of speeds tailored to customer requirements and Three is currently challenging the fixed broadband market. However, the market landscape may change when O2, the second-largest mobile operator, will join the market in October 2019." 📱



5G: the AI and cyber security risks

5G promises to bring super-fast wireless broadband and a host of new services. But it also brings the threat of a whole new raft of cyber security threats. **Paul Skeldon** reports

An overwhelming majority of risk management leaders believe that developments in 5G wireless technology will create cybersecurity challenges for their organisations.

Their top three 5G-related concerns are greater risk of attacks on Internet of Things (IoT) networks, a wider attack surface and a lack of security by design in 5G hardware and firmware.

These are among the findings of a new report by Information Risk Management (IRM), a UK-based cybersecurity company of Altran, the global leader in engineering and R&D services.

The report, titled *Risky Business*, is based on a survey of senior cybersecurity and risk management decision makers at 50 global companies across seven major industry sectors: automotive, communications, energy, finance/public sector, software/internet, transport and pharmaceuticals. The study was conducted between July and September of this year.

Eighty-three per cent of

survey respondents said 5G developments will create cybersecurity challenges for their organizations, suggesting that the new technology will bring heightened risks. "The acceleration to market of 5G and lack of security considerations are causing concern," the report states. "The vulnerabilities in 5G appear to go beyond wireless, introducing risks around virtualised and cloud native infrastructure."

The study also found that 86% of respondents expect artificial intelligence (AI) to have an impact on their cybersecurity strategy over the next five years, as AI systems are integrated into core enterprise security functions. The top three AI applications that respondents said they would consider implementing as part of their cybersecurity strategy are network intrusion detection and prevention, fraud detection and secure user authentication.

"AI in cybersecurity is a double-edged sword," the report explains. "It can provide

many companies with the tools to detect fraudulent activity on bank accounts, for example, but it is inevitably a tool being used by cybercriminals to carry out even more sophisticated attacks."

In late August, for example, *The Wall Street Journal* reported that criminals using AI-based software had successfully mimicked a German CEO's voice and had duped the head of a UK subsidiary into sending €220,000 (\$243,000) to a fraudulent account. It is being dubbed one of the world's first publicly known cyberattacks using AI. "We are likely to see more of this as the technology develops," the report warns.

Commenting on the potential impact of 5G and AI on cybersecurity, Charles White, CEO of IRM, cautions: "A lack of awareness of these technologies' security implications can have far reaching consequences. At best an embarrassing fine and at worst a fatal blow to the bottom line. Now is the time for enterprises to work closely with their cybersecurity teams to design and develop 5G and AI products that place cybersecurity front and center."

The study also found that a growing number of C-level executives recognise the challenges facing enterprise security teams.

Ninety-one per cent of respondents said that increased cybersecurity awareness at the C-level has translated into their decision-making. But most cybersecurity decisions are still based on cost – and not on the safest solutions to put in place, according to respondents, indicating a lack of understanding of the financial and reputational impact of cyberattacks.

There is also a worrisome lack of awareness of the Networks & Information Systems Directive/ Network & Information Systems Regulations, which is a piece of legislation setting a range of network and information security requirements for Operators of Essential Services (OES) and Digital Service Providers (DSPs).

The survey found that 30% of respondents are unaware of the NIS Directive/Regulations, and of the 70% who are aware of the legislation, over a third (about 25% overall) have failed to implement the necessary changes. ■

DPA: Critical to a cost.



Kevin Billings outlines how digital process automation (DPA) is vital to making 5G roll out a success

Fifth-generation (5G) wireless infrastructure will bring faster and broader wireless connectivity, supporting more network traffic, higher volumes of data, greater speed, more devices – and even dedicated “slices” of network service that offer specific performance characteristics.

Communications Service Providers (CSPs) will be able to offer B2B and B2C clients greater capacity for needs like live/interactive video streaming, gaming, augmented reality, and multitudes of IoT connections that will power the smart cities, utilities, education, healthcare, transportation, and enterprise needs of today and tomorrow.

CSPs have already developed strategies for expanding their 3G or 4G service to 5G coverage, including hardware, software, and operational changes to expand networks, enable 5G phones and devices, and launch new subscription plans. But the

transition is complex and costly. In addition to bearing the high cost of acquiring spectrum, CSPs need to invest heavily in core and radio access networks, transmission, and infrastructure. 5G typically requires 5 to 10 times more cell tower infrastructure.

MANAGING CAPEX

Complex network upgrades like 5G migration put pressure on CSPs to manage capital investments strategically.

The challenges to CSPs for 5G implementation are twofold: because 5G requires a greater density of cells, CSPs need to invest resources to upgrade their networks, and stay ahead of or keep pace with their competition.

However, they also need to maintain their bottom line, and this is difficult when they typically rely on manual and outdated processes with limited visibility.

Detailed oversight of infrastructure investments is critical. McKinsey predicts that in one European country, network-related capital expenditure would have to increase by 60% from 2020 to 2025, roughly doubling the cost of ownership. And operators in some countries are considering sharing networks in order to manage cost efficiency, which could further complicate oversight. To manage all costs efficiently, CSPs will need a system architecture that can identify operational dependencies and coordinate them in a streamlined manner.

DPA CONDUCTS THE ORCHESTRA

Digital process automation (DPA) is an approach to an enterprise system architecture that looks holistically at all of the tasks that need to be managed for different vendors, partners, and internal orgs (e.g., engineering, construction, finance) and helps orchestrate and automate each one in concert with related tasks. It

unifies different technologies and functions to help organizations work efficiently.

A DPA approach can maximize the efficiency and speed of 5G network rollout. CSPs that get to 5G before their competition will see a greater return and have a contractual advantage as consumers upgrade and businesses build out their operational networks of 5G-connected devices. A DPA architecture allows CSPs to take advantage of cost-efficient, digital technologies like robotic automation, real-time intelligence, and dynamic case management to orchestrate interrelated rollout activities, such as managing costs, hardware, orders for equipment and supplies, and scheduling and tracking contractors. If a roadblock is identified, automated processes can be triggered within a DPA system architecture to troubleshoot issues and maintain progress. Outages can also be quickly identified and resolved with the help of automated processes. This is an approach to building network capacity that

-efficient 5G rollout



internet operators like Google are already using.

MAINTAINING 5G NETWORK QUALITY

During and after rollout it's crucial CSPs ensure service (and customers) are not lost. In the nearer term, CSPs will need to provide services to replace fixed lines and reduce 4G congestion. Post-rollout, DPA can be used to manage the quality of the overall network to maintain a market-leading, 5G customer experience. Because DPA is designed for complex processes, it can orchestrate the people, materials, and processes in response to any defined event. We've seen examples of this from companies like Cisco, which runs the fastest data networks for the largest companies in the world and has reduced manual touches by 93% when resolving network outages.

TRANSFORMING CUSTOMER AND EMPLOYEE EXPERIENCE

The greatly improved data

speed, higher device intensity, lower latency, and reduced energy requirement of 5G creates new service and IoT application opportunities for CSPs. As 5G service is adopted and valued by customers, the general appetite of consumers for better and faster mobile data

End-to-end visibility enables CSPs to make continuous improvements to networks but also to other internal processes that impact customer experience and operational efficiency such as order fulfilment.

For example, using DPA, Or-

market by 75% and customer Net Promoter Scores by 18% by taking advantage of low-code capabilities.

With DPA orchestrating processes, people and systems seamlessly work together, ultimately reducing cost and complexity while strengthening competitive advantage.

Ultimately, DPA drives process optimization to increase revenue. Generational changes in the telco industry are complex but are also the foundation for future innovations.

Increased network capabilities become opportunities to share information and ideas. In the long term 5G is really about connecting people, things, and data.

DPA can help CSPs connect their own mission-critical data, systems, and processes to optimize cost-efficiency and maintain valuable connections with customers. ■

Kevin Billings is Director and Communications Industry Principal at Pegasystems

Ultimately, DPA drives process optimisation to increase revenue. Generational changes in the telco industry are complex, but are also the foundation for future innovation

will generate demand for new 5G-enabled digital capabilities.

DPA can connect front- and back-end processes in CSPs, transforming the experience of these customers. Case management, as well as artificial intelligence (AI) and robotic process automation (RPA) used only where appropriate, provide an integrated, end-to-end approach to the automation of processes and tasks. According to Gartner, on average, 24% of CSP business processes are fit for automation.

ange improved communication with their customers, reduced order to activate times by 30%, and at the same time reduced the amount of rework in their processes by 50%.

DPA also enables low-code development that can empower CSPs to design and make dynamic changes quickly and with agility, as well as greatly improve employee experience and collaboration between business users and IT.

Vodafone is an example of a CSP that improved time-to-



24-27 February 2020

Mobile World Congress may seem months away, but 24-27 February will be here before you know it. So what should we be looking out for at the show in 2020? **Paul Skeldon** has a ponder



MWC 2020: The future here today

Mobile World Congress kicks off in Barcelona again at the end of February and once again technology has moved on in just a few months since the last show. Here are the key themes to look out for this year.

AI

With a market projected to reach \$70 billion by 2020, artificial intelligence (AI) is poised to have a transformative effect on consumers, enterprises, and governments around the world. AI will explore the real potential of AI, how we must manage such a profound technological revolution and its impact on our professional and personal lives.

CONNECTIVITY: THE 5G ERA

5G is more than just a generational step, it represents a fundamental transformation of the role that mobile technology plays in society. As demand for continuous connectivity grows, 5G is an opportunity to create

an agile, purpose-built network tailored to the different needs of citizens, industry and the economy.

Connectivity: The 5G Era at MWC 2020 aims to highlight how next-generation networks will form the basis of wide-reaching value creation and economic impact. We will take a broad look at the enterprise connectivity ecosystem, from implementation, to use cases, scalable platforms, business models, spectrum, regulation, and investment to the business and cultural challenges of working with new and diverse markets/industries. Realising the full potential of global connectivity is both complex and challenging, but the opportunity is near limitless in its application and impact.

CUSTOMER ENGAGEMENT

Customer engagement has been a key battleground for brands, service providers and governments for decades, but its evolution and importance

has accelerated in recent years driven by the internet, mobile and then smartphones. Customer Engagement will look at examples across all industries to understand how you can set the benchmark for customer engagement, retain and gain customers and grow revenue.

INDUSTRY X

Using a blend of new technologies like industrial IoT, big data, analytics, AI, robotics, 3D printing and machine learning, industries can unlock new revenue and engagement models with customers, employees and partners. Industry X will examine the challenges, opportunities, scalability and limitless potential of Industrial IoT and Digital Transformation.

MEDIA & ENTERTAINMENT

As the appetite and expectation for AR/VR and other forms of richer immersive content grows, the impact on networks, event venues and overall consumer engagement will grow,

presenting huge challenges to everyone involved in these now intertwined industries. Media & Entertainment examines the challenges, the revenue models, as well as the relationship between consumption growth and network capacity.

OUR PLANET

The world needs, now more than ever, our sector to be a fundamental contributor to creating a safe, clean and equitable world for all. Our Planet will discuss the connected technology industries responsibilities to the environment and underserved people, including the unconnected and accessibility for the disabled, among others.

SECURITY & PRIVACY

Recent scandals have eroded trust in the digital ecosystem. Coupled with the growing introduction and interest in legislation around privacy and the ethics of data usage as we enter the AI era, we are at a pivotal juncture in the evolution of the Internet. Security & Privacy analyses the growing responsibilities required to create the right balance with consumers, governments, regulators and industries.

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