WHITEPAPER

DIRECT CARRIER BILLING: Realising the $8.5B operator opportunity

payments by docomo digital

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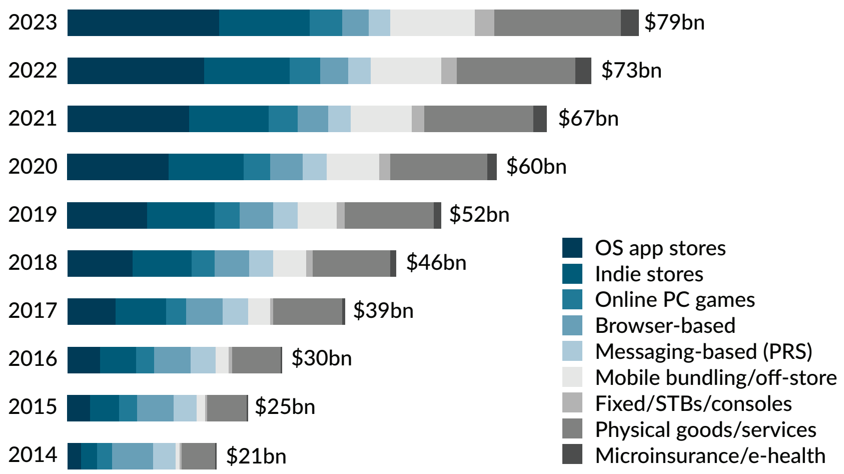
Market outlook

Direct carrier billing (DCB), an increasingly popular mode of payment for digital services, represents a huge opportunity for everyone in the ecosystem, particularly for mobile operators looking for ways to accelerate their tepid top-line growth.

Ovum forecasts total transactional revenue from carrier billing to jump from $46 billion in 2018 to $79 billion in 2023 (chart 1), with the OS app store sector predicted to record the fastest growth. Operator's share of DCB revenue is expected to increase 47 per cent between 2018 and 2023 to $8.5 billion, outpacing the expected 10 per cent growth in total telecoms service revenue over that period.

Chart 1: Global carrier billing revenue, by segment, 2014-23



Source: Ovum's Carrier Billing Forecast: 2018-23

Outside of Japan and South Korea though, carrier billing accounts for just 5 per cent of mobile commerce, offering a vast upside in most countries, especially in emerging markets

It's also a safe and convenient option for consumers making mobile payments; the ease-of-use and security allow mobile operators and merchants to grow quickly in m-commerce and gives subscribers an alternative way of paying for digital services, with mobile numbers addressing KYC (know your customer) or identity requirements for the transactions at the onset.

Emerging markets hold vast potential due to a lack of financial inclusion, with the majority of citizens having no bank account, much less a credit card. For example, in Latin America half of the entire population is unbanked, and only 113 million people in the region out of a total population of 625 million are reported to have credit cards.

While regulatory obstacles and commercial concerns about low margins have slowed uptake in many countries, DCB has gained traction in both advanced and emerging markets over the past few years. Most leading app stores and content providers now are seeking to enable DCB as an option, to be able to acquire new segments at scale, in partnership with telcos.

Juniper Research says consumer spend via the widely accepted payment method is expected to rise from $28 billion in 2018 to nearly $90 billion by 2024. Put another way, carrier billing will account for more than one in five digital content sales by value in 2024.

Opportunities for merchants

The attraction of DCB for merchants is simple. Regardless of what sector you're in, at the end of the day merchants want to get paid. And in these days of digital cash, ideally, they want to be able to accept whatever form of payment customers have at their disposal – credit card, debit card, contactless card, e-wallet, NFC, QR codes, even Bitcoin (or at least some kind of cryptocurrency), whatever results in their money ending up in your account.

DCB offers merchants another payment channel in which the operator's subscriber base represents millions of potential new customers or an easier way for existing customers to buy products and services. By leveraging the relationship between the mobile operator and the subscriber, DCB is not only secure but also easy to use, requiring fewer steps to complete the transaction than credit cards, while authenticating identity.

Working with a DCB aggregator scales that dynamic up considerably – the world's top DCB aggregators pull together hundreds of operators, merchants and alternative payment providers globally onto one platform. DCB aggregators can help digital brands acquire new customers and scale quickly in new markets by connecting them seamlessly with multiple operators at once rather than having to partner with one operator at a time. Partnerships with other merchants are also made easy.

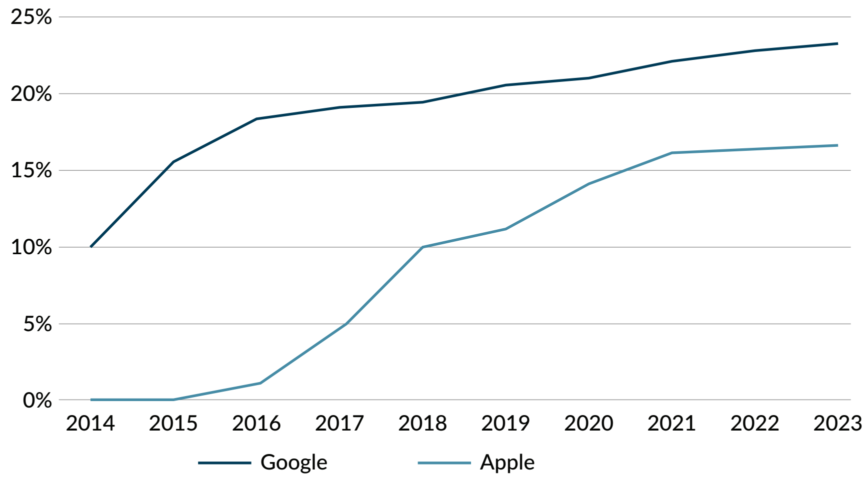
Here's a look at how various digital merchants are using DCB in different segments.

App stores

OS-based app stores like Apple Store and Google Play have been using DCB for years, although Apple is technically a latecomer, having only gone the DCB route in 2015, several years after Google. According to Strategy Analytics, Apple resisted DCB for years chiefly because it preferred to keep its billing relationship with its users rather than hand it off to operators. One reason for this: Apple wanted to maintain its 70:30 revenue sharing model for digital content (in which Apple keeps 30 per cent), and was worried operators would demand a bigger cut. However, Apple also realised it couldn't afford to be inflexible in emerging markets – indeed, its first DCB arrangement was with Smart Communications from the Philippines.

In any case, in 2018 Apple accounted for 10 per cent of global carrier-billed digital goods and services revenue (compared with Google's 19.3 per cent), Ovum (chart 2) data showed.

Chart 2: Google and Apple as a % of carrier-billed digital goods and services



Source: Ovum's Carrier Billing Forecast: 2018-23

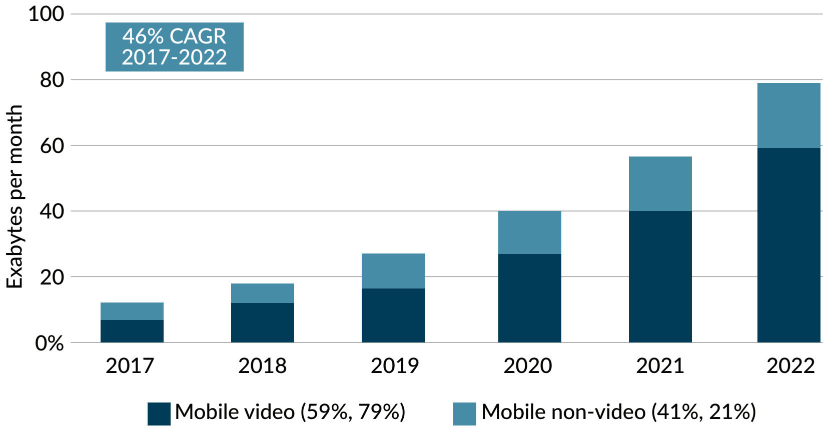
OTT video/music

Similarly, OTT content players such as Netflix, iflix and Spotify have also turned to DCB as an alternative to card payments, particularly in mobile-first markets where customers are less likely to have a credit card or even a bank account.

This is key because for media companies – and indeed, for many merchants – DCB is something of a trade-off in the sense that as billing mechanisms go, it's among the most expensive option. On the other hand, DCB also offers a faster and cheaper way to acquire new customers without spending a fortune on marketing costs. It's also the most effective way to crack emerging markets, where most potential new customers reside, by giving them a viable payment option for purchasing content and services. At the end of the day, Ovum noted, it's a choice between low-volume revenue at higher margins or high-volume revenue at lower margins. The latter option is arguably more attractive for media companies, which typically have high upfront costs in the form of production and licensing. Operators can be viewed as a vital channel partner or distribution channel by enabling the bundling of various types of content to mobile plans.

Media companies can take that relationship with the operator deeper in the form of mobile bundling, with OTT content bundled into mobile data packages and paid for via DCB. While both video and music bundles have gained traction, Ovum expects the market to shift radically in favour of video bundles in the next five years, as the operator/OTT music bundling market has long since peaked and the onset of 5G will drive demand for mobile video. In 2018 music bundling accounted for 64 per cent of global DCB revenues, while video bundling accounted for 16 per cent. By 2023 – by which time 5G will be in full swing – video bundling will account for 44 per cent of DCB revenues, and music bundling 31 per cent.

Chart 3: Mobile video will generate nearly four-fifths of mobile data traffic by 2022

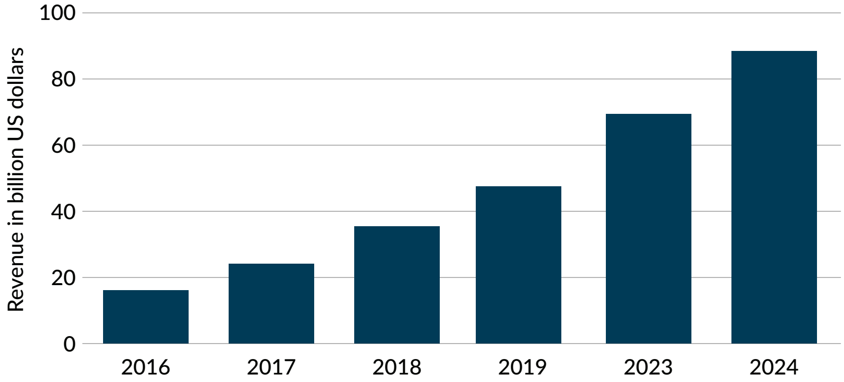


Note: Figures in parentheses refer to 2017 and 2022 traffic share
Source: Cisco VNI Mobile, 2019

The obvious reason for this is the general expectation that video is absolutely going to dominate the mobile space going forward. Cisco's latest Visual Networking Index (chart 3) reported that video accounted for 59 per cent of total mobile data traffic in 2017 – that will grow to 79 per cent by 2022. Meanwhile, the rise of OTT streaming services has disrupted the way people watch (and pay for) video. In addition to platforms like Netflix, Huku and Amazon Prime, content owners like Disney, HBO and BBC have launched their own branded streaming services, while the likes of Apple and Google have launched streaming services for their OS platforms. Even media retailer HMV has its own streaming service. And of course, operators are getting into the game – for example, Singtel runs Hooq in partnership with Sony and Warner Brothers, while Reliance Jio has been offering OTT video services powered by partnerships with local studios as well as parent company Reliance Industries' investments in Balaji Telefilms and Eros International.

Moreover, the business models for OTT video have the potential to become more complex. Currently, subscription video on demand (SVOD) is the most common business model –

Chart 4: Subscription video on demand (SVoD) revenue worldwide



Statista estimates SVOD revenues topped $47 billion globally in 2019 and will almost double to $87 billion by 2024 (chart 4). However, there are other options for customers who don't want to commit to a monthly subscription, from ad-supported services (AVOD) to transactional VOD (i.e. what we used to call pay per view), in which customers can download videos to own or to rent. Meanwhile, livestreaming is being touted as the next big thing in the video space for things like sports events and live concerts.

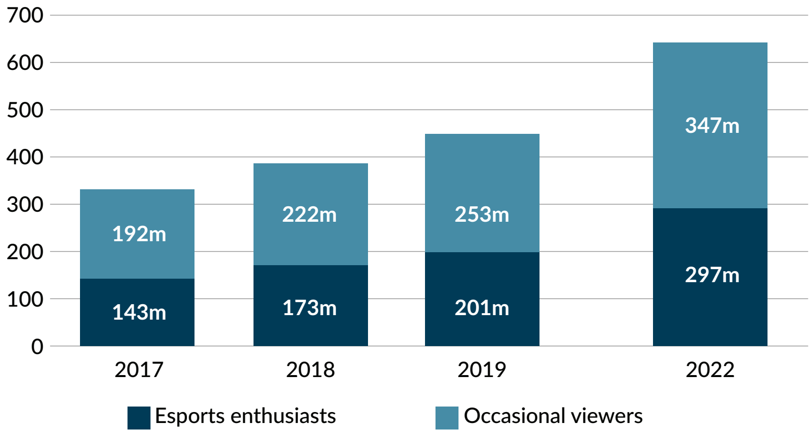
For OTT video to really take off, the key will lie partly in broadband coverage, of course, but it will also depend on making payment for such services as simple, affordable and painless as possible. No one single payment option will cover all the bases for all demographics, nor should it – many OTT services already accept a variety of payment options, from credit cards and mobile wallets to PayPal, ATM transfers, store payments and scratch cards. DCB can be one more convenient way to pay for content.

Games

It's worth noting too that the OTT content opportunities for payment services aren't limited to streaming video. Games are a hot example of this. Market research firm Newzoo estimates the mobile games market was worth more than $70 billion in 2018 (which, by the way, accounted for 76 per cent of the entire mobile apps market), and will grow to $106 billion in 2021. It expects the total audience to jump from 454 million in 2019 to 645 million in 2022, registering 14 per cent annual growth (see chart 5).

A considerable chunk of that revenue comes from the so-called "freemium" model of in-app purchases for things like customising game characters and upgrading weapons arsenals. DCB is a key enabler for the success of in-app purchases, especially (again) in emerging markets where many users don't have credit cards.

Chart 5: Esports audience growth
Global 2017-19, 2022



The gaming opportunity is only going to expand as 5G starts to proliferate, enabling better video resolution and even better performance of multiplayer AR games like Pokemon Go and, eventually, virtual reality games. 5G will also usher in the era of game streaming, in which games are hosted in the cloud rather than downloaded to devices. The fact that big-tech players like Google, Apple, Samsung and Microsoft have already launched game streaming services should be a clue to the revenue potential here.

A related aspect of cloud-based gaming is eSports, which has been exploding in popularity in Asia and globally to the point that the International Olympic Committee is seriously considering including at least certain eSports games as Olympic Games events. Newzoo reckons the global eSports industry topped $1 billion in 2019, and that could nearly double by 2022. Numerous operators such as Vodafone, Swisscom, Deutsche Telekom, Singtel and Globe Telecom are already cashing in on the eSports trend by sponsoring tournaments and even establishing their own eSports leagues. Operators can play an important role in building communities (both players and fans), which in turn will help improve monetisation opportunities.

As the gaming market evolves, so too will the ecosystem that serves it – developers, broadcasters and platform providers will need to find the most effective way to bill for everything from in-app purchases and downloads to access and viewing rights. As with OTT video, DCB will likely be just one of many payment options, but with operators already primed to play a larger role in the gaming industry as games move to the cloud – and with DCB already established as a popular payment option for conventional mobile games – DCB will a convenient and powerful option. It is important to note that standalone publishers can also develop carrier billing connections, not necessarily via Google Play, which also processes payments via DCB.

Microinsurance

Data from Ovum shows that microinsurance and e-health are the smallest DCB segments, but also the fastest-growing, driven in particular by growing demand for affordable health and life insurance and telemedicine services in emerging markets with low levels of financial inclusion. Such services are typically offered as prepaid mobile products, either as a freebie to loyal subscribers or a premium extra. The research company believes the combination of incremental revenue and customer retention will convince more operators to roll out similar services over time.

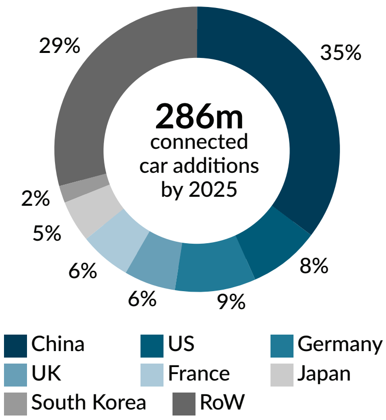
Physical goods/services

In many markets, people are already used to making payments for physical goods and services with contactless cards and mobile wallets. DCB could become another attractive and easy payment option for things like vending machines, fast-food deliveries, public transport, parking fees and taxi and ride-hailing fares.

Connected cars

Never mind whether they are fully autonomous or not, connected cars are the immediate future of the automotive industry, with Counterpoint Research estimating 286 million such vehicles will be out on the roads between 2019 and 2025 (chart 6). More to the point, the company forecasts global revenue from connected car OEM

Chart 6: Global connected car shipments (%)



services (including navigation, infotainment, emergency assistance and diagnostic services) will top $24 billion by 2025.

The connectivity for these cars comes from operators – and the same platform supporting dashboard apps and services could also support mobile payment services for things like fuel (as well as recharging for electric cars), parking, car-sharing and ride-hailing. The possibilities will continue to grow with the deployment of intelligent transportation systems powered by 5G. Juniper Research reckons in-vehicle payments for fuel, tolls, navigation, multimedia content and features on-demand will total around $63 billion by 2023.

This involves a pretty vast ecosystem of mobile operators, car OEMs, connected-car platforms, content providers, apps developers, merchants, banks and payment providers, among others. While DCB for in-car mobile payments is currently tied mainly to smartphones (for services like parking, for example), there's a clear opportunity for DCB to be integrated into the connected car ecosystem, if only because the operators already provide the connectivity part.

Challenges and opportunities

Perhaps ironically, the biggest barrier to DCB has been the operators themselves, which generally have been slow to adopt it.

The obvious reason is that from the operator point of view, DCB is a low-margin opportunity, which on the face of it is not very attractive at a time when operators are facing shrinking margins in their core business (voice and SMS) and scrambling to identify new revenue streams that will in almost all cases be incremental at best. Ovum noted that while DCB revenues overall are on the rise, the operator share of DCB revenue is declining, which means DCB revenue for operators will grow more slowly (47 per cent between 2018 and 2023) than mobile data revenue (62 per cent) and will account for less than 1 per cent of total mobile service revenue.

Even for operators keen on the idea of DCB in principle, there are other practical barriers that are often tied to the specific types of merchant opportunities. For example, DCB for physical goods would require operators to reduce billing fees to at least 3 per cent to be attractive, but their cost structures simply aren't set up for this. It also comes with an increased risk of bad debt, as well as cannibalisation – for example, prepaid users blowing their credit on low-margin purchases instead of topping up their SMS or data.

And yet, as mentioned previously, more mobile players are clearly willing to adopt DCB in some form or other. The digital ecosystem is going to evolve with or without them, and DCB ensures that they have a strong partnership role in that ecosystem – not just as the pipe connecting consumers to digital services, but the scalable e-commerce-grade payment infrastructure platform that merchants and content providers need to grow their own business.

This is why Ovum recommends carriers take a long-term view of DCB rather than obsess over short-term profit. It's been long established that the 5G-enabled digital era is an ecosystem play – walled gardens will not work. Operators must partner to deliver what customers want, and that means being the kind of partner other ecosystem players want.

Ovum urges operators to also realise that the value of DCB isn't only in direct revenue – in fact, that may be the least valuable aspect of it for operators. The payments business is a low-margin business that's only going to become less profitable as it becomes ubiquitous. The real value for operators lies in indirect KPIs, such as enhanced customer lifetime value (CLV), higher ARPU and improved customer loyalty.

In addition, once operators implement the capabilities they need to support DCB, at least some of those capabilities could be leveraged to generate new revenue streams, such as mobile ID authentication, KYC and the user data generated from DCB-related activity. Tier-1 merchants often opt to work with partners like DOCOMO Digital over start-ups due to the regulatory compliance and fraud risk involved. Such integrators, which can provide scale by way of coverage, are preferred over pure-play technical DCB integrators.

Operators are the linchpin of the DCB ecosystem. As merchants embrace new forms of digital content and new platforms emerge, operators need to establish their role as payments providers.

DOCOMO Digital case studies

A number of mobile operators from around the world work with DOCOMO Digital to integrate carrier billing into their digital services platforms.

Movistar (Telefonica Group) was a pioneer in offering value-added services to subscribers, so offering App Stores and other OTT media was a natural progression. However, the operator faced a high rate of billing disputes over merchant fees and non-payment of bills. The high bad debt adversely impacted the profitability of Movistar's digital business.

Movistar deployed DOCOMO Digital's turnkey platform which provides transparency in transaction histories and billing details for its subscribers, resulting in a significant decline in bad debt and non-payment of bills as well as billing disputes.

The head of Movistar Online Payments said: "Thanks to our continuing partnership with DOCOMO Digital, we are able to enhance our billing performance, and at the same time slash bad debt. This increase in profitability will help us allocate more resources to pursue growth, while improving customer satisfaction."

The operator said the platform's Self-care Portal provides simple and easy access to billing history, with the ability for customers to unsubscribe and request refunds. As a result, there was a steady decline in the number of customer care calls on account of billing disputes and enquiries.

Vodafone Australia, in a move to tap into the growing mobile commerce ecosystem, began partnering with individual digital merchants. The operator, however, found they did not have a standardised process for invoicing, settlement and reporting. The manual settlement for each individual merchant was time consuming. In addition, these merchant transactions resulted in higher customer care call volumes, with many subscribers calling in with billing enquiries.

The operator, which turned to DOCOMO Digital's turnkey platform featuring fully automated merchant settlement and reporting, was able to streamline and standardise the merchant settlement process. The settlement report generated for each merchant gave them visibility into the transaction volume in real time. The Self-care Portal for merchants helped with efficient and quick resolution of any billing discrepancies.

The deployment resulted in a considerable improvement in its Net Promoter Score, a 10 per cent drop in billing-related customer care calls and a 20 per cent reduction in settlement turnaround times.

Vodafone Australia said it was able to scale its participation in mobile commerce through carrier billing without having to invest time and effort in invoicing, settlement and dispute resolution for each of the merchants individually. Timely reconciliation also meant that customers had fewer queries regarding their bills when making transactions using direct carrier billing. Vodafone Australia recently launched bundled offers for Netflix, Amazon Prime and Spotify Premium, enabled by DOCOMO Digital.

Turkcell, Turkey's largest telecoms operator, implemented DOCOMO Digital's AI-powered Billing Risk Manager to dynamically forecast, manage and mitigate direct carrier billing-related bad debt. The tool enables the operator to adjust user spending and subscriptions based on real-time monitoring of user behaviour. A simulator model continually learns and adjusts bad debt thresholds based on transactions data and Turkcell policies, helping to plug revenue leakage from its OTT business.

Onur Güven, Director of Customer & Product Management at Turkcell Payment & E-money Services, said its latest partnership with DOCOMO Digital demonstrates its ability to "bring the best of digital services to our subscribers, underpinned by robust risk management. This will further accelerate the uptake of apps and digital content".

Jonathan Kriegel, CEO at DOCOMO Digital, explained that it is committed to removing friction from mobile commerce for its partners, and "we believe Billing Risk Manager will help bolster Turkcell's digital business with more robust risk management in the direct carrier billing area".

The two companies have worked together for the past five years to ensure that nearly 34 million mobile subscribers, both prepaid and post-paid, can pay for popular apps and digital content in a secure and convenient way through their monthly phone bills or top-ups.

DOCOMO Digital is the mobile commerce-related business of NTT DOCOMO, one of the world's leading mobile carriers. We partner with a multitude of carriers, merchants, app stores, OTT services and payment providers globally. Our Payments portfolio solves the challenges of scale, customer acquisition, regulation, and complexity for our partners. We enable telecom carriers to grow their digital revenues while improving customer loyalty and lifetime value. For digital brands, our platform and carrier bundling services catalyse acquisition of new subscribers, especially in emerging markets. And Alternative Payment Methods (APMs) like mobile or e-wallets can offer access to international merchants to their consumers, with our simple API and international payments' settlement facilities.

For more information, visit www.docomodigital.com or www.docomopayments.com or find us on LinkedIn or Twitter.

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