

Boku

FY18 results

Mobile commerce enabler

Boku has built a platform that helps merchants to transact with consumers safely and simply in a mobile-first world. The first application enabled by this platform, direct carrier billing (DCB), continues to perform well, with 100%+ volume growth translating to 45% revenue growth and an EBITDA margin of 17.9% in FY18. The recent entry into the identity verification market broadens Boku's addressable market and leverages the strength of its existing carrier relationships. In our view, the current share price does not capture the growth potential of the business.

Year end	Revenue (\$m)	EBITDA* (\$m)	EPS* (\$)	DPS (\$)	P/E (x)	EV/EBITDA (x)
12/17	24.4	(2.3)	(0.03)	0.0	N/A	N/A
12/18	35.3	6.3	0.02	0.0	69.8	38.3
12/19e	53.0	9.5	0.02	0.0	57.5	25.5
12/20e	70.0	22.3	0.06	0.0	19.0	10.9
12/21e	80.9	29.7	0.08	0.0	13.8	8.2

Note: *EBITDA and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

FY18 results: Payments business remains strong

Boku reported strong results for FY18, with total payment volume (TPV) growth of 109% and revenue growth of 45%, reflecting growth in Boku Account connections from 107 to 177 over the year. A combination of higher gross margins and slightly lower operating costs resulted in adjusted EBITDA 16.7% ahead of our forecast. Normalised EPS of 1.6c was 45% ahead of our forecast. We have revised our forecasts to reflect faster growth in payment volumes, slightly lower operating costs as well as the adoption of IFRS 16 from the start of FY19, resulting in normalised diluted EPS increases of 32.9% in FY19, 9.1% in FY20 and 5.4% in FY21.

Identity solutions add next layer of growth

Management has always highlighted that it expects to broaden the products and services that could be supported by its platform. DCB was the first application that made use of Boku's connections to merchants and mobile network operators. After some initial in-house development and market scoping in FY18, the acquisition of Danal on 1 January marked the accelerated entry into the identity verification market. This widens Boku's addressable market and adds another growth driver. Over time, we expect the company to continue to develop new products and services to support mobile transactions.

Valuation: Not reflecting growth potential

While Boku trades at a premium to peers in FY19 on EV/EBITDA and P/E multiples, strong forecast growth in revenues and earnings puts it at a discount to peers in FY20 and FY21. Share price catalysts to reduce this discount would include evidence demonstrating progress towards our revenue targets for the Boku Identity business (such as new customer wins or extensions to existing agreements) and major merchants signing up for and rolling out carrier billing.

Software & comp services

26 March 2019

Price **82.0p**
Market cap **£200m**

\$1.32/£

Net cash (\$m) at end FY18 28.9

Shares in issue* 243.3m

*Does not include 7.36m shares to be issued for Danal acquisition.

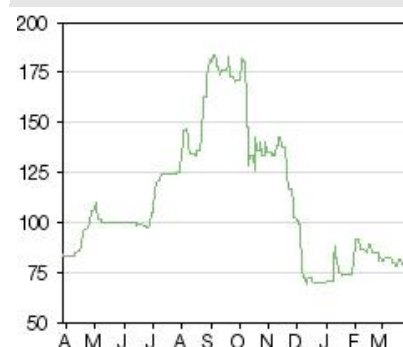
Free float 86.3%

Code BOKU

Primary exchange AIM

Secondary exchange N/A

Share price performance



% 1m 3m 12m

Abs (3.5) 19.7 (0.6)

Rel (local) (3.1) 11.4 (2.9)

52-week high/low 184.0p 68.5p

Business description

Boku operates a billing and identity verification platform that connects merchants with mobile network operators in more than 50 countries. It has c 180 employees, with its main offices in the US, UK, Germany and India.

Next events

H119 trading update July 2019

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Investment summary

Helping merchants to grow and protect their businesses

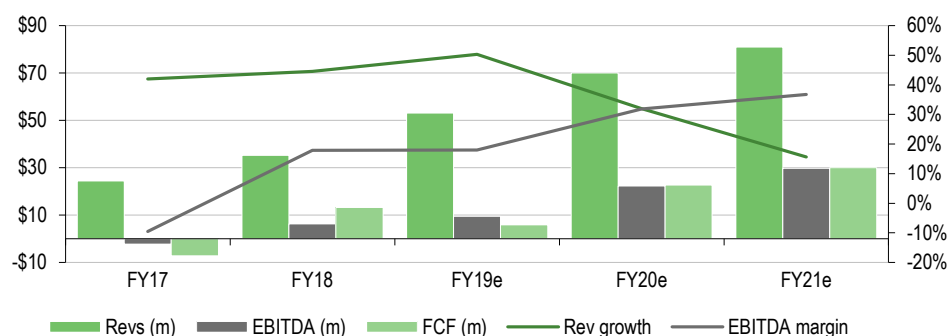
Boku has developed and operates a platform that connects mobile carriers with merchants. This supports DCB, which serves as an alternative payment method for companies selling digital content, and identity verification services, which enable merchants to sign up and transact with users while meeting regulatory requirements and avoiding fraud. Key investment considerations are as follows:

- The business is well established with 176 carrier connections in 55 countries. While DCB is often used in markets where credit/debit card ownership is low, Boku is more focused on developed markets. In developed markets, the ease of setting up and making DCB payments is a powerful tool for expanding the customer base for digital content to users unwilling or unable to pay by credit/debit card.
- Boku has signed up major merchants in key digital content categories, eg Apple and Microsoft for app stores, Spotify for music, Netflix for video streaming, Facebook and Sony for games. By focusing on the largest merchants in each category, it is able to more efficiently scale as transaction volumes grow.
- The company should see growth from its existing merchant base over the next three years, as they complete their geographic roll-out plans and as consumers continue to adopt digital content via app stores and merchant websites, as well as through subscription services such as music or video streaming.
- Boku's platform is built to scale; additional transactions can be processed at minimal marginal cost giving Boku the flexibility to offer attractive pricing and providing strong operating leverage.
- Recent entry into the identity verification market has expanded the group's addressable market. Digital content currently makes up c 5% of the global e-commerce market; by offering identity services Boku can support other areas such as banking, remittances, mobile payments, on-demand services and government services.

Identity services extend the revenue growth runway

FY18 results confirmed Boku generated its first full year of positive EBITDA (margin 17.9%). The acquisition of Danal on 1 January this year, which requires investment to accelerate revenues, is likely to constrain EBITDA margin growth in FY19 before the Identity business shifts to at least break-even in FY20 and contributes to profitability in FY21. Overall, we expect normalised EBIT margins to grow from 13.3% in FY19 to 34.6% in FY21. Net cash increased 78% over FY18 to \$28.9m and we forecast continued growth in cash over the next three years. We expect returns to be invested in driving growth, either internally or through targeted acquisitions. The company has no current plans to pay a dividend.

The stock is currently trading on an FY19e EV/EBITDA multiple of 25.5x and a normalised P/E multiple of 57.5x. While this is at a premium to payment processing peers (20.6x and 28.7x, respectively), in our view this reflects Boku's strong growth trajectory and cash-generating potential. With growth forecast to continue in FY20/21, we expect the FY20e EV/EBITDA multiple to fall to 10.9x and normalised P/E to fall to 19.0x. Key catalysts for the share price would be evidence of growth in the Boku Identity business and new major merchants being signed up in either business.

Exhibit 1: Summarised financials: 2017–21e


Source: Boku, Edison Investment Research

Factors influencing growth and profitability

As well as the usual risk factors relating to competition, regulation and the company's technology platform, we see potential for merchant-related factors to influence our forecasts and the share price, both on the upside and downside. For existing merchants, this includes the pace of roll-out to new carriers and countries, the rate of growth in the underlying adoption of digital content, the competitive positioning of major merchants, customer concentration, and the fact that some contracts contain short notice periods. We note that while our forecasts include a certain level of growth from new merchant wins, we have not factored in any major new merchant wins – these could add materially to our earnings forecasts. The pace of integration of the Danal acquisition and growth of the Identity business may progress at a different pace than forecast.

Company description: Payment and identity solutions

Boku developed and operates a platform to support DCB. The platform has connections to more than 170 mobile network operators (MNOs) and c 200 merchants, enabling those merchants to offer their customers DCB as a payment option. Boku manages the payment transactions on behalf of the MNOs and merchants but, more importantly, provides a route to market to a section of consumers who may be more difficult to reach via traditional customer acquisition methods. Boku has seen rapid growth in transactions processed via its platform and we believe this growth should continue as more carriers and merchants join the network. Over the last year, the company has taken steps to leverage the network of connections it has developed between MNOs and merchants, initially developing an identity verification (IDV) product in-house before acquiring a US-based provider of IDV services at the end of 2018.

Boku: A short history

Boku was founded in 2008 by Mark Britto, Erich Ringewald and Ron Hirson. In 2009 Boku acquired DCB companies Mobilcash and Paymo, and shortly after launched its DCB service. The first product was Boku Checkout, which enabled a consumer to enter their mobile phone number as a payment credential – this would then add the cost of the items acquired to the consumer's mobile phone bill or reduce their pre-paid credit. This was popular with gamers, as it enabled them to pay for games on their PCs, social gaming on Facebook and multi-player online games. In 2012, Boku acquired Qubecell, an Indian DCB company, which gave the company access to Indian MNOs and, more importantly, development resource. With the signing of Sony as a merchant in 2013, Boku enabled purchases to be made from games consoles. In 2014, Boku acquired Mopay, its main competitor, for \$24m. In 2015 Boku launched its second product, Boku Account, which provides the

phone equivalent to 'card on file', supporting upgrade and repeat purchases. In 2016, the company launched Boku Acquire, which supports the bundling of additional products and services within a subscriber's carrier plan. Boku listed on AIM in November 2017, raising £15m at 59p per share and placing an additional £30m of shares. On 1 January 2019, Boku acquired Danal, a US-based provider of identity verification services, for \$26.5m. The company has 180 employees, with its main offices in the UK, US, Germany and India (the development hub is in Mumbai).

Growth strategy: Exploit the network

In the short to medium term, the company should benefit from the network effect in its payments business and from the development of its IDV solutions in the longer term. With a wide network of carriers connected to the platform and more coming online all the time, this offers an attractive way for merchants to access new customers. In turn, as more merchants sign up, it makes the Boku platform more attractive to carriers. While Boku has more than 200 merchants using its platform, we expect the majority of revenues will come from a small number of large merchants. We see growth from the following factors:

- connecting more carriers with an existing merchant;
- adding more merchants;
- adding more payment services;
- growth from existing DCB connections; and
- expansion of the Identity Solutions business to new geographies and merchants.

Management: Strong background in payments

The members of Boku's board and senior management team have many years of experience in the payments industry. Non-executive Chairman Mark Britto is SVP and general manager for credit at PayPal (having joined in mid-2017). CEO Jon Prideaux joined Boku in 2012 and was appointed to the CEO role in 2014. His previous experience includes roles as the deputy CEO at Secure Trading (a privately owned payment processor) and as EVP marketing at Visa Europe. Stuart Neal was Boku's CFO from 2012 to 2014 and re-joined in early 2017 to resume the CFO role. He was previously chief commercial officer at VocaLink Zapp (since acquired by Mastercard). Jon and Stuart are supported by Chief Operating Officer Mike Cahill and Chief Revenue Officer Adam Lee.

Non-executive Directors Dr Richard Hargreaves and Keith Butcher bring experience in venture capital investing and the payments industry (Keith Butcher was CFO at Optimal Payments, which became Paysafe, and DataCash Group, which was acquired by Mastercard).

DCB payment solutions

DCB market drivers: Smartphones, digital content, ease of use

The DCB market came into existence as an alternative payment method; it uses a consumer's mobile bill (pre-paid credit or post-paid monthly bill) as the means to pay for digital content or services. The market started before the widespread adoption of smartphones with the provision of premium SMS. That market ended up hitting regulatory roadblocks; too many people did not realise they had signed up for them and there were unscrupulous operators. DCB then evolved as a means to pay for products on PCs, mainly computer games. It offers a good way to make smaller payments as these typically do not hit carrier monthly credit limits and it provides a simpler way to pay for things than repeatedly having to enter card details. With the advent of the smartphone came a new market: digital content consumed and paid for on the mobile. Having a simple, frictionless way to pay is even more important on a phone. Typical content that is paid for with DCB includes

games for computers, consoles and phones, music, video and apps. To a lesser extent, DCB can be used for physical goods.

Based on data from Worldpay, the DCB market makes up c 1% of the total e-commerce payments market by value of transactions processed. Card payments are still the single largest method of payment, at c 40% of payment volume, followed by eWallets at c 30% (eg PayPal, Alipay) and bank transfers at c 10%. According to estimates from Ovum in 2019 (source: Boku annual report), the DCB market processed transactions worth \$26bn in 2018 and this is forecast to grow to \$49bn by 2023 (CAGR 13.5%). Juniper Research estimates that digital content transactions paid for via carrier billing totalled \$11.3bn in 2015 and forecasts this to rise to \$47.0bn by 2020 (CAGR 33%). The GSMA estimates there was a global installed base of 4.4bn smartphones at the end of 2017 (57% of mobile connections) and this is likely to grow to 6.9bn by the end of 2025. More subscribers upgrading to smartphones is likely to increase demand for digital content that can be consumed on the mobile. We summarise below the key benefits of DCB for consumers, merchants and MNOs.

Consumer: Frictionless payment method

DCB provides a payment method to consumers who do not have a debit or credit card but do have a mobile phone, who are concerned about the security risks of using their card online or do not want the inconvenience of entering card details every time. According to the GSMA, there are 5.2 billion unique mobile subscribers globally. With roughly 5.7 billion of the global population aged 15 or over, c 1.7 billion adults still do not have a bank account.¹ As Boku is focused on developed markets, the lack of a bank account is less of an issue. Instead, the ease of use tends to be the most appealing factor, particularly when using Boku Account.

Merchant: One connection to access customer acquisition network

Through one connection to Boku's platform, a merchant can access a large number of carriers and their subscribers; there is no need for the merchant to connect individually to each carrier. Boku's carrier connections encompass 3.2 billion subscribers globally. This gives merchants access to a market that might not otherwise buy their products. This also explains why they are willing to offer DCB despite its high cost compared to card payments, as they view the fees as a combination of a payment processing fee and customer acquisition cost. Billing success rates tend to be higher than with cards, as there is the ability to retry a consumer when they have topped up their credit, and phones do not suffer from expiry dates. Active monthly users have grown 68% over the last year, from eight million at the end of 2017 to more 13.5 million at the end of 2018, highlighting Boku's success in bringing on board paying end-customers. On average, a merchant moving onto Boku's platform can expect to see a 20% uplift in volumes.

Carrier: One connection to access incremental revenue opportunities

Through one connection to Boku, a carrier can support a variety of merchants and drive incremental revenue streams. The carrier can typically earn 5–15% of the transaction value for delivering customers to merchants. It can also access anonymised and aggregated data on subscriber demographics and behaviour, to aid in customer acquisition and retention. Offering subscription services as part of a bundled contract can also increase subscriber retention.

For content acquired from an app store using DCB, a typical revenue split could see the app developer earn 70%, the app store 15%, the carrier 12% and Boku 3%. Both the merchant and the carrier benefit from a material proportion of the value of the content sold. Boku's margin will vary in size depending on the work undertaken to enable the payment (see page 14 for further detail on the business model).

¹ Global Findex database 2017, World Bank

Competitive landscape

Boku competes with several third-party DCB operators as well as with carriers connecting directly to merchants to provide DCB. Over time, we would expect more carriers to migrate to the third-party model to more easily access merchant connections. The table below summarises the main third-party operators. The company also competes with other alternative payment methods such as PayPal and Klarna.

Exhibit 2: Competitive environment – third-party DCB operators		
Competitor	Ownership	Background
Bango	AIM listed; market cap £67m	Key merchants include Amazon, Google, Microsoft and Samsung. CY18 end-user spend £558m/\$725m.
Dimoco	Private	Was a mobile messaging company; acquired Italian DCB OneBip in 2016. Focused on Europe and Latin America.
Fortumo	Private, investors include Intel Capital and Greycroft	Founded in Estonia in 2007, profitable since 2009. Present in 100 countries, with 350 carrier connections; used particularly by merchants in Europe and Asia.
Docomo Digital	NTT Docomo	IT subsidiary of NTT. Also provides marketing and consulting services. Connected to >200 carriers. Any merchant wanting to connect to NTT Docomo has to connect into the Docomo Digital platform. Note that Boku supports NTT Docomo's carrier billing for Apple, Sony and Spotify.
Source: Edison Investment Research		

Regulatory considerations

As Boku operates globally, it comes under the remit of a number of different regulatory regimes. It must also comply with anti-money laundering regulations in the countries in which it operates.

- **Europe:** payment services in Europe are covered by the Payment Serviced Directive (PSD) and its successor PSD2 (which became effective in January 2018). This provides an exemption for carrier billing when used for digital content as long as certain transaction limits are respected. These are €50 per transaction and €300 per billing month. We note that Boku's average transaction value is c \$10/€8. Instead, carrier billing falls under the remit of national telecoms regulators such as ComReg in Ireland, the Ethics Commission in Belgium and the Phone-paid Services Authority in the UK. Boku is authorised as an electronic money (e-money) institution by the FCA in the UK and this has been passported throughout the EEA. Where transactions fall outside the PSD2 exemption (for example, transaction sizes exceed the limits or are for physical goods), Boku can use this to facilitate purchases for physical and digital goods and services. It is unclear how UK passporting will work after Brexit, although we note this makes up less than 5% of revenues for Boku. We understand the company is applying for a payment institution licence in another EU country to maintain passporting rights.
- **US:** Boku has worked with state regulators to ensure that its contractual and operating model with carriers and merchants falls within recognised exceptions to money transmission regulations or is completely outside the regulatory framework. It also ensures it is compliant with the Children's Online Privacy Protection regulations by restricting services to adults 18 or over, or children 13 and older with parental permission.
- **Asia/Australia:** in Japan, Boku has arranged its contractual and operating model to fall within exceptions to money transmission regulations. It has created an entity in Australia as well as branch offices in Japan, Singapore, China and Taiwan to minimise the level of withholding taxes and complex regulation to which it is subject. It is registered with the Australian Communications and Media Authority, which regulates the selling of media (including software) to Australian customers.

Boku's DCB payment solutions

The tables below show the products available to merchants and the features available with each product. Boku signs up merchants through a direct sales approach and through relationships with payment service providers such as Worldpay, Adyen, SafeCharge and Ingenico.

Exhibit 3: Product range

Product	Functionality
Boku Checkout	The first product launched by Boku; integrated into the MNO's billing system. When a consumer reaches the payment page for an online merchant using Boku Checkout, they are presented with the 'pay by mobile' option, which allows them to charge the cost of the item to their mobile phone bill (pre- or post-paid). Once the consumer has entered their mobile phone number, they are sent a text message asking them to confirm the transaction.
Boku Account	Deeper integration with the MNO, connecting to the operator's identity verification systems. This product provides 'phone number on file' capability, like the 'card on file' functionality offered by many online retailers. The consumer follows the same process as for Boku Checkout, but in this case the phone number will be used for all subsequent purchases without confirmation required from the consumer. It is particularly useful for merchants who want to improve their activation rates. For example, merchants offering freemium subscription services can use Boku Account to capture a consumer's payment details at the start of the relationship, making the step to upgrading to a paid subscription easier.
Boku Acquire	Supports operator-led customer acquisition; enables carriers to bundle third-party products and services into their plans. For example, several operators provide free trial periods of Apple Music or Spotify as part of a monthly plan that will hopefully result in a subscriber signing up for the paid service after the trial period.

Source: Boku

Exhibit 4: Services available for each product

	Boku Checkout	Boku Account	Boku Acquire
Authenticate	x	x	x
Compliance & regulatory	x	x	x
Standing authorisation		x	x
Service provisioning			x
Risk profiling service	x	x	
Reporting	x	x	x
Mobile account status updates		x	x
Service activation			x
Pricing management	x		
Merchant settlement	x	x	
Refunds		x	
Service status updates			x
Charge	x	x	x
Eligibility check		x	x
Account reconciliation		x	x
Breakage reporting			x

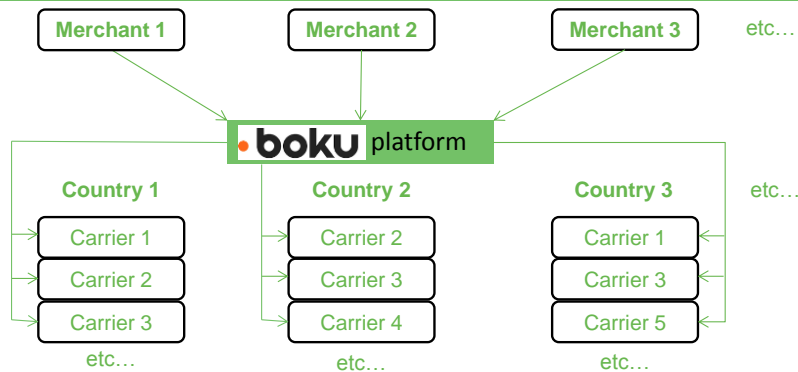
Source: Boku

Building the network

Exhibit 5 shows how the platform works. The merchant makes its connection to the platform. Carriers separately connect in via APIs and integrate with their own billing systems; this process can take three to six months. This tends to be done on a country-by-country basis within a carrier group. Boku has connections to 176 carriers in 55 countries.

Typically a merchant specifies which carriers it wants in which geographies and will develop a rollout plan with Boku. In some cases, Boku suggests to merchants that certain carriers should be considered. Boku will also suggest particular merchants to carriers. To help the MNOs with their integration into the platform, Boku offers a tool called **Boku Connect**, with the aim of reducing the time it takes to deploy the service. Once the service is up and running, Boku also offers its **Boku Optimise** tool, which provides data analytics, transaction scoring and a programme of carrier recommendations to help the carrier maximise the value of each connection. This helps the carrier improve the number of approved good transactions while reducing the number of failed transactions and identifying users with the best potential to have their spending limits increased.

Boku's service supports 32 currencies and provides first-line support in 24 languages. The platform uses two data centres, with failover available in each data centre as well as to the other data centre. The platform has been tested up to 600 transactions per second, providing significant headroom for growth compared to the peak of 216 per second reached in FY18.

Exhibit 5: Connecting to the Boku platform


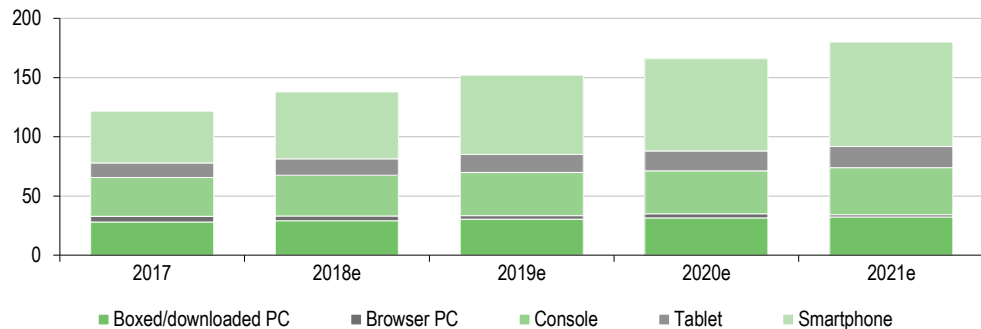
Source: Edison Investment Research

DCB by end market

Boku has been successful in signing up the largest merchants in several key digital content categories. In some cases, Boku is the sole DCB provider. In others, the merchants split the carriers across two or more DCB providers.

Games: Well established demand for DCB

The games market was one of the first to make use of DCB. The games market can be divided into those games downloaded to play on consoles (PlayStation, Xbox, Wii), those played on a PC and those played on a mobile device (smartphone, tablet). The chart below shows forecasts for the growth of the gaming market by the device used. The overall CAGR from 2017 to 2021 is forecast at 10.3%, with particularly strong growth for smartphone games of 19.1% (source: NewZoo).

Exhibit 6: Revenues from sales of games (US\$bn)


Source: NewZoo, June 2018

Boku supports Sony and Microsoft, which together made up at least 75% of the console market in terms of combined hardware, software and services revenues in 2016 (source: IHS). Boku has worked with Sony since 2013, providing its service in Belgium, France, Germany, Japan, Spain, Switzerland and the UK. Boku has also signed up a large number of games companies that often sell their games via their own websites. This includes companies such as Activision Blizzard, and Tencent Riot. In many cases, gamers subscribe to services that entitle them to upgrades and access to other online players, making Boku's subscription payment services ideal for this application. Boku also works with Xsolla, a games payment services provider.

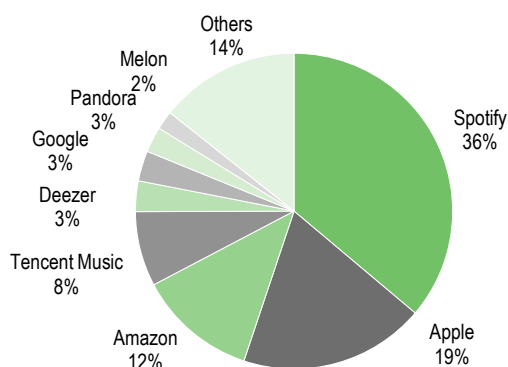
A longstanding customer for social gaming is Facebook, which has historically also used Zong (acquired by PayPal in 2011) for carrier billing. While the size of this market is in a slow decline, we

understand that Boku has now taken over all of Zong's connections. This should enable Boku to generate relatively stable revenues from this market in the medium term.

Music: Rapid growth in paid streaming services

The streaming market has turned the tide of declining revenues for the music industry. The majority of music streaming services offer a free, ad-supported service, which can then be upgraded to a premium paying account that is ad-free. Although Apple had a head start in the music market with its iTunes download service, Spotify has become the leader in terms of paid subscribers. The table below shows market shares as at June 2018. Since then, Spotify has grown its paid subscriber base from 83 million to 96 million.

Exhibit 7: Music streaming market share by paid subscribers, June 2018



Source: Statista

According to the IFPI,² by the end of 2017 there were 176 million subscribers paying for streaming services (+57% y-o-y) driving 41% growth in music streaming revenues³ to \$6.6bn. Streaming revenues made up 70% of digital revenues, which in turn made up 54% of total recorded music revenues in 2017. According to Statista, music streaming companies generated revenues of \$9.6bn in 2017 and this is forecast to increase to \$13.1bn by 2023 (CAGR 5.2%).

DCB offers a convenient way for mobile subscribers to upgrade their accounts from basic to premium and the subscription nature of the payment fits well with the monthly payments subscribers are used to making for their mobile phone service. Several operators bundle music services with their monthly plans, with free trial periods for services such as Spotify or Apple Music.

Boku has a strong position in this market. It has worked with Spotify for a number of years, initially demonstrating the power of DCB as a customer acquisition tool. Spotify saw a 20% uplift in activation rates by defaulting to Boku as the payment mechanism. The relationship started in the UK and has since rolled out into other European countries (France, Germany, Italy, Switzerland, Turkey), Asia-Pacific (Australia, Japan, Malaysia, the Philippines and Taiwan) and the US.

Boku also works with Deezer in Germany, Ireland and the UK. Through the Apple relationship, Boku also supports the Apple Music streaming service as well as music downloads from iTunes. We understand that Boku also works with a number of smaller streaming services.

App stores: Apple later to the DCB party

The two main app stores, Apple's App Store and Google Play, generated gross consumer spending of \$46.6bn and \$24.8bn respectively in 2018 (source: Sensor Tower). According to App Annie, total spend in mobile app stores exceeded \$100bn in 2018. For now, Google Play is unable to operate in

² International Federation of the Phonographic Industry.

³ Revenues earned by the music industry, as opposed to those generated by the streaming companies.

China, whereas Apple's App Store is present there. Many Android-based app stores operate in China, for example Tencent's myapp and Xiaomi's app store.

Other large app stores include the Microsoft Store, the BlackBerry World store and Amazon Appstore. There are a number of country-specific app stores, eg Yandex in Russia, and a number of MNOs and handset manufacturers have their own app stores.

Boku's most significant customer in this market is Apple. Until 2015, Apple did not offer DCB as a payment method for its App Store. Towards the end of 2015, Apple launched DCB for subscribers of O2 in Germany and Beeline in Russia. It has since expanded the service to cover 38 countries, with a total of 78 operators offering the service. While not exclusive, so far we believe Boku is the sole provider of DCB to Apple. We expect that Apple will continue its geographic roll-out.

Boku also supports the Microsoft Store (previously known as Windows Store), where consumers can buy software, apps and games. Boku supports Google Play in six countries. Google Play leaves the choice of whether to offer carrier billing to the carriers. It has a variety of carrier billing providers serving it as well as a number of direct connections to the carriers. Last year, Huawei signed up to use Boku for its own app store.

Boku estimates that it currently processes c 40% of app store DCB volume.

Avoiding the app store fees

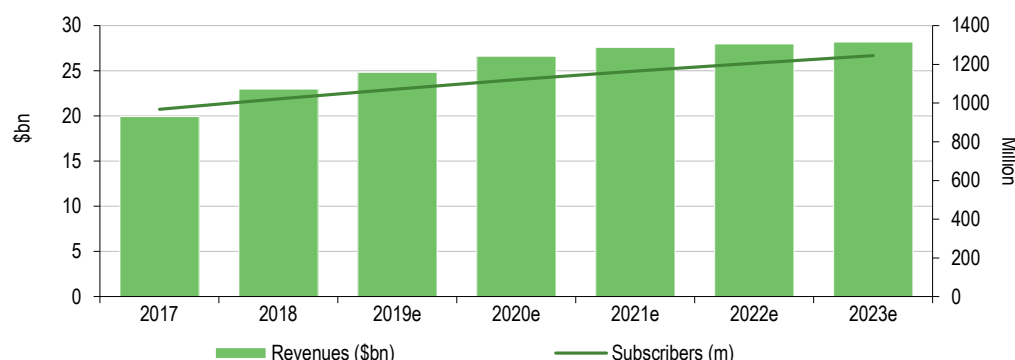
Some of the largest merchants have decided to bypass app stores in favour of connecting with customers directly, in order to save the 30% commission retained by the app stores. On the back of the critical mass of direct customers it gained through making Fortnite on Android only available through its website, Epic has launched its own games store. It allows game developers to retain a higher proportion of game revenues than offered by the app stores and games specialist Steam. Spotify no longer allows customers to upgrade to its premium service via the app stores; instead it directs users to its own website. It has also started litigation in Europe, making an application to the EU that Apple's app store is anti-competitive. Netflix now directs both iOS and Android users to its own website. This makes it critical that Boku maintains direct relationships with merchants as well as supporting the app stores. For the majority of merchants, the app stores provide a vital route to customer acquisition, and it is only the very large merchants that have built a critical mass of customers and have high brand recognition that can consider bypassing the app stores.

Video streaming: Less exposure to date, but now growing

Video streaming is another key digital content market. Exhibit 8 shows the expected growth in revenues and subscribers from 2017 to 2023. The largest video streaming company, Netflix, had 139.3 million paying subscribers by the end of 2018, up from 110.6 million at the end of 2017 (+26%).

The market is made up of content aggregators and content producers. The largest players, Netflix and Amazon Prime, both aggregate and produce content, whereas YouTube and iTunes are content aggregators and Hulu is owned by four major US TV studios (21st Century Fox, Comcast, Walt Disney Company and Time Warner). Smaller, local players tend to be content producers, eg HBO Now in the US, ALTBalaji in India.

Netflix has trialled the service with Boku and we understand it is now using it in a handful of countries. The pace of growth will depend on Netflix's rollout plans for DCB. Amazon Prime uses Bango for DCB. Boku supports Apple iTunes and signed up ALTBalaji last year. Boku also supports the TikTok app from ByteDance. In our view, the market is more fragmented than the music streaming market, and we would therefore expect Boku to build a portfolio of video streaming merchants, with no single merchant having as material an impact as some of Boku's existing merchants.

Exhibit 8: Video streaming on demand, revenues and subscribers


Source: Statista, March 2019

Other applications

Boku has signed merchants for other applications, although these have made a limited contribution to revenues to date. Applications include online publishing (IPC Media), e-books, regulated gambling (Neteller), ticketing, transport and, to a lesser extent, physical goods (Rakuten). For example, the company supports DCB for EE's mobile phone accessory store and also supports UCC Coffee in Japan, where consumers can top up their coffee cards using DCB.

Growth outlook for DCB solutions

The company believes it has a good medium-term growth opportunity from its **existing merchant base**, mainly through connecting them to more potential consumers. Over the course of 2018, Boku saw Boku Account connections grow from 100 to 177. The decision on who to connect to tends to be merchant-led, particularly with merchants like Apple, which decide where they want to offer carrier billing, but Boku also suggests new connections to merchants, both in terms of new countries or adding carriers in existing countries.

Boku's main focus is on Europe, Asia and the Middle East, as this balances the addressable market with the ability to do business efficiently. Boku is currently connected to 176 carriers. It has connections to MNOs in North America, but the US in particular is not as keen on DCB as some other countries, so Boku only focuses on connections that are important to particular merchants. Boku also has some Latin American connections, but regulatory and political issues can make it difficult to operate in those countries effectively. It has good relationships with operator groups such as Deutsche Telekom, EE, Telefonica and 3.

In Asia, it is seeing strong growth in Japan and Taiwan (Japan is Boku's largest market by TPV and revenue) and it has a good position in Malaysia and Singapore, with South Korea and Hong Kong areas where it would like to do more. South Korea is the world's largest DCB market, and with Boku's strong merchant connections, we would expect to start to see some progress, particularly now that Danal Korea is a shareholder. Boku has connections in India, Indonesia and the Philippines; these are not yet big markets for Boku and tend to have low transaction values, but could contribute at some point. In addition, in India taxation of DCB makes the service commercially unattractive compared to using cards or mobile wallets. Boku is considering ways it could work with wallet providers.

The company could also benefit from **consolidation in the carrier billing market**; currently many carriers connect into more than one third-party DCB platform, usually at the behest of the larger merchants. It may be possible to persuade carriers to switch all their business to one DCB provider and, as Boku has some of the largest merchants on its roster, it could be the beneficiary of this switch.

Growth in the **adoption of digital content**, eg music streaming, should drive growth in transactions. In addition, it can take 20 months for a merchant to see optimal adoption from existing carriers; initially only new users will be using the service, but as existing users' cards expire, they are made aware of the DCB option. Better understanding of the risk profiles of subscribers can enable MNOs to lift monthly credit limits and therefore drive increased transaction volumes.

The company will also continue to sign up **new merchants**, with a particular focus on those that have a strong position in their given market.

Identity solutions

Boku started developing identity-based services in FY18. On 1 January 2019, it acquired Danal,⁴ a US provider of mobile identity solutions. The Danal business has since been rebranded as Boku Identity.

Identity solutions based on mobile data

Online services such as e-commerce, banking, credit checking or payment processing need to be able to verify a user's identity for a number of different processes including account registration, account log-ins, profile changes, support calls and high-value transactions. Verifying a user's identity online requires access to a number of different types of data. This can include government-issued ID data such as passports, ID cards or driving licences, but is also likely to include other sources of data, including the data held by mobile carriers. Mobile carriers hold a range of information on subscribers that broadly falls into three categories: data on the identity of the subscriber, data relating to the account held by the subscriber and data on the subscriber's device /SIM and activity on the network. The advantage of using data held by carriers is that it tends to be updated in real-time, and therefore provides dynamic data.

Exhibit 9: Subscriber data held by mobile carriers

Identity attributes	Account attributes	Network attributes
<ul style="list-style-type: none"> Full name Address Email address Mobile number Age 	<ul style="list-style-type: none"> Active/inactive Pre or post-paid Lost/stolen Current tenure Last top-up date Line type: fixed/mobile/VOIP 	<ul style="list-style-type: none"> IMEI IMSI SIM change Device change Call forwarding Location

Source: Edison Investment Research

Danal had connections to US, Canadian, UK, French and Spanish carriers (as per Exhibit 10) and developed the products in Exhibit 11, which make use of data from the carriers. Boku Identity customers include MoneyGram, Western Union, Square, PayPal, BNP Paribas, JP Morgan Chase, the US internal revenue service and Uber. The business sells directly and via channel partners including Experian, Fiserv, G&D, neustar and TransUnion.

In 2018, Danal generated revenues of \$5.3m, processing 175m billable transactions (+95% y-o-y), and in December 2018 was monitoring 12.2m phone numbers.

⁴ [Accelerating mobile identity offering](#), December 2018

Exhibit 10: Danal carrier connections

Country	Carrier
US	AT&T, T-Mobile, Sprint, Verizon
Canada	Bell, Rogers, Telus, Virgin
UK	3, EE, Telefonica, Vodafone
France	Bouygues, Orange
Spain	Orange, Telefonica, Vodafone

Source: Boku

Exhibit 11: Boku Identity products

Product	Detail
eKYC	Uses data matching/cleansing, video and biometrics capabilities to help perform online know-your-customer or anti-money laundering checks
Instant acquisition	Obtains verified profile data from Boku to sign up new customers
Phone verification	Seamlessly verifies a user's phone number in an app during sign-ups, log-ins and high-value transactions
Fraud prevention	Uses data matching, account baselining, phone identification and proactive monitoring to prevent fraud such as promotion abuse, account takeover, and credit and bank card fraud
TCPA	Meets Telecom Consumer Protection Act requirements by using Boku's list cleansing and maintenance service, to ensure only legitimate customer numbers are held

Source: Danal

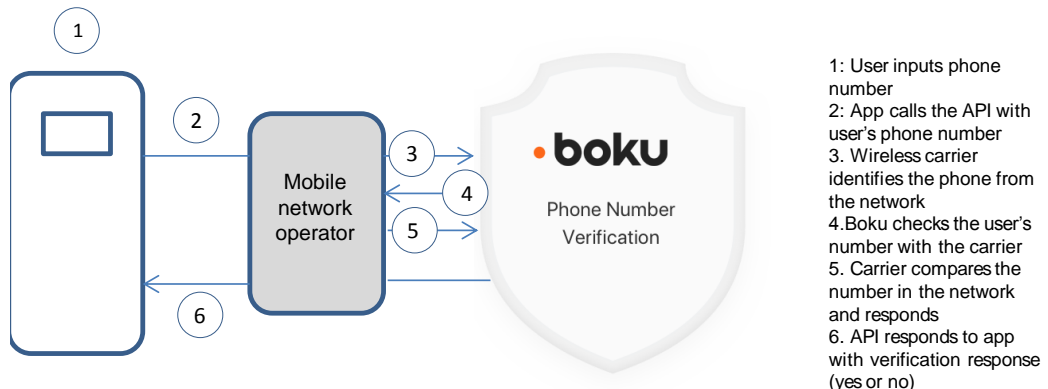
Benefits offered by Boku Identity solutions

Boku Identity offers a simpler customer enrolment process and ongoing fraud detection for merchants. Using a Boku Identity solution removes the need for a merchant to send SMS one-time passwords (OTPs) to verify that a user is who they say they are. Not only is this important in terms of friction (the Boku verification service can save c 30 seconds compared to the SMS OTP process), but it avoids the risk of SS7⁵ attacks, which can lead to account takeover. From a carrier's perspective, identity verification services offer an incremental revenue stream.

Regulatory position – Boku does not hold the data

US mobile carriers have come in for criticism for selling subscriber data to third parties. The Boku Identity products are designed such that no personally identifiable data leaves the carrier, and consent from a subscriber is required before their data can be verified in this way. The diagram below shows how information flows between the subscriber, customer, Boku and the mobile carrier. The carrier typically provides Boku with a yes/no response or a score.

Exhibit 12: Data flows for verification request



Source: Boku

⁵ SS7 attacks take advantage of the weakness in the design of the signalling system 7 network protocol used by network operators, in order to intercept communications.

Competition

In the US, Boku's largest competitor is Payfone. Payfone is privately held; investors include American Express, BlueCross BlueShield Venture Partners, IDology, Relay Ventures and Verizon, and the company recently raised \$23m. In Europe, TeleSign, a subsidiary of wholesale telecoms provider BICS, has a range of mobile identity solutions.

The GSMA has created the Mobile Connect service. This aggregates member carriers' data to provide third-party access to a wide range of subscriber data. We would view this as a potential source of data for Boku rather than a competitor. Some identity verification companies have built out direct connections with carriers in key countries; they could represent an opportunity for Boku to provide a more comprehensive service.

Growth outlook for Boku Identity

McKinsey estimates that the identity-as-a-service market was worth \$10bn in 2017 and expects a CAGR of 9–15% to reach \$16–20bn by 2022. The highest growth region is Asia, where identity data can be harder to come by, and more customers are mobile-first, particularly in countries where a large proportion of the population does not use credit cards or is unbanked.

Boku was attracted to Danal because of its technology (products and patents) as well as its multi-national customer base. Boku management believed that the Danal business had been constrained by a lack of sales resource as well as limited network coverage outside of the US. The company plans to address these constraints by:

- **Boosting sales capacity:** Adding sales resource and an account management function; growing indirect partner channels; and
- **Leveraging Boku's DCB network:** repurposing its DCB carrier connections outside of the US in order to also provide identity verification services. This would provide wider geographic coverage for Danal's existing customer base as well as bringing identity services to Boku's existing merchants. Boku plans to add 20 new connections in FY19.

Financials

Business model

Revenues

For **DCB**, Boku offers two models to merchants, either settlement or transaction.

- **Settlement:** Boku sits between the merchant and carrier, collects payment from the carrier and passes it on to the merchant. The amount paid to the merchant is net of both the carrier's and Boku's fees. As Boku manages the cash flows, it is able to earn a higher margin (take rate) on each transaction processed, although it has implications for working capital management.
- **Transaction:** The carrier pays the merchant directly, net of their fees. Separately, Boku invoices the merchant for its fees. The only cash flow for Boku in this case is the receipt of its fees. As there is less involvement from Boku, it earns lower margins on these transactions.

Until recently, Boku signed up most merchants on a settlement basis; the settlement margin is a multiple of the transaction margin. Some of the more recent merchants have contracted on a transaction basis, and are driving the bulk of the TPV growth. Therefore, revenue growth has lagged TPV growth due to the lower margins earned under the transaction model. The mix of settlement versus transaction volumes will depend on new merchants' choice of business model and the growth of volumes from existing merchants.

For **Identity Solutions**, Boku charges on a per transaction basis, or for monitoring services, by user.

Cost of sales

For **DCB**, cost of sales is only a small proportion of total costs and mainly consists of the cost of messaging subscribers. For **Identity Solutions**, cost of sales consists of the revenue share with MNOs. There are minimum revenue guarantees in place with some MNOs; as volumes increase above the minimum level, this should provide upside to gross margins.

Working capital

Under the DCB settlement business model, Boku receives cash from the carriers before it pays it across to the merchants, hence it operates a negative working capital model. Under the transaction model, the company records its fees in accounts receivable, and is paid according to the merchant's payment schedule. The Identity business invoices merchants for the transaction or monthly monitoring fees, and pays over the revenue share to the carriers once merchants have settled their invoices.

Review of FY18 results

Exhibit 13: Boku FY18 results highlights					
\$m	FY17	FY18e	FY18a	Change	y-o-y
Revenues	24.4	34.8	35.3	1.3%	44.5%
Gross profit	22.1	32.2	32.8	1.8%	47.9%
Gross margin	90.7%	92.4%	92.9%	0.5%	2.2%
EBITDA	(2.3)	5.4	6.3	16.7%	372.7%
EBITDA margin	-9.5%	15.6%	17.9%	15.2%	27.4%
Normalised operating profit	(4.0)	4.0	4.8	20.7%	220.2%
Normalised operating profit margin	-16.5%	11.5%	13.7%	2.2%	30.2%
Reported operating profit	(9.0)	(0.2)	(2.4)	1,047.8%	73.2%
Reported operating margin	-36.9%	-0.6%	-6.8%	-6.2%	30.0%
Normalised PBT	(6.4)	3.2	4.3	32.1%	166.1%
Reported PBT	(28.5)	(1.0)	(3.0)	201.1%	89.5%
Normalised net income	(4.8)	2.6	3.4	30.6%	169.7%
Reported net income	(28.7)	(1.1)	(4.3)	294.1%	84.9%
Normalised basic EPS (\$)	(0.032)	0.012	0.016	30.3%	148.2%
Normalised diluted EPS (\$)	(0.032)	0.011	0.016	45.1%	148.2%
Reported basic EPS (\$)	(0.191)	(0.005)	(0.020)	293.1%	89.5%
Net debt/(cash)	(16.2)	(19.2)	(28.9)	50.8%	78.1%
TPV (\$bn)		3.55	3.55	0.0%	108.5%
Take rate		0.98%	1.00%	0.01%	
Source: Boku, Edison Investment Research					

Total payment volume (TPV) growth of 109% and active users of 13.5m had already been disclosed in the January trading update. Based on the reported revenues of \$35.3m, the take rate was 1.00%, marginally higher than our 0.98% forecast, resulting in revenues 1.3% ahead of our forecast. Boku noted that three customers contributed 81% of revenues (up from 68% in FY17), each generating more than 10%.

Gross margin of 92.9% was marginally ahead of our forecast, resulting in gross profit 1.8% ahead. Operating expenses before exceptional items, share-based payments, and depreciation and amortisation were \$0.3m lower than forecast, resulting in adjusted EBITDA \$0.9m or 16.7% ahead of our forecast. Exceptional costs included \$0.4m in fees for the Danal acquisition and \$0.2m write down of the 5% investment in Phronesis made in March 2018.

Net finance costs have reduced significantly as the company's only debt is a \$2.2m working capital facility. The tax charge of \$1.3m was higher than we expected due to changes in deferred tax.

The company ended the year with a net cash position of \$28.9m, up from \$16.2m at the end of FY17, and gross cash of \$31.1m (FY17: \$18.7m). The company noted that the average cash balance in December was \$24.4m (December 2017: \$19.2m); this gives a more accurate view of cash levels as it smooths out payments to and from merchants and carriers.

The company has paid minimal tax to date as it has been loss-making. At the end of FY18, it had accumulated tax losses of \$138m (\$135m in the US and \$3m elsewhere), which could be used to offset future profits.

Capex for the year was minimal, with \$0.1m spent on tangible fixed assets and \$0.2m in capitalised development costs. The company noted that it increased processing capacity by 55% for a cost of \$330k.

Outlook and changes to forecasts

Exhibit 14: Changes to forecasts

\$m	FY19e				FY20e				FY21e			
	Old	New	Change	y-o-y	Old	New	Change	y-o-y	Old	New	Change	y-o-y
DCB revenues	42.0	43.0	2.5%	22.0%	49.9	52.0	4.1%	20.8%	56.6	58.4	3.2%	12.3%
Identity revenues	10.0	10.0	0.0%	N/A	18.0	18.0	0.0%	80.0%	22.5	22.5	0.0%	25.0%
Total revenues	52.0	53.0	2.0%	50.3%	67.9	70.0	3.0%	31.9%	79.1	80.9	2.3%	15.6%
Gross profit	43.3	44.2	2.1%	34.9%	55.9	57.6	3.0%	30.3%	64.4	65.8	2.2%	14.3%
Gross margin	83.3%	83.3%	0.0%	-9.6%	82.3%	82.3%	0.0%	-1.0%	81.5%	81.4%	-0.1%	-0.9%
EBITDA	6.7	9.5	42.6%	50.6%	19.1	22.3	16.4%	133.9%	26.9	29.7	10.5%	33.4%
EBITDA margin	12.8%	18.0%	39.8%	0.0%	28.2%	31.8%	12.9%	13.9%	34.0%	36.7%	8.1%	4.9%
Normalised operating profit	5.5	7.0	29.2%	45.5%	18.7	20.5	10.1%	191.4%	26.4	28.0	5.9%	36.2%
Normalised operating profit margin	10.5%	13.3%	2.8%	-0.4%	27.5%	29.3%	1.9%	16.1%	33.4%	34.6%	1.2%	5.2%
Reported operating profit	2.2	3.7	70.7%	-253.1%	16.0	17.8	11.4%	381.6%	23.7	25.5	7.5%	43.3%
Reported operating margin	4.2%	7.0%	2.8%	13.8%	23.6%	25.5%	1.9%	18.5%	30.0%	31.6%	1.5%	6.1%
Normalised PBT	4.9	6.2	26.9%	45.7%	18.1	19.8	9.5%	218.9%	25.8	27.3	5.7%	37.9%
Reported PBT	1.6	2.9	78.2%	-195.7%	15.4	17.1	10.7%	496.6%	23.2	24.9	7.4%	45.6%
Normalised net income	3.9	4.9	26.9%	45.7%	14.3	15.6	9.5%	218.9%	20.4	21.6	5.7%	37.9%
Reported net income	1.5	2.7	78.2%	-162.8%	13.9	15.4	10.7%	465.2%	19.7	21.2	7.4%	37.5%
Normalised basic EPS (\$)	0.015	0.021	33.5%	32.5%	0.056	0.061	9.1%	199.2%	0.080	0.085	5.3%	37.5%
Normalised diluted EPS (\$)	0.014	0.019	32.9%	21.4%	0.052	0.057	9.1%	202.5%	0.074	0.078	5.4%	37.5%
Reported basic EPS (\$)	0.006	0.011	87.5%	-157.1%	0.055	0.060	10.3%	430.2%	0.077	0.083	7.0%	37.1%
Net debt/(cash)	(29.1)	(29.1)	0.0%	0.8%	(47.5)	(51.1)	7.6%	75.4%	(73.4)	(80.4)	9.5%	57.4%
TPV (\$bn)	4.96	5.29	6.6%	49.1%	6.39	6.81	6.7%	28.9%	7.71	8.11	5.2%	19.0%
Take rate	0.85%	0.81%	-0.03%		0.78%	0.76%	-0.02%		0.73%	0.72%	-0.01%	

Source: Edison Investment Research

The company is comfortable with consensus revenues forecast of \$52m for FY19, of which it expects 15–20% to be contributed by Boku Identity. We have increased our DCB revenue forecast reflecting higher TPV growth and a slightly lower take rate, assuming TPV upside is from transaction-type revenues.

Boku sees adjusted EBITDA growth of 45–50% (\$9.16–9.48m), which also takes into account the first-time application of IFRS 16. We estimate that rental costs will reduce by c \$1.8m in FY19, to be replaced with depreciation and finance charges. Our EBITDA forecast increases are mainly due to the IFRS 16 change, but also factor in the higher gross profit dropping through.

Note that we have not factored in any contingent consideration for the Danal acquisition. Based on the formula provided by the company, Danal has to achieve revenues above \$10m to be eligible for any earn-out. We are forecasting \$10m in revenues for FY19, which would equate to zero earn-out.

Sensitivities

Our forecasts and the share price will be sensitive to the following factors:

- **Pace of growth from existing merchants:** this will depend on the rate at which merchants complete their roll-out plans, the pace of growth of paid-for digital content and the competitive positioning of major merchants.
- **Customer concentration:** we estimate that customers contributing >10% of revenues will make up more than half of revenues in FY19–21 (this has reduced from the FY18 level due to the diversifying effect of the new Identity business). The loss of any one major merchant could have a material impact on revenues and profitability. In addition, some of the contracts between Boku and merchants or carriers have short notice periods.
- **Data protection and robustness of the platform:** any loss of customer data or significant downtime for the platform could negatively affect the company's reputation and lead to additional costs in terms of fines and litigation.
- **Competitive environment:** Boku's platform needs to remain competitive with respect to other third-party DCB providers and identity verification service providers as well as carriers that connect directly with merchants. The company will also need to stay abreast of changes in the payment market, where it will need to compete with other alternative payment methods.
- **Regulation:** changes to money transmission, privacy or anti-money laundering regulations in the countries in which Boku operates could have an impact on revenue generation or increase the cost base.
- **Acquisition:** integration and growth of the recently acquired Danal business could vary from our expectations.

Valuation

Exhibit 15: Peer financial metrics

	Revenue growth				EBITDA margin				EBIT margin			
	LY	CY	NY	NY+1	LY	CY	NY	NY+1	LY	CY	NY	NY+1
Boku	44.5%	50.3%	31.9%	15.6%	17.9%	18.0%	31.8%	36.7%	(6.8%)	7.0%	25.5%	31.6%
Bango	59.4%	79.8%	51.3%	N/A	(13.6%)	29.4%	37.8%	N/A	(33.2%)	1.7%	23.9%	N/A
Ingenico	5.3%	20.9%	6.5%	6.5%	16.6%	17.4%	18.0%	18.2%	10.5%	13.9%	14.5%	15.2%
Safecharge	24.0%	11.3%	14.2%	7.2%	25.8%	26.8%	26.6%	26.1%	20.5%	22.2%	22.1%	21.5%
Worldline	7.9%	36.7%	7.3%	7.7%	12.0%	24.1%	25.5%	27.4%	12.0%	17.5%	19.0%	20.1%
Wirecard*	(2.0%)	28.7%	25.1%	N/A	27.6%	29.3%	30.8%	N/A	22.5%	24.5%	26.3%	N/A
FIS	(2.8%)	(0.2%)	3.8%	4.2%	35.3%	39.0%	40.0%	40.6%	18.4%	32.9%	34.6%	33.3%
First Data Corp	(21.2%)	(5.9%)	6.1%	4.6%	32.4%	38.5%	38.9%	39.6%	20.9%	27.6%	28.8%	26.0%
Fiserv	2.2%	5.9%	5.0%	4.1%	35.8%	38.7%	39.1%	40.3%	26.2%	31.7%	32.3%	32.1%
Global Payments	(15.3%)	32.6%	8.2%	5.8%	37.4%	36.2%	36.8%	38.1%	21.9%	32.5%	33.3%	31.3%
PayPal	18.0%	16.3%	17.7%	17.3%	21.8%	26.1%	26.6%	27.3%	16.8%	22.6%	22.9%	23.5%
Square	49.0%	(31.6%)	34.4%	35.3%	3.4%	18.6%	21.7%	25.2%	1.6%	15.4%	18.3%	21.2%
Worldpay	(2.5%)	8.5%	9.4%	9.7%	45.1%	50.4%	52.0%	53.2%	17.2%	46.1%	48.3%	48.1%
Average payment processors	10.2%	16.9%	15.7%	10.2%	23.3%	31.2%	32.8%	33.6%	12.9%	24.1%	27.0%	27.2%

Source: Edison Investment Research, Refinitiv (as at 25 March). Note: *Assume LY is FY18 although not yet reported.

Exhibit 16: Peer group valuation metrics

	Share price	Market cap List ccy	EV Rep ccy	EV/sales (x)			EV/EBITDA (x)			P/E (x)			FCF yield		
				CY	NY	NY+1	CY	NY	NY+1	CY	NY	NY+1	CY	NY	NY+1
Boku	82.0	200	242	4.6	3.5	3.0	25.5	10.9	8.2	57.5	19.0	13.8	2.1%	8.2%	10.8%
Bango	96	67	62	5.2	3.4	N/A	17.7	9.1	N/A	16.3	15.0	N/A	N/A	N/A	N/A
Ingenico	63.18	4,011	5,550	1.7	1.6	1.5	10.0	9.0	8.4	13.8	12.5	11.1	5.9%	7.5%	8.5%
Safecharge	288	439	486	3.2	2.8	2.6	11.7	10.4	9.8	18.2	16.3	16.9	4.7%	5.4%	N/A
Worldline	52.45	9,626	9,819	4.2	3.9	3.6	17.3	15.2	13.2	34.4	28.1	23.9	3.8%	4.8%	5.4%
Wirecard*	99	12,298	11,191	4.2	3.4	N/A	14.4	11.0	N/A	23.5	17.5	N/A	3.5%	4.8%	N/A
FIS	110.41	35,654	43,243	5.1	5.0	4.8	13.2	12.4	11.7	14.9	13.4	12.4	5.5%	5.4%	N/A
First Data Corp	25.38	23,789	43,704	4.9	4.6	4.4	12.7	11.9	11.1	16.1	14.0	12.4	6.4%	7.1%	7.1%
Fiserv	85.58	33,545	39,089	6.3	6.0	5.8	16.4	15.4	14.4	24.7	21.8	18.0	4.3%	5.1%	N/A
Global Payments	134	21,152	25,967	5.8	5.4	5.1	16.1	14.6	13.3	22.2	19.0	16.8	4.6%	5.5%	N/A
PayPal	101.27	118,811	111,700	6.2	5.3	4.5	23.8	19.8	16.5	35.1	29.1	24.1	3.4%	4.0%	5.7%
Square	75.09	31,515	31,290	13.9	10.3	7.6	74.7	47.6	30.2	101.3	67.7	45.2	0.5%	1.4%	N/A
Worldpay	110.39	34,299	42,357	9.9	9.1	8.3	19.7	17.5	15.6	24.0	20.4	17.7	4.2%	5.5%	9.1%
Average payment processors				5.9	5.1	4.8	20.6	16.2	14.4	28.7	22.9	19.9	4.3%	5.1%	7.2%

Source: Edison Investment Research, Refinitiv (as at 25 March). Note: *Assume CY is FY19 although FY18 not yet reported.

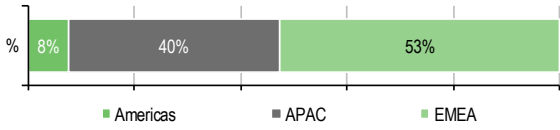
As Boku is in a high growth phase and only recently moved into profitability, comparison with peers on near-term forecasts is not particularly useful. Bango, its closest peer and the only other listed DCB company, is only forecast to move into profitability this year (according to consensus forecasts). We have compared Boku's valuation metrics to the wider payment processing market on a three-year view; by FY20, Boku is trading on an EV/EBITDA multiple of 10.9x, substantially below the peer group average of 16.2x. On a P/E basis, it is also trading at a discount in FY20: at 19.0x versus the peer group average of 22.9x. On a free cash flow basis, we forecast that in FY19 Boku will be yielding 2.1% compared to the 4.3% average for the peer group. As Boku moves into FY20, we forecast a free cash flow yield of 8.2%, compared to the average of 5.1% for peers.

As a sense check, we have performed a reverse DCF to estimate what the market is currently factoring in for growth and profitability. We use our explicit forecasts to 2021, a WACC of 10% and a long-term growth rate of 3%. Assuming a CAGR for revenues of 6.9% for FY22–28 and average EBITDA margins of 28.4% for FY22–28, we arrive at the current 82.0p share price. This assumes Boku does not start paying tax at the full rate for some years due to losses carried forward, and assumes a gradual decrease in the impact of the settlement business model on working capital. In our view, these revenue growth and EBITDA margin assumptions seem overly conservative. Evidence that progress is being made in growing the Boku Identity business will be the key catalyst for share price upside, in our view.

Exhibit 17: Financial summary

	\$m	2014	2015	2016	2017	2018	2019e	2020e	2021e
Year end 31 December		IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
INCOME STATEMENT									
Revenue		18.3	19.2	17.2	24.4	35.3	53.0	70.0	80.9
Cost of Sales		(4.1)	(4.0)	(3.2)	(2.3)	(2.5)	(8.8)	(12.4)	(15.0)
Gross Profit		14.2	15.2	14.0	22.1	32.8	44.2	57.6	65.8
EBITDA		(9.6)	(11.4)	(12.3)	(2.3)	6.3	9.5	22.3	29.7
Normalised operating profit		(9.8)	(12.4)	(13.8)	(4.0)	4.8	7.0	20.5	28.0
Amortisation of acquired intangibles		(0.8)	(1.9)	(1.7)	(1.3)	(1.3)	(1.3)	(1.3)	(1.0)
Exceptionals		(2.1)	(0.1)	(2.4)	(2.2)	(1.4)	0.0	0.0	0.0
Share-based payments		(1.7)	(1.8)	(2.1)	(1.5)	(4.6)	(2.0)	(1.4)	(1.4)
Reported operating profit		(14.4)	(16.2)	(19.9)	(9.0)	(2.4)	3.7	17.8	25.5
Net Interest		(0.6)	(0.4)	(1.2)	(2.4)	(0.6)	(0.8)	(0.7)	(0.6)
Joint ventures & associates (post tax)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exceptionals		0.0	0.0	0.0	(17.1)	0.0	0.0	0.0	0.0
Profit Before Tax (norm)		(10.4)	(12.8)	(15.0)	(6.4)	4.3	6.2	19.8	27.3
Profit Before Tax (reported)		(15.0)	(16.6)	(21.1)	(28.5)	(3.0)	2.9	17.1	24.9
Reported tax		(0.4)	(0.4)	0.5	(0.1)	(1.3)	(0.1)	(1.7)	(3.7)
Profit After Tax (norm)		(7.8)	(9.6)	(11.2)	(4.8)	3.4	4.9	15.6	21.6
Profit After Tax (reported)		(15.4)	(17.0)	(20.6)	(28.7)	(4.3)	2.7	15.4	21.2
Minority interests		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Discontinued operations		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net income (normalised)		(7.8)	(9.6)	(11.2)	(4.8)	3.4	4.9	15.6	21.6
Net income (reported)		(15.4)	(17.0)	(20.6)	(28.7)	(4.3)	2.7	15.4	21.2
Basic ave. number of shares outstanding (m)		21.3	27.4	140.1	150.3	217.1	238.7	254.5	255.2
EPS - basic normalised (\$)		(0.36)	(0.35)	(0.08)	(0.03)	0.02	0.02	0.06	0.08
EPS - diluted normalised (\$)		(0.36)	(0.35)	(0.08)	(0.03)	0.02	0.02	0.06	0.08
EPS - basic reported (\$)		(0.72)	(0.62)	(0.15)	(0.19)	(0.02)	0.01	0.06	0.08
Dividend (\$)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Revenue growth (%)		N/A	4.7	(10.4)	42.0	44.5	50.3	31.9	15.6
Gross Margin (%)		77.6	79.1	81.4	90.7	92.9	83.3	82.3	81.4
EBITDA Margin (%)		(52.5)	(59.2)	(71.4)	(9.5)	17.9	18.0	31.8	36.7
Normalised Operating Margin		(53.2)	(64.4)	(80.0)	(16.5)	13.7	13.3	29.3	34.6
BALANCE SHEET									
Fixed Assets		32.7	30.8	26.8	26.9	23.0	50.2	47.0	44.4
Intangible Assets		32.5	30.1	25.7	25.8	22.5	46.9	45.7	44.6
Tangible Assets		0.2	0.7	0.5	0.4	0.3	2.7	1.4	0.0
Investments & other		0.0	0.0	0.6	0.7	0.3	0.5	0.0	(0.2)
Current Assets		72.5	53.0	48.9	79.3	84.0	102.7	135.6	172.3
Stocks		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Debtors		59.7	43.3	37.1	59.1	51.7	67.8	80.0	88.5
Cash & cash equivalents		12.0	9.0	11.3	18.7	31.1	33.6	54.4	82.6
Other		0.7	0.6	0.5	1.4	1.3	1.3	1.3	1.3
Current Liabilities		(69.6)	(65.5)	(61.0)	(78.0)	(79.6)	(95.9)	(108.7)	(117.8)
Creditors		(64.6)	(60.4)	(54.9)	(75.5)	(77.4)	(91.4)	(105.4)	(115.6)
Tax and social security		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Short term borrowings		(5.0)	(5.1)	(6.1)	(2.5)	(2.2)	(4.5)	(3.3)	(2.2)
Other		0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0
Long-term Liabilities		0.0	(0.3)	(15.2)	(0.2)	(0.8)	(0.8)	(1.3)	(3.8)
Long-term borrowings		0.0	(0.2)	(15.1)	(0.0)	0.0	0.0	0.0	0.0
Other long-term liabilities		0.0	(0.1)	(0.1)	(0.1)	(0.8)	(0.8)	(1.3)	(3.8)
Net Assets		35.5	18.0	(0.4)	28.0	26.6	56.2	72.6	95.2
Minority interests		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shareholders' equity		35.5	18.0	(0.4)	28.0	26.6	56.2	72.6	95.2
CASH FLOW									
Op Cash Flow before WC and tax		(9.6)	(11.4)	(12.3)	(2.3)	6.3	9.5	22.3	29.7
Working capital		9.3	11.6	(3.4)	1.0	7.2	(2.1)	1.9	1.7
Exceptional & other		(1.6)	1.1	4.2	(5.5)	0.2	(0.7)	(0.4)	0.0
Tax		(0.0)	(0.0)	(0.0)	0.0	(0.2)	(0.4)	(0.7)	(1.0)
Net operating cash flow		(1.9)	1.3	(11.5)	(6.8)	13.5	6.3	23.1	30.4
Capex		(1.1)	(3.6)	(1.5)	(0.3)	(0.3)	(0.4)	(0.4)	(0.4)
Acquisitions/disposals		5.9	0.3	0.0	0.0	(0.2)	(1.0)	0.0	0.0
Net interest		(0.3)	(0.3)	(0.3)	(0.9)	(0.6)	(0.6)	(0.6)	(0.6)
Equity financing		0.2	0.1	0.1	19.8	0.5	0.0	0.0	0.0
Dividends		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other		0.6	(0.0)	0.1	(1.1)	0.2	0.0	0.0	0.0
Net Cash Flow		3.3	(2.2)	(13.1)	10.6	13.1	4.3	22.1	29.4
Opening net debt/(cash)		(4.9)	(7.0)	(3.6)	9.9	(16.2)	(28.9)	(29.1)	(51.1)
FX		(1.2)	(0.8)	(0.4)	0.4	(0.5)	(0.3)	(0.2)	(0.1)
Other non-cash movements		0.0	(0.4)	(0.0)	15.1	0.0	(3.8)	0.0	0.0
Closing net debt/(cash)		(7.0)	(3.6)	9.9	(16.2)	(28.9)	(29.1)	(51.1)	(80.4)

Source: Boku, Edison Investment Research

Contact details 2–6 Boundary Row London SE1 8HP United Kingdom https://investors.boku.com	Revenue by geography  <table border="1"> <thead> <tr> <th>Geography</th> <th>Revenue %</th> </tr> </thead> <tbody> <tr> <td>Americas</td> <td>8%</td> </tr> <tr> <td>APAC</td> <td>40%</td> </tr> <tr> <td>EMEA</td> <td>53%</td> </tr> </tbody> </table>	Geography	Revenue %	Americas	8%	APAC	40%	EMEA	53%										
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Management team CEO: Jon Prideaux Jon joined Boku in 2012 and was appointed CEO in 2014. Jon has more than 25 years of payments experience: he was an early Visa Europe employee, where he started Visa Europe's e-commerce division. He served on the board of EMVCo, was the chairman of the Compliance Committee and a member of Visa's Global Product and Brand Councils. After leaving Visa in 2006, Jon served as deputy CEO for SecureTrading, where he doubled transaction numbers and quadrupled profitability. He then led a management buy-in at Shopcreator, an e-commerce software platform.	CFO: Stuart Neal Prior to rejoining Boku in 2017, Stuart was advising new technology ventures, bringing to market cutting-edge technology in AI, machine learning, crypto currency and blockchain. Previously, he was chief commercial officer at Vocalink Zapp (acquired by Mastercard), and also commercial director at Barclaycard. He has held senior commercial and finance positions in a number of blue-chip corporations including GlaxoSmithKline, Worldcom and Virgin Media. Stuart was previously CFO at Boku between 2012 and 2014.																		
Non-executive Chairman: Mark Britto Mark founded Boku after six years as the CEO of Ingenio, which he led to a 2007 acquisition by AT&T. Prior to Ingenio, Mark spent four years as SVP of worldwide services and sales at Amazon.com. Mark's first start-up, Accept.com, was bought by Amazon.com in 1999 and served as the primary backbone of Amazon's global payments platform. Mark is currently the SVP and general manager for global credit at PayPal.																			
<table> <tr> <th>Principal shareholders</th><th>(%)</th></tr> <tr> <td>Benchmark Capital Partners VI</td><td>7.38</td></tr> <tr> <td>NewView Capital</td><td>6.13</td></tr> <tr> <td>Khosla Ventures</td><td>6.08</td></tr> <tr> <td>Directors and related parties</td><td>5.58</td></tr> <tr> <td>River & Mercantile Asset Management</td><td>5.46</td></tr> <tr> <td>Merian Global Investors</td><td>4.96</td></tr> <tr> <td>DAG Ventures</td><td>3.98</td></tr> <tr> <td>Schroder Investment Management</td><td>3.77</td></tr> </table>		Principal shareholders	(%)	Benchmark Capital Partners VI	7.38	NewView Capital	6.13	Khosla Ventures	6.08	Directors and related parties	5.58	River & Mercantile Asset Management	5.46	Merian Global Investors	4.96	DAG Ventures	3.98	Schroder Investment Management	3.77
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