

Action Summary – 12 December 2019

Analyst Theodore R. O'Neill *is initiating coverage of Vobile Group Limited (3738.HK)*

- **We are initiating coverage of Vobile Group Limited with a Buy rating and an \$2.00 (HKD 15.4) price target.** Vobile Group Limited partners with Hollywood studios, TV networks, video distributors and retailers to reduce piracy-induced revenue loss and enable new revenue opportunities in online distribution.
- **Vobile is a leader in two large markets: IP protection and content monetization. We estimate these markets are worth at least \$172B.** In a study commissioned by The International Chamber of Commerce, frontier economics estimated that revenue losses due to piracy of video and music would reach between \$342B and \$761B by 2022
- **Valuable and protectable technological moat.** Vobile's patented technology and its whitepapers on content protection have been cited by other companies 362 times in U.S. patents and patent applications in the last 10 years.
- **Digital piracy solutions become significantly more important to content providers** as they increasingly move to a direct-to-consumer model (DTC) and Subscription based Video on Demand (SVOD)
- **There are greater demands to monetize content** as advertising-based Video On Demand (AVOD) sites like YouTube grow
- **Shares appear to be priced significantly below absolute and comparative metrics**

12/11 Closing price: \$0.28	Market cap: \$125 million	Multiple of book: 2.77	EV/2020 Sales: 1.47
Shares outstanding: 425 million	Insider ownership: 50%	Avg. trading volume: 9,357,000	Dividend/Yield: NA/NA

GAAP estimates (EPS in dollars – Revenue in millions)

Period	EPS	Revenue	Op Margin
Pro-Forma FY18A	<u>(\$0.02)</u>	<u>\$55.7</u>	<u>NMF</u>
FY19E	(\$0.01)	\$58.0	NMF
1H20E	(\$0.00)	\$33.0	NMF
2H20E	<u>(\$0.00)</u>	<u>\$38.0</u>	<u>NMF</u>
FY20E	<u>(\$0.01)</u>	<u>\$71.0</u>	<u>(NMF)</u>
1H21E	\$0.00	\$40.0	NMF
2H21E	<u>\$0.01</u>	<u>\$45.0</u>	<u>NMF</u>
FY21E	<u>\$0.01</u>	<u>\$85.0</u>	<u>NMF</u>

Note: Numbers may not add due to rounding. See our full model in the back of this report.

Cash balance (in millions)

• 2018A	• \$17.0
• 2019E	• \$11.5
• 2020E	• \$5.2

Debt (in millions)

• 2018A	• NA
• 2019E	• NA
• 2020E	• NA

Adj. EBITDA (in millions)

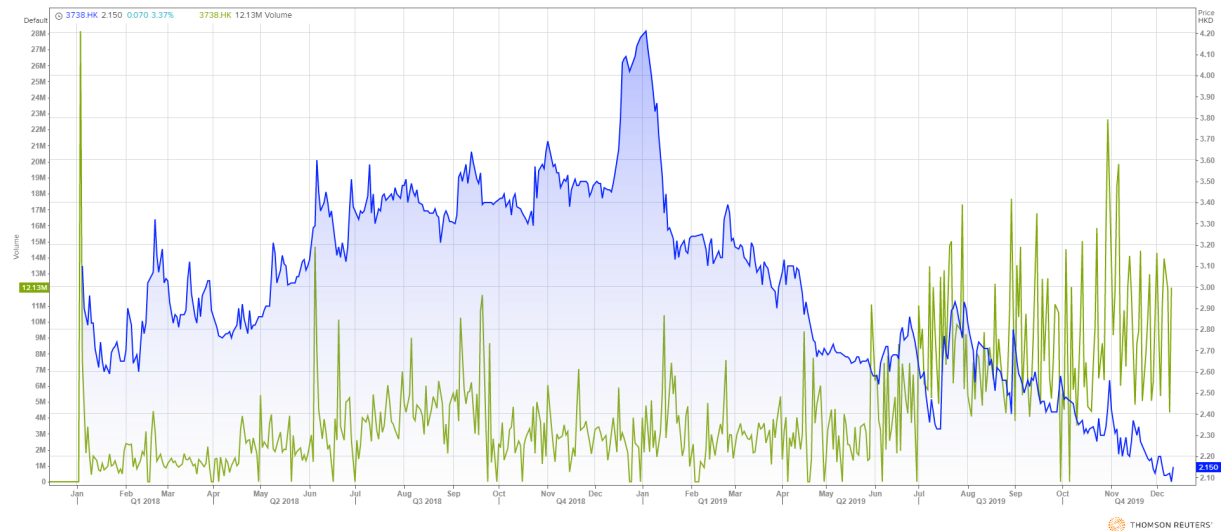
• 2018A	• (\$2.2)
• 2019E	• \$0.8
• 2020E	• \$5.1
• 2021E	• \$11.8

Risks/Valuation

- Risks include: Near-term volatility in earnings as business ramps up
- Our \$2.00 target is derived using a discounted future earnings model

Company description: Vobile Group Limited (3738.HK) is listed in Hong Kong, headquartered in Santa Clara, CA. and is a market leader in online video content protection and monetization.

Figure 1 – Vobile Group Limited - Trading snapshot



Source: Refinitiv Eikon

Investment Thesis

Vobile is a leader in two large markets: IP protection and content monetization. We estimate these markets are worth at least \$172B. Vobile Group Limited partners with Hollywood studios, TV networks, video distributors and retailers to reduce piracy-induced revenue loss and enable new revenue opportunities in online distribution. It derives more than 90% of its revenue in the U.S.

The company offers products that solve problems, monetize IP and measure results:

- **IP Protection:** reduces piracy-induced revenue loss – which we believe will amount to \$342B - \$671B worldwide in 2022 leads to a Vobile market opportunity of \$170B - \$336B
- **Monetization:** creates new revenue opportunities – Looking at YouTube alone, we believe there is ~\$1.5B - \$2B market opportunity for Vobile.
- **Measurement:** measures / increases content & advertising effectiveness

Valuable and protectable technological moat. In a search we executed this week, we found Vobile's patented technology and its whitepaper's on content protection have been *cited by other companies* 362 times in their U.S. patents and patent applications in the last 10 years. That is a testament to the value of Vobile's own IP

Digital piracy solutions become significantly more important to content providers as they increasingly move to a direct-to-consumer model (DTC) and Subscription based Video on Demand (SVOD). We see that as Netflix content becomes disintermediated e.g. Disney+

There are greater demands to monetize content as Advertising-based Video On Demand (AVOD) sites like YouTube grow. By most estimates, there are 500 hours of content that potentially generates ad revenue added to YouTube every minute

Shares appear to be priced significantly below absolute and comparative metrics

Valuation Methodology

We believe VOBILE is undervalued and we support that belief with a series of valuation techniques. We use two different techniques, below. For the purposes of determining our price target we use a discounted future earnings model. The following valuation techniques are being used:

- 1) The discounted value of all future earnings was used for our price target (see Figure 2)
- 2) Valuation relative to peers (see Figure 3)

Discounted Future Earnings – Basis for Price Target

Our 12-month price target of \$2.00 is based on a discounted earnings model. For valuation purposes, we sum up all future earnings discounted at 7%. We assume approximately 25% near-term growth for earnings which steps down to GDP after 5-7 years. Our valuation model is shown in Exhibit 2 below. Note, this model understates future new products and growth through acquisitions and probably understates the tax benefits, but offsetting that, the earnings never have a down year. The implied share price is \$2.22 which we discount round down to \$2.00. Although this target is substantially above where the stock is currently, were it to trade at that level, the implied 2021 EV/Revenue would be near the high end of the range but it would not be outside the range of 0.83x – 8.84x.

Figure 2 – Vobile Group Limited – Price Target Calculation

Discounted Earnings		\$ 2.22
Year 1 is	Forecast	Discounted
2019	EPS	EPS
1	(0.01)	(\$0.01)
2	(0.01)	(\$0.00)
3	0.01	\$0.01
4	0.03	\$0.02
5	0.07	\$0.05
Terminal Value		\$2.16

Source: Litchfield Hills Research LLC

Valuation Relative to Peers

If we compare VOBILE to a simple average of its peers (Figure 3), the shares sell at a significant discount on all measures ranging from 37% to 72%. These metrics indicate the stock price should be more than 100% higher than where it is today. Details on each of the peers can be found in Figure 8 near the back of the report. The companies we used in Figure 8 are in similar lines of business although none of them are a perfect match. P/E measures will be included when the company is profitable.

Figure 3 – Vobile Group Limited – Discount to Peers

	2019 EV / Revenue	2020 EV / Revenue	2019 Sales Multiple	2021 EV / Revenue	Price to Book	2021 EV / EBITDA
Average	6.39	5.20	6.62	3.96	5.64	13.91
VOBILE	1.80	1.47	1.95	1.23	2.77	8.82
Discount to peers	72%	72%	71%	69%	51%	37%

Source: Litchfield Hills Research LLC and Refinitiv Eikon

Guidance and Financial Forecasts

Company provides no guidance and last month completed the acquisition of two product lines from ZEFR, Inc., a private company whose product sales are significantly larger than Vobile's. Vobile's been public since 2018 and has reported three times. ZEFR is private. As a result, we do not have a large enough statistical sample to put a high degree of confidence in our estimates. That being said, we consider our reasonable.

Here is what we have done. Vobile is listed in Hong Kong and is required to report twice a year, hence our model only shows results for 1H, 2H and Full-year. The company has only filed pro-forma results for year-end 2018 as if the companies had been combined then. There is no pro-forma data for 1H19 which makes it problematic to forecast a 2H19 so we are only including a Full year 2019. We are assuming there are synergies in both cross selling the products and savings in administrative costs from the combination of the two companies.

Our financial forecast assumes a 22% revenue growth rate for 2020 as cross selling synergies emerge between the newly combined companies. One of the features of the 2020 results is that there is an earnout for the ZEFR transaction. This is going to impact earnings and the share count. We are not showing that in our model as it would be considered a one-time event. It would not affect the adjusted EBITDA shown on the front page.

In general, and excluding one-time items we expect to see improved earnings and our model reflects that expectation. Again, we have very little reported data to draw on, but the combined patented technology, the cited references and the growing move by content providers to DTC, SVOD and AVOD leaves a lot of room for growth in our opinion.

Company Overview

Business background

Vobile Group Limited partners with Hollywood studios, TV networks, video distributors and retailers to reduce piracy-induced revenue loss and enable new revenue opportunities in online distribution.

The company offers products that solve problems, monetize IP and measure results:

- **IP Protection:** reduces piracy-induced revenue loss – which we believe will amount to \$342B - \$671B worldwide in 2022 leads to a Vobile market opportunity of \$170B - \$336B
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- **Measurement:** measures / increases content & advertising effectiveness

IP Protection Market

Revolutionary technologies like the rise of cloud computing and new methods to distribute content are enabling consumers to access video streaming on virtually any connected device from any location in the world. As of 2018, there

are now more video streaming subscribers than paid-TV subscribers worldwide, accessing 1,000s of online video portals. As a result of this rapid expansion and exploding consumer demand, top entertainment studios and television networks are producing original content at an unprecedented rate and creating new and innovative ways for consumers to watch their favorite sports around the world, their favorite television series, their favorite movies, and countless other consumer choices.

However, as legal streaming access and direct-to-consumer marketing has proliferated, so has digital piracy, as criminal actors adapt to take advantage of new technologies and consumer behaviors. Research by frontier economics for the International Chamber of Commerce that looks at pirated goods worldwide (see Figure 4) estimates that the value of pirated film and music will reach between \$342 billion to \$761 billion by 2022. This somewhat undercounts the real impact because pirating displaces legitimate economic activity.

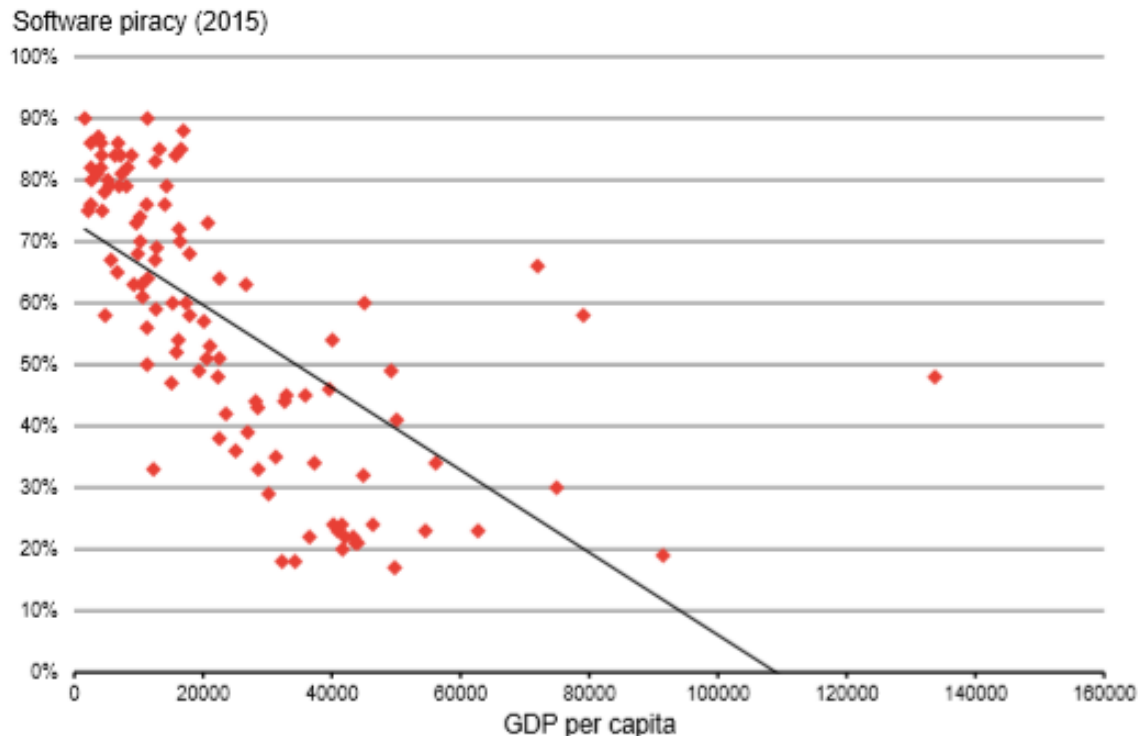
Figure 4 – Vobile Group Limited – Worldwide Impact of Piracy

Estimate	2013	2022 (forecast)
Total international trade in counterfeit and pirated goods	\$461 Billion	\$991 Billion
Total domestic production and consumption of counterfeit pirated goods	\$249 - \$456 Billion	\$524 - \$959 Billion
Digital piracy in movies, music and software	\$213 Billion	\$384 - \$856 Billion
- Digital piracy in film	\$160 Billion	\$289-644 Billion
- Digital piracy in music	\$29 Billion	\$53-117 Billion
- Digital piracy in software	\$24 Billion	\$42-95 Billion
Total value of counterfeit and pirated goods	\$923 Billion – 1.13 Trillion	\$1.90 - \$2.81 Trillion
Wider economic and social costs		
- Displacement of legitimate economic activity	\$470-\$597 Billion	\$980-\$1244 Billion
- Estimated reduction in FDI	\$111 Billion	\$231 Billion
- Estimated fiscal losses	\$96-\$130 Billion	\$199-\$270 Billion
- Estimated costs of crime	\$60 Billion	\$125 Billion
Total Wider economic and social costs	\$737-\$898 Billion	\$1.54 - \$1.87 Trillion
Estimated employment losses	2-2.6 million	4.2-5.4 million
Foregone economic growth in OECD 2017	\$30 Billion to \$54 Billion	

Source: frontier economics – *The Economic Impacts of Counterfeiting and piracy* – Prepared for the International Chamber of Commerce and the International Trademark Association

Not surprisingly, in areas of the world where incomes are lower, the percentage of pirated copyrighted material is higher (see Figure 5). The problem is worse in emerging markets.

Figure 5 – Vobile Group Limited – Piracy and GDP



Source: frontier economics analysis of the Business Software Alliance (BSA) and World Bank data – *The Economic Impacts of Counterfeiting and piracy* – Prepared for the International Chamber of Commerce and the International Trademark Association

Violation of media copyrights not only appears on the Internet, unauthorized content is also found on TV broadcasting networks, which makes it more difficult for content owners to discover and record illegal usage of their content. The problem is difficult to police. There are a huge number of TV stations broadcasting globally at the same time and ways of recording and analyzing over the air broadcasting signals are not as mature or scalable as those on the Internet. Some TV stations purposefully use illegal copies of media content to attract audience and benefit from them. Some TV stations using illegal contents may change some metadata of the media content such as the title or the actors or the format so that content owners may be confused even when they are monitoring TV signals.

Companies and studios in the media industry generate revenue through any of the following ways:

- Selling copies of the media contents, such as CD copies of audio, DVD copies of movie, file copies on Internet, box office from the cinemas, or even VOD (video on demand) from online or digital TV networks, etc.
- By embedding advertisement inside media content. Content owners are compensated by view or click count of advertisements
- By selling the copyright of their media contents to distributors

But it is generally up to the content owners to protect the copyrighted material. Most platforms, including YouTube understands there is unauthorized video and audio content on its site, but it is up to the owner of that material to find and

identify it. Content owners face tremendous loss of revenue if they fail to control misuse or deliberate usage of illegal or unauthorized media content from both online and offline theft.

One way to mitigate the copyright risk is for the content provider to employ a lot of human resources to monitor every possible way its media may be illegally copied or shared. Employees then surf the Internet to find illegal copies on different websites and file sharing networks/peer-to-peer (P2P) networks such as BitTorrent (renamed Rainberry in 2017), eDonkey, The Pirate Bay, RARBG, 1337X, YTS etc. Employees would have to watch TV on different TV channels so as to monitor whether or not media content is illegally used. Due to the enormous size of the Internet and the huge amount of TV broadcasting channels globally, it is impossible for content owners to monitor every form of usage and content sharing.

Fortunately, there are other solutions that can be used to identify copyrighted material:

- **Keywords or Lexical Search:** The keywords specified by content owners that can identify media content is metadata. For example, we can search file sharing sites for the use of the word Avatar, which is the title of a movie. This has many obvious drawbacks as a reliable way to find pirated media.
- **Semantic Search:** Semantic search seeks to identify IP through a contextual search. For example, to identify a Britney Spears concert we would look for a woman with blond hair on a stage in front of a crowd. Now that wouldn't eliminate a Dolly Parton concert, but as more context is added, it becomes a far more precise way to identify IP then keyword. (Vobile recently added this search capability through the acquisition of the RightsID asset from ZEFR, Inc. see more below)
- **File hash:** A hash value is a unique value that corresponds to the contents of a file, video, audio etc. Rather than identifying copyrighted media by its metadata like file name or other designation, a hash algorithm assigns a unique value to each file. Keywords like titles can be changed without altering the hash value. The drawback is that the hash can change. Because it is common for people to change the size and format of media content so it is suitable to play on mobile devices or transfer over networks, when the file size or format is changed, it will change the file hash.
- **Digital Watermark:** This is what you expect it to be. It's a modification to the original media content to embed extra information in the file which is difficult or impossible to remove. It has very limited impact on the content.
- **Digital Fingerprint:** This is a computer-generated extraction of video and audio information that provides an electronic "fingerprint" of the media. The fingerprint can then be used to identify copyrighted materials no matter how the file may in the future be corrupted or reformatted. Vobile is a leader in this and owns several patents on digital fingerprinting

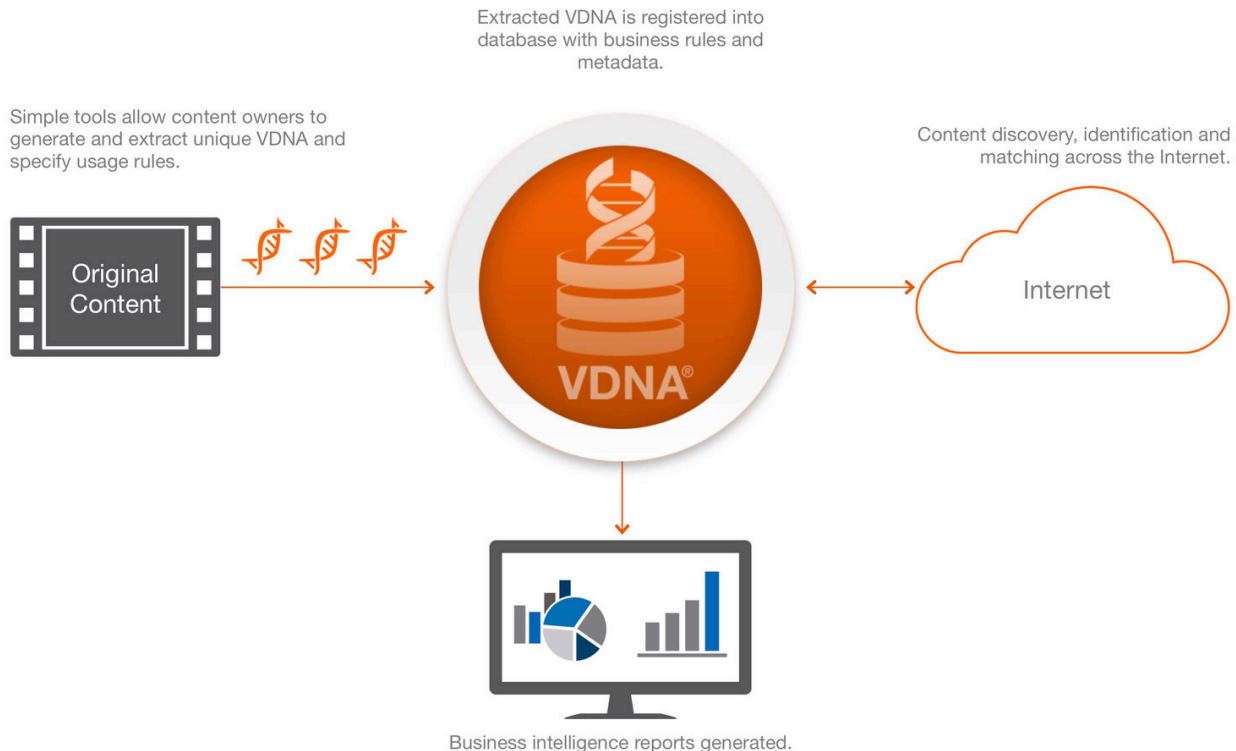
Once the content has been hashed, watermarked or fingerprinted the content owner can send a web crawler out to look for those marks as a way to find unauthorized or misappropriated uses.

The advantage of digital fingerprinting is that it does not need to change the media content like the watermark method does. It does not use hash to compare media content, so it can recognize content that is similar but not exactly same as the original media content so if it is degraded or the viewing format is changed, it can still be identified by the IP owner.

Vobile is expert at digital fingerprinting. Its own process is called VDNA® (Video DNA). Its proprietary technology platform integrates multiple best-in-class cognitive computing engines including audio/video digital fingerprinting, computer vision, machine learning, natural language processing and data mining technologies. It enables fully automated tracking, identification and management of any video, audio and image content with high accuracy and scalability. The VDNA® fingerprinting technology uses information extracted from the media content to identify it. It can then look for misuse by comparing the fingerprint data of the content with the fingerprint data in a database with media contents registered by content owners. Its customers utilize a computer system that "fingerprints" movies and TV episodes as they are produced. The fingerprints are put into a database of fingerprints.

From the database of VDNA®, business rules and metadata those items are placed on a web crawler to look for pirated content. It can then report back on where it was found and then take appropriate action through Vobile's platform, ranging from collecting data to sending content removal requests or take-down notices (See Figure 6).

Figure 6 – Vobile Group Limited – VDNA® Use Case



Source: Company website

Monetization

We estimate the market for monetizing content on YouTube is between \$4.8B and \$7B. According to YouTube, it has paid out \$2B over the five-year period ending in 2017 to its content partners¹ and based on that data and our growth rate assumption, we estimate it paid out ~\$550M in 2018 yet it generated between \$9.5B² and \$14B³ in ad revenue. That's a payout to content owners of 4% - 6% when the real payout to content creators should be closer to 50% or \$4.8B - \$7B. Vobile helps content owners on YouTube to identify copyrighted videos on the site and assist those owners to monetize the video or take it down. When it identifies IP for its clients and facilitates collecting ad revenue, it takes its fee as a percent of the ad revenue. Potential revenue to Vobile based on our estimates is \$1.5B to \$2B.

Creating a World Leading Content and Monetization Company – Acquisition Completed

On November 18, 2019, Vobile completed the acquisition of ZEFR, Inc. assets: RightsID and ChannelID for an estimated \$90 million in purchase consideration (varies depending on earnout and value of stock). The acquisition makes Vobile the largest end-to-end SaaS platform for online video identification, protection and monetization. Vobile can now offer its core technologies to an even broader spectrum of enterprise content providers – building on its customer base of the world's top film studios and television networks by deepening relationships with major social platforms such as Facebook, Instagram and YouTube.

¹ www.youtube.com/intl/en-GB/about/press

² AdAge November 16, 2019 *YouTube is now showing ad-supported Hollywood movies*

³ Barron's, March 5, 2019 *YouTube is worth \$140B*

The combined company will include Vobile's expertise in reducing revenue loss due to IP infringement while enabling new ways to measure and monetize video on demand with the RightsID and ChannelID ability to monitor and analyze video metadata at a massive scale. With this acquisition, Vobile is opening a new office in Los Angeles with approximately 100 employees to be closer to and better able to service existing and new customers. Additionally, the acquired assets produced over \$40 million in recurring, profitable revenue in 2018.

The transaction combines complementary technologies and customer bases, expanding its monetization capabilities across content providers on video and social media platforms. It diversifies the revenue stream and enhances the capabilities of its SaaS platform. The combination will offer content providers best-in-class software to protect and maximize the value of their assets, draw upon new distribution channels and analytically assess their efforts within the marketing funnel.

The RightsID Product provides semantic search technology and operational processes for rights management and monetization of rights owned content found on video and social media platforms. ChannelID Product provides services for channel management and content publishing on content rights owner official viewing channels on YouTube.

RightsID Product

The RightsID Product works on behalf of content owners on the largest video and social media platforms, including YouTube, Facebook, Instagram and SoundCloud. It offers a comprehensive rights management system that identifies, prioritizes and monetizes video for leading media companies, taking into account the vast ownership and business rule complexities that these enterprise organizations face daily. The innovative platform of RightsID Product enables content owners to effectively control and their content, including more fully monetizing their content and unlocking significant incremental revenue to maximize the value of their intellectual property. Currently, RightsID is the only independent rights management provider that operates in collaboration and compliance with YouTube, Facebook, Instagram and SoundCloud. As an example, RightsID can identify misused customer IP and claim it in order to maximize monetization.

The RightsID Product generates revenue through two models: the revenue share model, and the fee-based model. Under the revenue share model, the RightsID Product shares a percentage of the ad revenue created as a result of its rights management technology and services with its content owner customers. The revenue created is based on advertising revenue generated by the content owners' IP on social media platforms. Under the fee-based model, customers would pay both fixed and variable fees to provide its rights management solutions and services. Both revenue models have proven to be profitable and scalable, and allow the RightsID Product to have flexibility in creating long term partnerships with, and solutions for, enterprise content owners.

Operationally, the RightsID Product utilizes proprietary technology and processes to manage digital rights for content owners, which includes semantic search technology to scale the identification and prioritization of content that may contain customer IP, and an efficient process for confirmation of identified IP. Additional processes support the management and optimization of platform-provided toolsets that scale the rights management solutions for enterprise-level content owners across all content verticals. Such processes include digital asset management, and conflict and dispute resolution.

ChannelID Product

ChannelID is the leader in YouTube channel management for media companies, rights holders and brands. ChannelID customers use the ChannelID offering to create and manage their official branded viewing channels on YouTube. Aside from overseeing a customer's YouTube channel, ChannelID also includes data analysis and optimization strategies that expand reach for the channel and better connects fans of the content. ChannelID is utilized by some of the highest quality and largest media companies and consumer brands.

Like RightsID, the ChannelID Product generates revenue from the fixed and variable fees paid by its content owner and brand customers in exchange for YouTube channel management solutions and services.

Operationally, the ChannelID Product solves a critical business need for its customers by providing a full-service solution for maximizing video content on YouTube, which includes content and programming strategy consulting, video uploading, video optimization, data analytics, and data insight and reporting.

In Figure 7 we show a comparison of the products between the acquired assets and Vobile's AVOD PPT platform: ReClaim.

Figure 7 – Vobile Group Limited – Product Comparison

	ReClaim™	RightsID
Product Function	Content Monetization	Content Monetization
Business Model	Transaction based SaaS & AVOD revenue sharing	Transaction based SaaS & AVOD revenue sharing
Customer Base	Content owners	Content owners
Key Technology	VDNA®	Semantic search
Market Share	Small	Large

Source: Company filings

LEGACY MOBILE PRODUCT OFFERINGS

For Content owners

Video Tracker®

Provides critical global protection for content to ensure exclusive delivery of premium content to theaters, set-top-boxes and smart devices worldwide.

ADVANTAGES

- Monitors all video sharing sites and protocols worldwide including live, streaming, direct download, social media, linking sites, search engines, P2P and mobile apps.
- Accurately flags infringing copies of content no matter how degraded the quality and does not misidentify unrelated content as infringing.
- Advanced machine learning technology helps identify infringing content in real-time, enabling client to take data-driven actions faster.
- Sends takedown notices to the core infrastructure distributing infringing content, accelerating the shutdown process and disabling access to unauthorized content.

ReClaim™

Partners with content owners, MCNs and major brands to manage, claim and monetize channels and premium online videos with accuracy and scale.

ADVANTAGES

- End-to-end channel management helps increase organic reach.
- In-depth content consumption analysis provides data to help better connect with audiences and promote your brand.
- Fast and accurate media identification maximizes revenue potential.
- Scalable: thousands of copyrighted videos can be identified at one time to help streamline the claims process

For Distributors

MediaWise®

Enables publishers to manage digital media content to eliminate copyright infringements and help increase business opportunities.

ADVANTAGES

- Vobile's content registry contains the largest authenticated database in the world from studios, TV networks and record labels.
- Accurate ownership and usage rules identify infringing content instantly, reducing legal repercussion caused by copyright infractions.
- Flexible platform adapts as publishers increase their premium content inventory and grow their business opportunities.
- Reduces overall operational costs with an automated process that quickly identifies original content.

Management

Yangbin Wang, Chairman, Executive Director and Chief Executive Officer

Mr. Wang is executive director, chairman and chief executive officer of the Company. He is also a director of each of Vobile's subsidiaries.

Mr. Wang is the founder of Vobile Group and joined as the chief executive officer in 2005 when its first subsidiary, Vobile U.S., was established. For over 12 years, Mr. Wang has led the group and has been responsible for Vobile's corporate vision, product strategy, business development and operations since its founding.

Yangbin earned a BS degree from Zhejiang University in China and an MSEE degree from the University of Florida, Gainesville. He also completed the executive education program at the Stanford Graduate School of Business.

Tim Erwin, Senior Vice President of Sales and Customer Relations

Mr. Erwin is senior vice president of sales and customer relations. He joined the Company in 2015 and is currently responsible for overseeing sales, operations and business development activities of its Pay-Per-Transaction business.

Mr. Erwin has over 20 years of experience in sales and operations for media measurement for the entertainment and media industries. From 1991 to 2015, he worked at Rentrak, where his last position was senior vice president of sales and customer relations.

Vincent Ho, Financial Controller

Mr. Ho is the company's secretary and also the financial controller. He joined the Company in 2016 and is currently responsible for overseeing overall accounting and financial reporting functions.

Mr. Ho has around eight years of experience in the auditing and accounting fields. Prior to join Vobile, Mr. Ho worked at Convoy Asset Management Limited and his last position was fund accounting manager in the High Net Worth and Strategic Investment Department. Earlier in his career, Mr. Ho worked at the Assurance Department of Ernst & Young where he last served as manager.

Mr. Ho has been a member of the Hong Kong Institute of Certified Public Accountants since 2012. He graduated with a Bachelor of Business Administration in Economics and Accounting from the Hong Kong University of Science and Technology in Hong Kong.

Competition

There are no direct public comparables. We compare it to a list of companies with one or more similar product or market characteristics in Figure 8.

Figure 8 – Vobile Group Limited – Comp Table

(Market Cap and EV in \$millions - Closing Price in Currency of Exchange)										
Ticker	Company Name	Last	Market Cap	EV	2019 EV / Revenue	2020 EV / Revenue	2019 Sales Multiple	2021 EV / Revenue	Price to Book	2021 EV / EBITDA
ADBE.O	Adobe Inc	\$305.45	\$148,636	\$149,123	13.37	11.31	13.32	8.84	14.54	19.39
ADSK.O	Autodesk Inc	\$179.01	\$39,349	\$40,064	12.27	10.08	12.05	7.63	NMF	20.43
PANW.K	Palo Alto Networks Inc	\$225.42	\$22,125	\$20,709	5.98	4.98	6.39	4.05	14.54	16.41
3888.HK	Kingsoft Corp Ltd	HKD 19.02	\$3,335	\$2,549	2.28	1.71	2.98	1.34	1.98	12.40
HLIT.O	Harmonic Inc	\$8.20	\$744	\$824	2.09	1.87	1.89		3.08	
DMRC.O	Digimarc Corp	\$34.96	\$431	\$389	16.83	14.21	18.62		7.71	
KUD.S	Kudelski SA	CHF 5.77	\$293	\$731	0.85	0.84	0.34	0.83	0.83	7.69
VERI.O	Veritone Inc	\$2.93	\$74	\$25	0.50	0.44	1.50		1.37	
WSTG.O	Wayside Technology G	\$14.73	\$66	\$56					1.52	
MCLD.V	mCloud Technologies C	\$0.44	\$53	\$71	3.34	1.34	2.51	1.10	5.15	7.11
	Average				6.39	5.20	6.62	3.96	5.64	13.91
3738.HK	Vobile Group Ltd	HKD 2.08	\$113	\$104	1.80	1.47	1.95	1.23	2.77	8.82
		Vobile Discount to peers:			72%	72%	71%	69%	51%	37%

Source: Litchfield Hills Research LLC and Refinitiv Eikon (formerly Thomson Reuters Eikon)

Figure 9 – Vobile Group Limited – Income Statement

(\$ in thousands except per share)								
December year-end	Pro-Forma							
	2018 Year	2019E Year	2020E		2020E Year	2021E		2021E Year
			1H20E	2H20E		1H21E	2H21E	
Total revenue	\$55,723	\$58,000	\$33,000	\$38,000	\$71,000	\$40,000	\$45,000	\$85,000
<i>Growth</i>		4%			22%			20%
Cost of Goods	28,751	30,160	17,160	19,760	36,920	20,800	23,400	44,200
Gross Profit	26,972	27,840	15,840	18,240	34,080	19,200	21,600	40,800
Gross Margin	48.4%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Sales & Marketing	\$9,647	\$10,000	\$5,500	\$5,500	\$11,000	\$5,500	\$5,500	\$11,000
% of total revenue	17%	17%	17%	14%	15%	14%	12%	13%
Administrative expense	\$16,419	\$15,000	\$8,000	\$8,000	\$16,000	\$8,000	\$8,000	\$16,000
% of total revenue	29%	26%	24%	21%	23%	20%	18%	19%
R&D	\$4,069	\$4,000	\$2,000	\$2,000	\$4,000	\$2,000	\$2,000	\$4,000
% of total revenue	7%	7%	6%	5%	6%	5%	4%	5%
Total Operating Expenses	30,135	29,000	15,500	15,500	31,000	15,500	15,500	31,000
Operating Income	(3,163)	(1,160)	340	2,740	3,080	3,700	6,100	9,800
Operating Margin		-2.0%	1.0%	7.2%	4.3%	9.3%	13.6%	11.5%
Total Other Items	(6,393)	(6,000)	(3,000)	(3,000)	(6,000)	(3,000)	(3,000)	(6,000)
Pre-Tax Income	(9,556)	(7,160)	(2,660)	(260)	(2,920)	700	3,100	3,800
Pre-Tax Margin			-8.1%	-0.7%	-4.1%	1.8%	6.9%	4.5%
Taxes (benefit)	(1,606)	(1,647)	(612)	(60)	(672)	161	713	874
Tax Rate	16.8%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
Net Income (loss)	(7,950)	(5,513)	(2,048)	(200)	(2,248)	539	2,387	2,926
Net Margin		-9.5%	-6.2%	-0.5%	-3.2%	1.3%	5.3%	3.4%
EPS, as reported	(0.02)	(0.01)	(0.00)	(0.00)	(0.01)	0.00	0.01	0.01
Diluted Shares Outstanding	424,875	425,000	425,200	425,400	425,300	425,600	425,800	425,700

Source: Company reports and Litchfield Hills Research LLC

Figure 10 – Vobile Group Limited – Balance Sheet

(\$ in thousands except per share)				
December year-end	FY2020E	FY2020E	FY2019E	Pro-Forma FY2018
Balance sheet				
Current Assets				
Cash and S.T.I.	\$9,118	\$5,192	\$11,479	\$17,041
Accounts receivable	20,000	18,000	12,000	8,156
Inventories	5,000	4,000	3,000	2,556
Other assets	1,000	1,000	400	380
Total Current Assets	35,118	28,192	26,879	28,133
Net PP&E	700	700	700	647
Other non-current assets	5,000	4,000	4,000	3,836
Total Assets	\$147,818	\$139,892	\$138,579	\$141,529
Current Liabilities				
Trade payables	\$5,000	\$5,000	\$3,000	\$2,618
Other payables and accruals	\$25,000	\$25,000	\$45,000	\$44,385
Deferred revenue	\$0	\$0	\$0	\$0
Other current liabilities	\$0	\$0	\$0	\$0
Total current liabilities	30,000	30,000	48,000	47,003
Notes payable	70,000	70,000	54,000	53,900
Other Liabilities	0	0	0	0
Total Liabilities	100,000	100,000	102,000	100,903
Stockholders' Equity				
Preferred stock	0	0	0	0
Share Capital	104	104	42	42
Additional paid-in-capital	60,000	55,000	50,000	48,534
Retained earnings	(12,786)	(15,712)	(13,463)	(7,950)
Cum. Other comp and treasury stock	500	500	0	0
Total stockholders' equity	47,818	39,892	36,579	40,626
Total Liabilities and equity	\$147,818	\$139,892	\$138,579	\$141,529

Source: Company reports and Litchfield Hills Research LLC

Figure 11 – Vobile Group Limited – Cash Flow

(\$ in thousands except per share)			
	FY21E	FY20E	FY19E
Net Income	\$2,926	(\$2,248)	(\$5,513)
Trade receivables	(2,000)	(6,000)	(3,844)
Prepayments, deposits and other rec.	(1,000)	(1,000)	(444)
Other assets	0	(600)	(20)
Net PP&E	0	0	(53)
Goodwill & Intangibles	0	0	1,913
Other non-current	(1,000)	0	(164)
Trade payables	0	2,000	382
Customer deposits	0	0	0
Other payables and accruals	0	(20,000)	615
Deferred revenue	0	0	0
Other current liabilities	0	0	0
Notes payable	0	16,000	100
Other Liabilities	0	0	0
Preferred stock	0	0	0
Share Capital	0	62	0
Additional paid-in-capital	5,000	5,000	1,466
Cum. trans. adj. and treasury stock	0	500	0
Dividends	0	0	0
Total Cash Flow	\$3,926	(\$6,286)	(\$5,562)

Source: Litchfield Hills Research LLC

Disclosures:

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Vobile Group Limited 3738.HK - Buy-\$2.00 (HKD 15.4) PT

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