

## OPENDNA LIMITED

### Hyper personalization through AI-powered profiling

OpenDNA (ASX:OPN) enables businesses to add substantially more granularity to profiles of their customers compared to other data analytics services on the market today. OpenDNA is an Artificial Intelligence System (AIS) combining Machine Learning, Neural Networks and Natural Language Processing to build detailed psychographic and behavioral maps on users and customers. Using this technology, businesses can now effectively drive increased engagement, longer session times and higher revenue from their customers.

#### OpenDNA understands users' intent

OPN's AIS powers businesses, enabling them to push relevant content or products that a user wants because the system understands users' intent. In turn, this empowers and benefits the customer as they receive a very personalized and relevant experience with the businesses they engage with. They are not grouped into categories and seeing information that masses would see. OPN's AIS is also industry agnostic allowing the technology to be deployed in a variety of ways.

OpenDNA maps a user's interests and learns about the extent of interest that they may have in any area relative to any other interest that they may have. This is highly contextualized and relevant to that specific user. This granularity of detail within a user's psychographic profile separates OpenDNA from any other personalization / analytics systems.

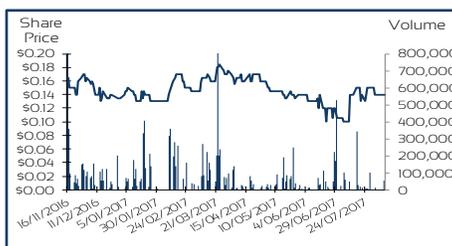
Businesses can now allow users to control their own interests within an OpenDNA-powered system, which helps further enhance their user experience, keeping it more relevant and up to date.

#### Distinct technology that drives revenues from content and data

This technology and ability to know the user so intricately can be highly valuable for any content delivery business, such as publishers (newspapers, magazines) and entertainment companies (e.g. video streaming companies such as Netflix, Hulu, Stan etc.).

Additionally, we see broad applicability in the Data Analytics markets as well. As an illustration, OPN just signed an MOU with US-based Data Analytics and Business Intelligence platform Looker to market OPN's personalization and psychographic insight technology to Looker's very extensive client base. We will discuss this deal in more detail in a follow on research note.

Number of shares (m)	105.1
Number of shares FD (m)	159
Market capitalisation (A\$)	14.7
Free Float (%)	45%
12 month high/low A\$	0,20 / 0,09
Average daily volume (tr)	75



## OPN.ASX

Commercial &  
Professional Services

Australia

Risk: High

OpenDNA Limited (OPN.ASX) has developed proprietary artificial intelligence and machine learning software that can be incorporated into any website, mobile application or digital platform. Through superior data analytics, OPN's software enables its customers to create highly granular user profiles to increase user engagement and drive sales of content, products and services. The company listed on the ASX on 16 November 2016.

## Speculative Buy

Current price: A\$ 0.14

17 August 2017

Readers should be aware that TMT Analytics has been engaged and paid by the company covered in this report for ongoing research coverage. Please refer to the final page of this report for the General Advice Warning, disclaimer and full disclosures.

Analyst: Marc Kennis  
marc.kennis@tmt-analytics.com.au  
+61 (0)4 3483 8134

Granularity that neither Facebook nor Google can deliver

OPN measures user activity on websites and apps in real-time, analyzing their behavior when they interact with content. This content can be anything from news articles, eCommerce, web searches, Social Media etc. However, unlike Social Media platforms and Search engines, OPN can measure user engagement at the object level on webpages and in mobile apps, i.e. specific content on screen. Coupled with additional data sets, such as Weather, Location, Time & Date this helps build very detailed psychographic and behavioral maps.

Single Customer View invaluable to OPN clients as it drives ad revenue

This holistic understanding of a specific consumer’s likes, dislikes and needs across the entire spectrum of their interests (Single Customer View) is invaluable to OPN’s clients given that this holistic understanding drives user engagement and thus advertising value. For the publishing or entertainment industry, higher user engagement leads to longer lingering times on websites and apps, massively increasing customers’ online advertising real estate.

Revenue model fully aligned with customer success

OPN charges a monthly license fee based on a customer’s number of users for the analysis process and if the customer chooses to use OPN’s technology for personalization then an additional surcharge applies based on number of data connections completed, or in some instances a revenue share.

However, from an investment point of view, we believe the most interesting aspect of OPN’s revenue model is the variable revenue component, i.e. OPN receives a revenue share based on customers’ revenue uplift from implementing OpenDNA and/or from the number of user interactions on a customer’s website or in an app.

Speculative Buy based on sheer market opportunity and M&A potential

In our view, the commercial opportunities for OPN are very substantial, both through direct sales and through channel partners. Additionally, through integration with Facebook’s native advertising system, OPN can directly monetize on customers’ increased online advertising real estate. While we will be providing a full financial model at a later stage based on additional commercial data points, we start our coverage of OPN with a Speculative Buy recommendation.

We believe the sheer market opportunity and the company’s technological lead bode very well for OPN. Additionally, we wouldn’t rule out strategic interest from large Digital Marketing or Technology players.

FIGURE 1: SNAPSHOT OF A USER’S PSYCHOGRAPHIC DATA



Source: OpenDNA



## Why personalization in business matters

In general terms, people/consumers respond well when they are made to feel special. This is true in personal relationships as much as it is in a transactional relationship, such as a purchase in a bricks and mortar store. It also holds true in eCommerce, as an abundance of research has shown.

Specifically, personalization of in online businesses leads to:

- substantially higher engagement and interaction with content when compared to traditional placement of information on a site;
- longer dwell/lingering times on websites and in apps;
- substantially higher sales in eCommerce settings, and
- increased brand loyalty.

*Simply put, Personalization = Money. Understanding and being able to engage the single customer in real-time is of paramount importance to marketers.*

## Today's personalization lacks deep user insights

However, personalizing a digital ad or online experience is easier said than done. Despite the huge amount of information companies gather on their customers, app users and website visitors, getting beyond generic, Facebook-like user profiles is extremely difficult for several reasons.

Firstly, user data is fragmented and spread out across many different channels, such as Facebook, Google, Brand websites etc. Secondly, users browse, shop and communicate using different devices and may not necessarily use the same account on each device.

Thirdly, while it is relatively easy to collect demographic data, such as age, gender, name, marital status, occupation etc, behavioural data, such as products and categories viewed, transactional data, messages viewed and interacted with, events attended etc, is harder to collect.

*What's even more difficult is to aggregate all this data at the individual user level to generate a holistic view of each individual user, i.e. a Single Customer View.*

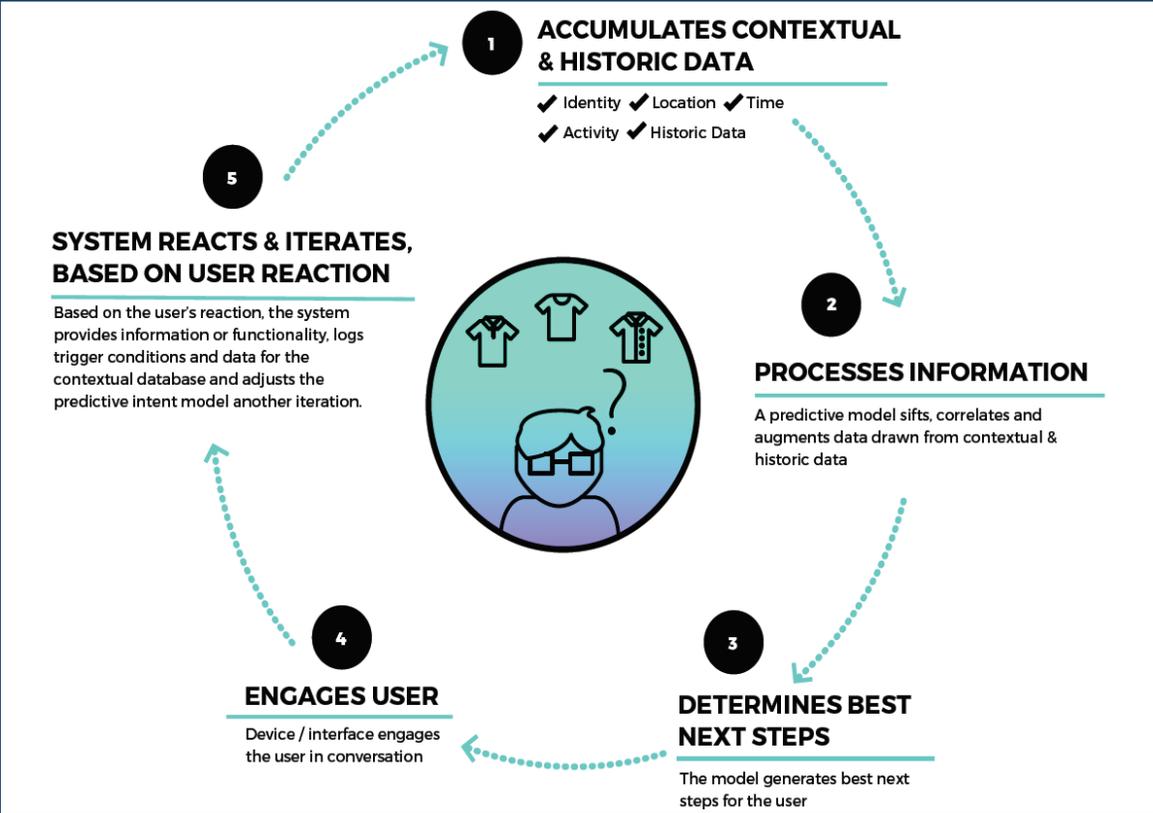
## OPN’s psychographic user profiles drive user engagement

When it comes to truly understanding individual users, OPN’s secret sauce is its ability to create detailed psychographic user profiles, which helps understand “intent” of a user. OPN is able map individuals’ likes, dislikes and needs across the entire spectrum of their interests, which can range from health, finance, travel and news to retail, entertainment, Social Media etc.

These psychographic profiles are built in real-time and refined over time as users engage with OPN powered websites and apps (Figure 2) that run the OpenDNA software in the background.

The goal is to personalize and tailor the content and information within apps and websites specifically for individual end users in order to keep them engaged with the website or app for longer.

FIGURE 2: BUILDING A PSYCHOGRAPHIC PROFILE



Source: OpenDNA Prospectus

In other words, by offering users highly personalized and relevant content, OPN’s aim is to have users spend more time on customers’ websites and have them view more pages, which should ultimately result in higher sales for OPN’s enterprise customers.

*Businesses that power their systems with OpenDNA’s AIS are able to generate a Single Customer View. This empowers them to help deliver highly targeted, personalized and relevant experiences for their users.*

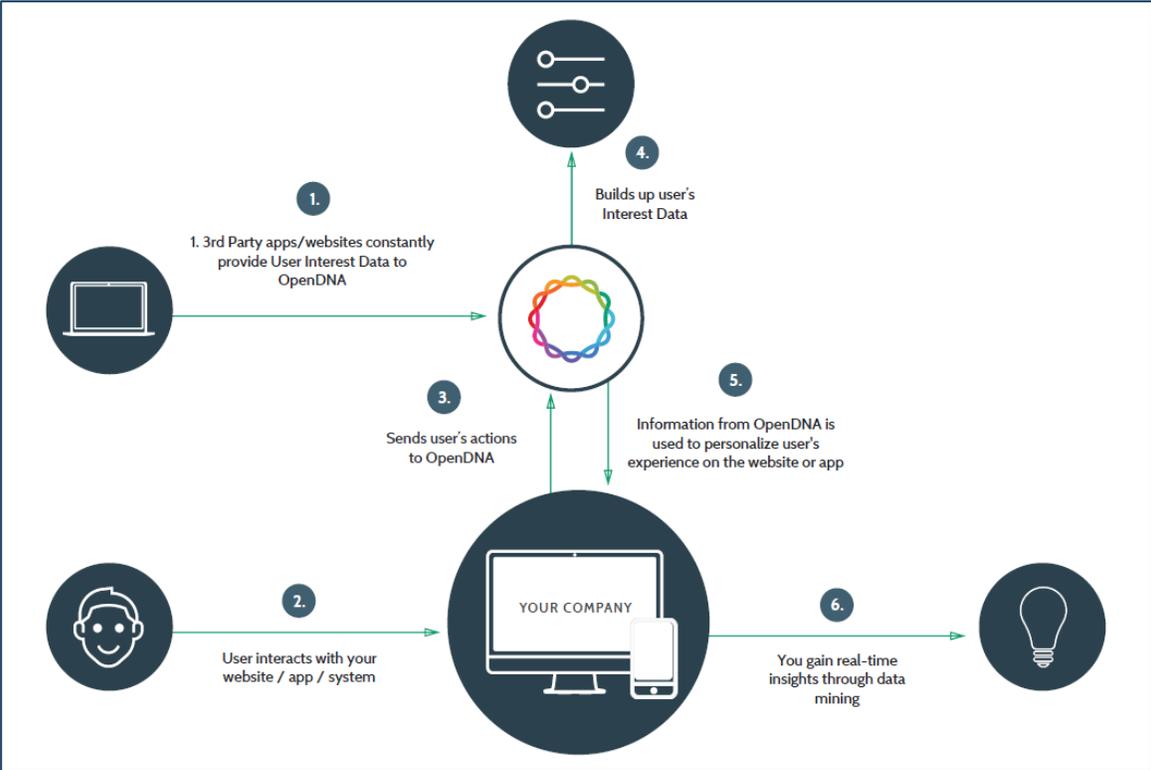
Facebook and Google capture partial information and less accurate data

Facebook collects user information by registering likes, content clicks, posts etc. When combined with known user attributes, including age, gender, location etc, Facebook can derive a fairly detailed profile of a user. However, Facebook does not know why a user liked certain content, i.e. a user’s motive to like a post.

Furthermore, users’ posts on Facebook are typically skewed towards positive messages and favorable perception by others, i.e. data derived from Facebook profiles is typically different from data derived from the actual, everyday online interactions users have with other online media and websites.

Google captures user information through users’ web searches, click-throughs, Gmail, Maps, GPS signal, Android app downloads etc. This collected data can provide a reasonably detailed user profile, similar to Facebook. However, Google is not able to capture users’ interactions after they click on third party websites or move to third party apps, nor are they able to build detailed individual psychographic profiles of their users. These user profiles are therefore less comprehensive than they could potentially be if Google were able to harvest user interactions on third party websites and mobile apps.

FIGURE 3: BUILDING AND REFINING INDIVIDUAL USER PROFILES



Source: OpenDNA Prospectus

## OPN’s holistic approach results in Single Customer View

Once OPN’s solution is deployed with an enterprise customer, OPN can start harvesting data as its customer’s users engage and interact with the customer’s websites and apps, for instance by clicking on articles, products, ads, links etc. OPN can measure these engagements and lingering times to start building an individual’s profile.

Building user profiles through OPN’s solution is an iterative process through which these profiles are continuously enhanced (Figure 3).

As an additional data harvesting tool, OPN recently launched IRIS, a proprietary web extraction tool. IRIS enables accurate content extraction from web applications that dynamically load and move content around the browser window. Through advanced visual recognition and proprietary Optical Character Recognition, IRIS can recognize key elements on webpages and ignore irrelevant and confusing elements, such as ads and side bars.

### Data processing based on proprietary and third-party AI tools

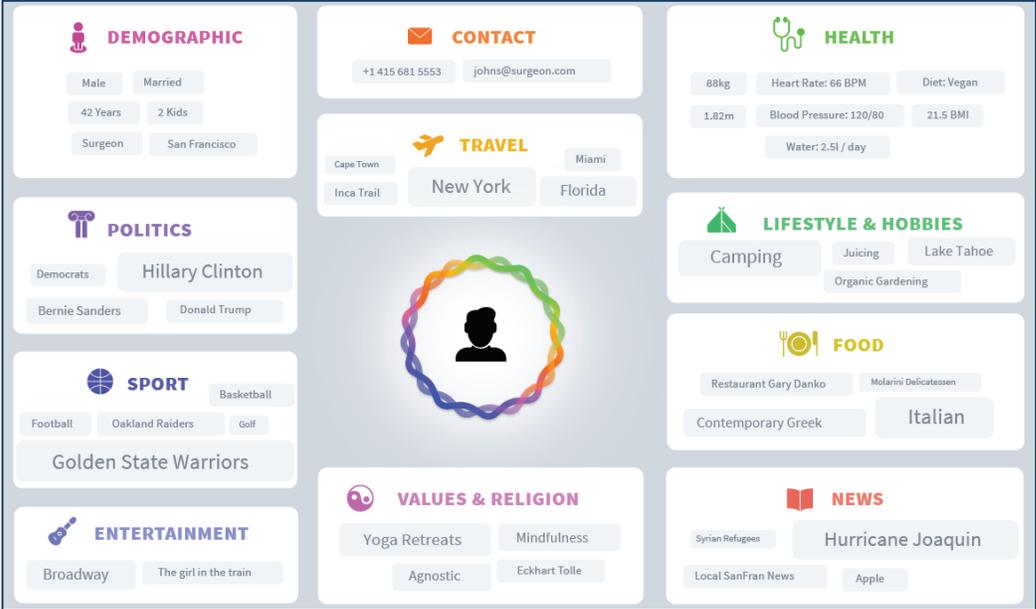
The collected user data is fed into OPN’s Artificial Intelligence System (AIS) consisting of proprietary and third-party analytics tools. These tools aggregate and process data regarding individual users of any app or website connected to the company’s AIS.

### OPN’s AIS suggests user-specific content and ads

At the heart of OPN’s AIS is a process that overlays harvested user data with eight factors OPN has identified as key decision-making variables, i.e. interests, values, connections, time of day, location, weather, financial status and health. These eight factors combined determine what consumers, i.e. OPN’s customers’ customers, purchase and how they make decisions.

Based on advanced pattern recognition, i.e. Artificial Intelligence, and the use of neural networks that try and mimic the functioning of the human brain, OPN is now able to provide its enterprise customers with a highly granular and encompassing view of their individual users, i.e. the Single Customer View (Figure 4).

FIGURE 4: EXAMPLE OF SINGLE CUSTOMER VIEW



Source: OpenDNA Prospectus

## Personalization leads to higher user engagement

The next step is for OPN to suggest user-specific content that is expected to resonate very well with each individual user, resulting in increasing engagement levels with customers' websites and apps, as measured in click-throughs, page views, interactions, purchases, lingering/dwell time in apps and on websites etc.

## More page views and dwell time = more publisher ad space

The immediate effect of increasing page views and longer dwelling times by individual users on a publishing site is that OPN's customers all of a sudden have substantially more space on their websites and in their apps to place ads on that are relevant to individual users.

For instance, if a user views 4 pages of a company's website after deployment of OpenDNA instead of 3 prior to implementation, this company has a 33% increase in ad space on its website available to serve up ads and content specifically for this individual user.

## Facebook integration enables direct monetization

Through a recent deal with Facebook, OPN can now directly monetize this additional ad space on its customers' websites. By connecting to the Facebook Audience Network, OPN's customers have access to a very large inventory of ads looking for a place to be displayed on, other than on Facebook.

*By providing this integration, OPN can essentially provide a one-stop shop for company's Digital Marketing requirements, having both the data intelligence on its users and the means to act on these powerful psychographic profiles in real-time.*

OPN has also been developing data connectors that allow businesses to connect this psychographic profile data to Customer Relationship Management (CRM) systems, Content Management Systems (CMS) and Business Intelligence (BI) systems, which can result in substantial efficiency gains throughout an organisation.

## The addressable market is massive

Given the substantial benefits that can be derived from OpenDNA implementation, we believe the applicability of OPN's solution essentially extends to any business with an online presence that is core to its strategy. Additionally, Digital Marketing and Data Analytics service providers should be able to derive value from OpenDNA integration as well. Commercial targets include:

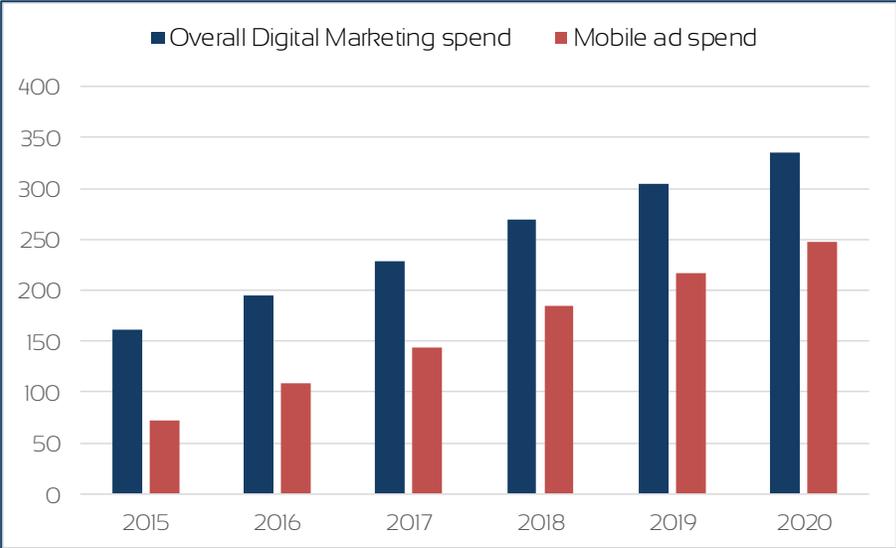
- Publishers that want to drive higher engagement with their content by personalizing everything for their users,
- Marketers and advertising networks that want better yields on their ads by ensuring they are delivered to the relevant user at all times,
- E-Commerce businesses that want to ensure that product placements and offers are relevant to its users, instead of the traditional "shotgun marketing" approach e.g. Endeavour Drinks Group (see below),
- Hardware manufacturers, such as mobile phone manufacturers, looking to differentiate themselves through enhanced user experiences, and
- B2B data analytics companies, that can integrate OPN's technology to deliver better analytics, i.e. a "Powered by OpenDNA" integration.

Mobile advertising spend to grow particularly fast

The overall Digital Advertising market size is expected to amount to nearly US\$ 230BN in 2017 (Figure 5) with an anticipated Compound Annual Growth Rate (CAGR) of 14% through 2020.

While this growth rate is impressive enough for such a well-developed market, the growth rate of mobile ad spending is particularly attractive with a CAGR of 20% through 2020. By then, this market sub segment is expected to be US\$ 247BN in size.

FIGURE 5: DIGITAL ADVERTISING SPENDING WORLDWIDE (USD BN)



Source: Statista, TMT Analytics

OpenDNA drives advertising ROI

OPN’s technology can be utilized by ad networks to ensure they are able to match the correct advertisement to the user that is most likely going to interact with it. This can help them achieve better yields on their ad units in a market, which is primarily dominated by two giants that capture most of the industry’s growth, i.e. Google and Facebook.

However, we believe the company’s disruptive proposition, i.e. providing technology that delivers substantially more granular user profiles than other technologies can currently deliver, will enable OPN to carve out an attractive niche in this market, and potentially much more than a niche.

## Earnings model partially captures customers' revenue uplift

OPN's earnings model is structured in such a way that the company earns a base fee in the form of monthly recurring license fees and is also able to benefit from the revenue uplift it delivers to enterprise customers from OpenDNA implementation.

The monthly user license fee depends on the number of users a customer brings onto OPN's platform. The flexible component consists of either:

- Fees per user session or,
- Revenue shares from additional revenues generated from OpenDNA implementation, i.e. a percentage of the revenue uplift, or;
- Revenue derived from the number of data connections run by a company looking to calculate relevancy before engaging with its users.

FIGURE 6: OPN EARNINGS MODEL



Source: OpenDNA prospectus

In terms of the flexible pricing component, we believe the revenue share option is likely to be the most attractive option for OPN, depending on the revenue share percentage. The industry standard is a 20% to 30% revenue share, but this percentage will likely be open for negotiations depending on specific customer circumstances.

*The potential financial upside for OPN of this revenue model is best illustrated through a simple example (publisher model):*

*Assume a small, online publisher achieves advertising revenues of A\$ 10M annually. Further assume that by implementing OpenDNA, this publisher is able to increase the average number of page views per visitor from 3 to 4 by providing very user-specific, more engaging content on its website.*

*This publisher is now able to increase its advertising revenues by 33%, just based on the increased ad space for this individual user. This percentage does not take into account the higher price this publisher can charge for the entirety of its ad space for this individual user, given that ads for this user can be substantially more targeted, and will thus be worth more to advertisers.*

*Assuming a 25% revenue share agreement with this publisher, OPN would derive A\$ 825k in variable revenues from this customer in addition to monthly fees.*

In our view, this earnings model is highly scalable and can be rolled out across different verticals and at different levels within supply chains, e.g. with Digital Marketing companies, AdTech providers, Social Media, Search engines, consumer-facing companies and brands, Data Analytics companies etc.

Sales strategy aims to engage prospects through their natural business partners

Because of this multifaceted engagement model, OPN's sales strategy is similarly multifaceted, i.e. OPN aims to engage with prospects through their natural business partners. For consumer brands, this may be their Digital Marketing agency, while Data Analytics companies may want to engage with OPN directly.

Therefore, OPN aims to work with business development consultants and channel partners, in addition to its own direct sales force.

Also targeting third party developers in a Twilio-like expansion model

In addition to direct sales and channel partners, OPN aims to release API's that will allow third party developers to integrate OpenDNA into their own apps and websites without OPN having to be involved in the process.

This strategy is similar to Twilio's (NYSE:TWLO) and that of other platform companies, that make API's available to third parties for integration, while charging only based on usage. This expansion model can lead to large numbers of developers using a company's technology in a relatively short period of time. In Twilio's case the company grew from 100,000 developers in 2012 to more than 1,000,000 in 2016.

Given the broad applicability of OPN's technology, we believe this expansion strategy has a very high potential for strong revenue growth, once fully deployed.

## Recent deals underline appeal of the OpenDNA solution

Deal with Endeavour Drinks Group showcases OpenDNA's potential to retailers

OPN recently signed an agreement with Endeavour Drinks Group, owner of bottle shops Dan Murphy's, BWS and CellarMasters. Under the agreement OPN will develop a mobile app for Endeavour's customers that will catalogue, suggest and recommend suitable alcoholic beverages for various occasions, based on the user's individual profile.

OPN will generate revenues from app development, app usage (both based on user numbers and interaction with the app) as well as from content sourcing and cataloging.

Given Woolworths ownership of Endeavour, we believe there may also be potential for OPN to expand its relationship beyond Endeavour to Woolworths, which would open up very substantial revenue opportunities for OPN.

Overall, we believe the Endeavour deal will showcase what psychographic profiling can do for retailers and brands, and should help OPN win more customers in this space.

Future Mobile Technology: Jottr on Android to provide a unique user experience

In June, OPN announced a Memorandum of Understanding with Future Mobile Technology (FMT) under which FMT will pre-load OPN's AI powered news app (Jottr) onto its Android-powered Netsurfer mobile phones, which FMT sells into African and European markets.

Powered by OPN's AIS, Jottr will help build mobile phone users' psychographic profiles, which will enable FMT to personalize the user experiences of its phones and distinguish itself from other Android device manufacturers.

As Jottr builds the user profiles of the Netsurfer mobile phone users, there will likely also be commercial opportunities for OPN and FMT to exploit, e.g. personalized mobile advertising, which both partners have provisioned for in a revenue sharing agreement.

While the African handset market may not be the largest or commercially the most attractive market in the world, we believe OPN's partnership with FMT does present OPN with a very good opportunity to demonstrate how its AIS can deliver highly granular mobile user profiles when running on a mobile Operating System (OS), in this case Android. Successful deployment with FMT will likely result in commercial opportunities with other handset manufacturers.

Integration at the level of the Operating System would be a game-changer

Given the enormous push by many Technology companies into AI in recent years, we believe there is scope to potentially integrate solutions, like OPN's AIS, into mobile Operating Systems, such as Android and iOS. Deeper integration with an OS could deliver a far superior user experience on smart phones and tablets than what is possible today.

## Conclusion: Early days, but tremendous potential

While more add-ons and features for the AIS should be expected in the near to medium term, development of OPN's technology has largely been completed and OPN has recently started on its commercialisation journey with the company signing up several enterprise customers in the last few months.

While it may still be early days for the company's commercialisation, we believe investors need to look at the grander scheme of things in which Artificial Intelligence and the use of neural networks play an ever-increasing role in our daily lives, including personalization of our digital and offline user experiences.

OPN has combined and applied these technologies to one of today's fastest growing markets, i.e. Digital Marketing worth US\$ 230BN in 2017. And the company has done this in such a way that its technology is not competing with, but complementary to the two giants in this industry, Google and Facebook. Furthermore, OpenDNA can be deployed into many other industry verticals and at different levels within these verticals.

Additionally, we see clear scope for OPN to work together with a range of different players in the Tech industry, ranging from large Digital Advertising and Data Analytics players down to the many individual software developers that can integrate OpenDNA into their solutions.

### Highly scalable revenue model

The company's revenue model is designed to benefit from its customers' revenue uplift due to deployment of OpenDNA. We believe this presents a very substantial revenue opportunity for OPN longer term, as illustrated by the simple example we presented earlier. Once the company closes additional commercial deals that allow us to properly model the company's financials, we aim to provide a full financial model and price target.

### Start coverage with a Speculative Buy

In the meantime, we believe OPN's longer term financial potential is likely to yield a valuation that far exceeds the company's current Enterprise Value of A\$ 11M. Therefore, we start our coverage of OPN with a Speculative Buy recommendation.

## GENERAL ADVICE WARNING, DISCLAIMER & DISCLOSURES

The information contained herein ("Content") has been prepared and issued by TMT Analytics Pty Ltd ABN 17 611 989 774 ("TMT Analytics"), an Authorised Representative (no: 1242594) of Belmont Securities ABN 47 119 852 890 AFSL 331625. All intellectual property relating to the Content vests with TMT Analytics unless otherwise noted.

### DISCLAIMER

The Content is provided on an as is basis, without warranty (express or implied). Whilst the Content has been prepared with all reasonable care from sources we believe to be reliable, no responsibility or liability shall be accepted by TMT Analytics for any errors or omissions or misstatements howsoever caused. Any opinions, forecasts or recommendations reflect our judgment and assumptions at the date of publication and may change without notice. TMT Analytics will not accept any responsibility for updating any advice, views, opinions or recommendations contained in this document.

No guarantees or warranties regarding accuracy, completeness or fitness for purpose are provided by TMT Analytics, and under no circumstances will any of TMT Analytics, its officers, representatives, associates or agents be liable for any loss or damage, whether direct, incidental or consequential, caused by reliance on or use of the Content.

### GENERAL ADVICE WARNING

The Content has been prepared for general information purposes only and is not (and cannot be construed or relied upon as) personal advice nor as an offer to buy/sell/subscribe to any of the financial products mentioned herein. No investment objectives, financial circumstances or needs of any individual have been taken into consideration in the preparation of the Content.

Financial products are complex, entail risk of loss, may rise and fall, and are impacted by a range of market and economic factors, and you should always obtain professional advice to ensure trading or investing in such products is suitable for your circumstances, and ensure you obtain, read and understand any applicable offer document.

### DISCLOSURES

TMT Analytics has been commissioned to prepare the Content. From time to time, TMT Analytics' representatives or associates may hold interests, transact or hold directorships in, or perform paid services for, companies mentioned herein. TMT Analytics and its associates, officers, directors and employees, may, from time to time hold securities in the companies referred to herein and may trade in those securities as principal, and in a manner which may be contrary to recommendations mentioned in this document.

TMT Analytics receives fees from the company referred to in this document, for research services and other financial services or advice we may provide to that company. The analyst has received assistance from the company in preparing this document. The company has provided the analyst with communication with senior management and information on the company and industry. As part of due diligence, the analyst has independently and critically reviewed the assistance and information provided by the company to form the opinions expressed in the report. Diligent care has been taken by the analyst to maintain an honest and fair objectivity in writing this report and making the recommendation. Where TMT Analytics has been commissioned to prepare content and receives fees for its preparation, please note that NO part of the fee, compensation or employee remuneration paid will either directly or indirectly impact the Content provided.

### RECOMMENDATIONS

TMT Analytics' issues a BUY recommendation in case of an expected total shareholder return (TSR, share price appreciation plus dividend yield) in excess of 25% within the next twelve months, an ACCUMULATE recommendation in case of an expected TSR between 5% and 25%, a HOLD recommendation in case of an expected TSR between -5% and +5% within the next twelve months and a SELL recommendation in case of an expected total return lower than -5% within the next twelve months.