

## A clear advantage in the new normal

Nanoveu Ltd (ASX:NVU) has developed and is marketing & distributing a range of treated clear film applications for mobile and other digital displays. The group's flagship product is the Nanoshield, an antiviral film charged with copper nanoparticles which have proven and long-lasting antiviral and antimicrobial properties. Much like a biotech, the IP of NVU centres around partnerships with suppliers, the resin formulation to produce the product and the manufacturing controls/partnerships to ensure consistent quality. First antiviral sales only occurred in July 2020, and the go to market strategy has pivoted towards OEM/B2B distribution & application of products across a range of everyday surfaces. The application of protective film to mobile phones has its challenges, but a vending machine with the accuracy of 150 microns and application time of just over a minute provides some optionality if telco partner(s) can be secured and convinced of the economics for this large market. Other products in the group's portfolio include the EyeFly3D™ (3D viewing of a mobile screen without the need for glasses) and EyeFyx, a product targeted to correct images for certain vision impairments. The former is on hold and the latter is still in development while the Nanoshield opportunities are explored. Our sales forecasts are below that implied for key distributors to hit their minimum order quantities (to remain exclusive). Similarly exposed stocks benefitting from COVID have experienced significant jumps in revenue upon establishing key distribution partners including Zoono Group (ASX:ZNO), Genetic Signatures (ASX:GSS) and Atomic Diagnostics (ASX:AT1). The recent Nestle supply agreement/study may prove a key catalyst.

### Business model

NVU has developed a number of treated film applications, with the current focus an antiviral & antimicrobial film called Nanoshield. This product is being sold via exclusive B2B resellers, and potentially to OEMs and direct to larger customers. Resellers will typically add a mark-up to the wholesale price in order to fund the value-add required in the form of product application and maintenance. The direct route is more suited to higher volume, cookie cutter products cut to specific dimensions for specific application.

### Sales momentum is building and set to accelerate

NVU delivered a record A\$350k revenue in 2H20 at a gross margin of 35%, up from just \$17k & 25% in 1H20. Interestingly these sales are in-line with that implied by key distributor targets to maintain exclusivity for the half by our calculations. The recently announced commercial sales to Nestle Professional, accompanied by a Nestle evaluation of different antiviral solutions (of which Nanoshield was deemed superior) is likely to be a key catalyst and selling point for future sales. Recently proposed performance rights for both employees and directors would also require a significant improvement in A\$ sales to be exercised, with cumulative sales targets A\$3m in CY21, A\$8m in CY22 and A\$15m in CY23.

### Valuation implies to \$20m market cap vs \$9.1m currently

We are at the very early stages of product recognition and distributor sign-up, and as a result, framing the take-up in terms of revenue and resulting profit is a somewhat subjective exercise. Our sales assumptions to derive a DCF of A\$0.128/share on the current share count is well below that implied for distributors to achieve minimum order requirements (MORs) and around that required to achieve the hurdles of recently issued performance rights out to FY23. Achieving MORs would see a DCF closer to \$0.21/share by our estimates.

#### Historical earnings and RaaS Advisory estimates

Year end	Revenue (A\$m)	EBIT reported (A\$m)	NPAT adjusted (A\$m)	EPS(adj) (c)	P/E (x)	EV/Sales (x)
12/19a	0.1	(2.8)	(2.8)	nm	0.0	90.00
12/20a	0.4	(1.7)	(1.7)	(0.01)	nm	19.08
12/21e	2.6	(1.1)	(1.1)	(0.01)	nm	3.58
12/22e	5.8	(0.1)	(0.1)	(0.00)	nm	1.59
12/23e	7.6	0.4	0.4	0.00	29.0	1.18

Source: Company data, RaaS Advisory Estimates for FY20e, FY21e, FY22e and FY23e

## Film manufacturing

22<sup>nd</sup> April 2021

### Share details

ASX Code	NVU
Share price	\$0.058
Market Capitalisation	\$9.1M
Shares on issue	157.1M
Net Cash at 30 Jan 21	\$1.6M
Free float	~51.6%

### Share performance



### Upside Case

- New enterprise & distribution customers
- Secures major vending retail/telco partner
- Commercial progress of EyeFyx and EyeFly

### Downside Case

- Distributors fail to penetrate respective markets.
- COVID vaccine programs reduce importance of antiviral products.
- Ability to secure funding

### Board of Directors

Alfred Chong	Executive Chairman
Michael van Uffelen	Executive Director/CoSec
Stephen Apedaile	Non-Executive Director
David Nicol	Non-Executive Director

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## Contents

Business model.....	1
Sales momentum is building and set to accelerate .....	1
Valuation of \$0.128/share or \$20m market cap .....	1
Nanoveu Ltd .....	3
Investment case.....	3
The origins of Nanoveu.....	4
The Nanoshield technology .....	4
The pivot to antiviral products.....	5
Key NVU Financials .....	10
Peer Comparison .....	12
DCF valuation.....	14
SWOT analysis.....	15
Board & Management .....	15
Financial Summary .....	16
Financial Services Guide .....	17
Disclaimers and disclosures .....	19

## Nanoveu Ltd

Nanoveu Ltd (ASX:NVU) listed on the ASX in November 2018, raising \$6m at \$0.20/share. The funds were used to raise working capital for the global sales launch of the EyeFly3D™ product and to complete the development of its novel EyeFyx technology. Since listing the company has had limited success with EyeFly3D™ (limited distribution together with application challenges), but at the same time has pivoted to the development of an antiviral & antimicrobial film driven by COVID-19 demands. The resulting Nanoshield product is now a reality, while the business model has morphed into B2B/OEM distribution across a range of surfaces including mobile phones. Yet to be released peer reviewed studies by Nestle suggest Nanoshield offers superior antiviral protection to peers. The mobile phone market is important but will be reliant on an uptake in vending machines to precisely apply the film at a reasonable price to market leading makes and models. 2HCY20 sales were a record \$350k and in-line with our analysis of what distributors needed to achieve to maintain exclusivity arrangements. Based on announcements to date this number could increase to >A\$5.0m by 2HCY22 (our numbers are lower).

### Investment case

NVU is in the early stages of an antiviral/antimicrobial film launch across a range of applications, and while there are significant funding and marketing challenges, we feel the risk return equation is favourable for the following reasons:

- NVU has an established history in the development of films using nanoimprint technology including relationships with a number of technology and manufacturing partners;
- The pivot into antiviral film only commenced in Q4CY19, with product delivery in July 2020. Since this time a number of distribution agreements have been signed, further efficacy tests conducted and a number of new products launched;
- Most importantly \$350k sales in were delivered in 2HCY20 at an improved gross margin, and these sales are in-line with the Minimum Order Requirements (MORs) of key distribution agreements by our calculations;
- Should such MORs targets continue to be met, 2HCY22 sales would exceed A\$5.0m by our calculations before any other distribution or OEM agreement. Our current estimates are well below this;
- The recently announced supply of product to Nestle Professional for the antiviral protection of out of home coffee machines is significant for two reasons:- further commercial sales and independent real-world validation. Nestle undertook its own evaluation of Nanoshield against other antiviral solutions, with the results expected to be published in a peer reviewed journal;
- A spike in sales for COVID related antiviral/diagnostic products is not unusual, with Zoono (ASX:ZNO) increasing sales 18-fold over the last 12-months and Genetic Signatures (ASX:GSS) 20-fold;
- We estimate NVU has a funding runway through to the end of CY21, giving them time to secure further distribution and OEM deals/sales.
- While COVID is a key driver for antiviral product demand we believe antiviral products such as Nanoshield will act as a complement to vaccines over the next few years, offering another layer of defence against this and other viruses. Product economics suggest it will be a small price to pay.
- Based on our earnings assumptions, our DCF valuation just capturing estimated antiviral sales is \$0.128/share on the current share count. Upside exits as sales are delivered (lowering our assessed discount rate which sits at 12.4%), if a vending machine retail/telco partner can be secured, sales from other products and the ability to move up the value chain.

## The origins of Nanoveu

Nanoveu was established in 2012 to continue the development and commercialisation of nanoimprint science applications initiated by A\*STAR (Singapore Agency for Science, Technology And Research).

A\*STAR's Institute of Materials Research and Engineering worked with Temasek Polytechnics to develop a patented technology for an efficient and low-cost nanoimprint lithography (NIL) manufacturing process.

The initial focus of the technology was the company's novel EyeFly3D™ product, which is a thin film developed using this process to produce a screen protector that allows viewing of clear, distortion free 3D content with the naked eye (no glasses required).

The company listed on the ASX in November 2018, raising \$6m at \$0.20/share. The funds were used to raise working capital for the global sales launch of the EyeFly3D™ product and to progress the development of their novel EyeFyx technology, a product targeted to correct images for certain vision aberrations (namely presbyopia and hyperopia) on high resolution digital devices, in conjunction with internally developed software.

Given the initial focus on mobile phones and the inherent issues applying a thin film to them (dust, bubbles, accuracy), NVU launched laminating vending machines (Customskins) with a JV partner (Techson) in June 2020 with a view to selling patented and proprietary screen covers/laminates along with third-party products, delivering a tempered glass or PET laminate in just over one minute with an alignment accuracy of 150 microns.

Nanoveu has formally partnered with Singapore company Bright Eco to provide the marketing resources for this opportunity. Two vending machines are scheduled to go live in April 2021, while a demonstration unit is planned for the US around June 2021.

The ideal business model, partnerships and mechanics of the vending offering is still a work in progress but we suspect will involve telcos and/or large phone resellers offering the service and maintaining the machines, and NVU being an OEM supplier of the film rather than owner/operator.

## The Nanoshield technology

There are three key technology or IP components to the production of the Nanoshield:

### **Nanoparticle formulation**

The consistent source and quality of the nano Cuprous Ions used to create the nanoparticles film is a key part of the groups IP.

### **The manufacturing process**

NVU works with a company in Japan to incorporate the copper particles into the layer of PET/PVC/TPU film. They also oversee manufacturing and production of its antiviral product portfolio and continue to enhance the process. For this NVU pays a monthly fee.

### **Regulatory framework and certification**

The regulatory framework and efficacy certification for products in this "category" is in its infancy. Each jurisdiction has its own classification for these products and is often non-existent and/or not applicable for real-world situations.

Many of the acknowledged testing standards such as ASTM E1153 and ISO 21702 only consider the immediate antiviral activity, and by immediate contact times can be measured as long as 24-hours.

The virus that causes Covid-19 is only available for testing as a surrogate. The real virus can only be tested in fortified government regulated laboratories and very stringent Class 4 facilities that is limited. The cost for such testing runs in the hundreds of thousands of dollars when a multiple stamp testing is required for an extended period of time.

Nanoveu commenced this rigorous testing in March 2020 and has amassed credible testing in Europe, USA, China, Japan, Singapore, Thailand, India and Saudi Arabia.

The recent independent evaluation at the Nestle Institute of Food Safety and Analytical Sciences in Lausanne, Switzerland, by Nestle to scientifically validate different antiviral solutions should be seen as a benchmark, real world trial of various antiviral solutions, made all the better being published in a peer reviewed journal.

## The pivot to antiviral products

In April 2020 NVU announced its intension to use active copper-based nanoparticles to produce a treated translucent film for commercial use as an anti-viral product. This followed prior trials by A\*STAR using silver nanoparticles and NVU's own internally studies using copper.

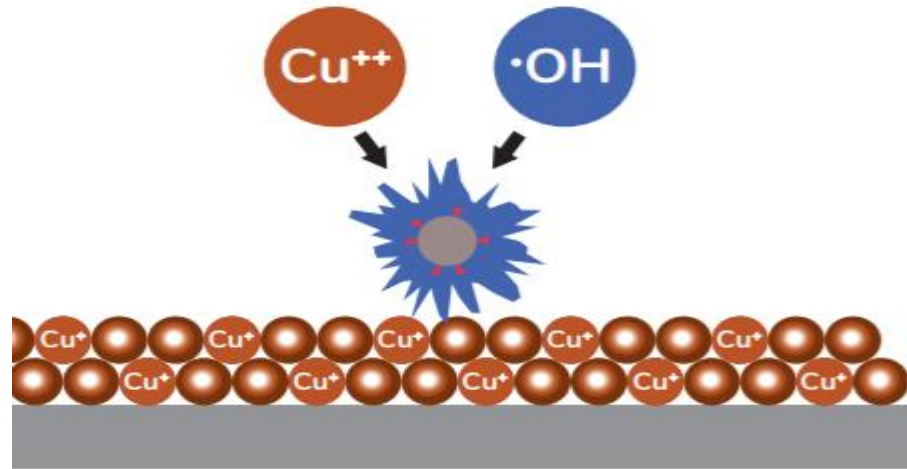
Since this announcement the company has:

- Validated the technology via independent analysis conducted at the Department of Microbiology & Immunology within the National University of Singapore. Using the TGA approved MVH-A59 (a coronavirus strain emerging from mice) as a surrogate for 229E (human coronavirus), the result found the number of infectious coronavirus particles was reduced by 90% in 1-minute (May-2020).
- Approved and registered with the TGA as a Class 1 Medical Device (low risk/non-invasive) (June 2020);
- Using the methodologies of ISO 21702 and JIS Z 2801, which both measure the antiviral activity on hard surfaces and plastics, Nanoshield was 99.99% effective in killing various bacterial strains between 3 minutes (Influenza H3N2) and 30-minutes (Coronavirus OC43), with most at 15-minutes.
- Tested under ISO standard JIS K 7350-2 to assess the products efficacy in variable environments including temperature and humidity. The Nanoshield performed well, reducing the viral load of MS2 Bacteriophage by 99.98% within 5-minutes.

Copper has been long known for its antiviral and antimicrobial qualities. With the nanoparticles a chemical reaction occurs between copper particles and surrounding oxygen to generate a reactive oxygen species (ROS) which is an unstable radical that seeks equilibrium by stealing atoms from neighbouring atoms, causing rapid damage to the protective layer of viral proteins should they be present.

The ability of copper to accept and donate electrons as it cycles between  $\text{Cu}^+$  and  $\text{Cu}^{++}$  oxidation states ensure the long-term production of  $\text{Cu}^{++}$  and OH without the need for wipes or reapplication.

#### Exhibit 1: How the Nanoshield works



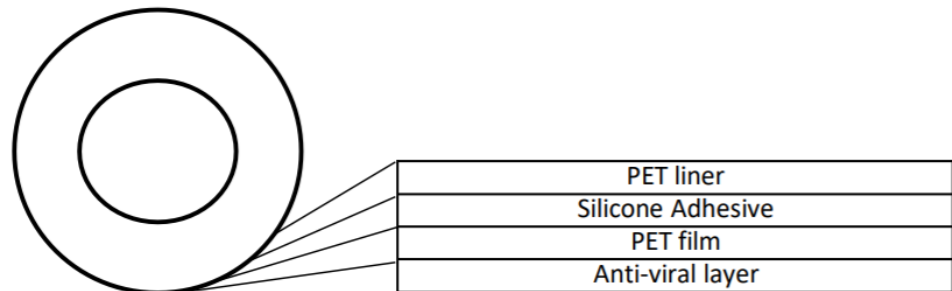
Source: NVU presentation

The groups product offering currently includes:

- Film rolls across two diameters
- Cut to size film pieces
- Adhesive tape available in three roll length options
- Thermoformed sheets aimed custom fit ATM and POS devices
- Pre-packaged mobile phone application.

A spray version of the product is also being worked on in conjunction with A\*STAR.

#### Exhibit 2: The layers of Nanoshield



Source: NVU presentation

### The antiviral market opportunity

There are a multitude of potential applications for the Nanoshield antiviral film, including door handles, railings, a range of touch screens for self-checkout/self-check-in, mobile phones & tablets, gym equipment, vending machines and elevator buttons to name a few.

We have approached the near-term market opportunity for NVU by looking at how many units of selected applications could be covered by a SQM of film after waste. From exhibit 3 below a typical self-service kiosk is estimated to cover 1,000sqcm, and adjusted for a 15% wastage assumption (cutting/application) should provide 8 full pieces per SQM by our estimates.

The exhibit below looks at four different applications and how many pieces can be cut from a square meter of Nanoshield film based on each application's estimated height & width in cm.

**Exhibit 3: Number of Nanoshield pieces possible from a SQM of film**

Application	Height (cm)	Width (cm)	Total area (cm)	Adj for Waste	No of pieces/SQM
Laptop	35	22	770	886	11
Self-serve kiosk	40	25	1000	1,150	8
Info Desk	45	30	1350	1,553	6
iPhone 12	15	7	105	121	82

Source: RaaS estimates

Assuming an average sell price (wholesale) for the film of US\$40/sqm and a gross margin of 40%, we then look at what unit volume is required to achieve various levels of sales and gross profit in AUD terms using an exchange rate of A\$0.77. This provides a sense check for whether such volumes, or combination of volumes are feasible.

Using exhibit 4 below we estimate the generation of A\$2m gross profit would require the coverage of 770k self-serve kiosks, all else equal.

**Exhibit 4: Number of Nanoshield pieces required to achieve various GP\$ (in AUD)**

Gross profit (A\$m)	Laptop (No.)	Self-serve Kiosk (No.)	Info Desk (No.)	iPhone12 (No.)
1	529,375	385,000	288,750	3,946,250
2	1,058,750	770,000	577,500	7,892,500
3	1,588,125	1,155,000	866,250	11,838,750
4	2,117,500	1,540,000	1,155,000	15,785,000
5	2,646,875	1,925,000	1,443,750	19,731,250

Source: RaaS estimates

Finally, we put these numbers in context against the number of units estimated in circulation across a range of industry applications to achieve A\$2m in gross profit. For example, our knowledge of the retail self-checkout market suggests there are ~900k units in the field today. Should NVU provide film at our estimated wholesale price to cover all these units, \$2m in gross profit would represent ~86% of the retail self-checkout market.

What this table does show is the importance of cracking the smart phone/tablet market, given the number of units in circulation. Producing 7.8k units to cover an iPhone and derive A\$2m gross profit "only" represents ~3% of the US smart-phone market.

**Exhibit 5: Production required to achieve A\$2m gross profit**

Unit	In circulation	NVU production*	% MKT	Comments
Retail self-checkout	900,000	770,000	86%	Source: RBR
Airport self-checkout	120,000	770,000	642%	Source: Mordor
US smart phones	275,000,000	7,892,500	3%	Source: Statista
US tablet market	190,000,000	1,058,750	1%	Source: Statista

Source: RaaS estimates \* to generate A\$2m in gross profit

## Supply chain economics

The table below looks at the supply chain from the wholesale sale to estimated final product cost, and whether this final price makes economic sense to the distributor and the end customer.

Using the self-serve checkout again as an example, 8 pieces at a 40% gross margin for NVU implies a price of A\$6.49.

A mark-up of 3x the wholesale price, or a gross margin of 67% to fund the marketing, service and potentially the labour application of the film by distributors boosts the end-price to A\$19.48.

For ~12-months antiviral protection per kiosk this seems a small price to pay.

**Exhibit 6: Supply chain economics for selected products**

Gross profit (A\$m)	Laptop (No.)	Self-serve Kiosk (No.)	Info Desk (No.)	iPhone12 (No.)	Comments
COGS	2.83	3.90	5.19	0.38	Materials & manufacturing costs
Wholesale	4.72	6.49	8.66	0.63	Estimated NVU sell price per unit
(NVU GP Margin)	40%	40%	40%	40%	Estimated margin for NVU
Dist Mark-up	14.17	19.48	25.97	1.90	3x mark-up estimated
(Dist GP Margin)	67%	67%	67%	67%	Required to pay for labour
Vending mark-up				28.51	15x mark-up estimated
(GP Margin)				93%	Required to pay rent, service, labour etc

Source: RaaS estimates

## Vending machines

NVU's announcement into the vending machine was made in August 2019. The project was delayed due to COVID related lockdowns immediately following its launch in January 2020. Since then, NVU entered into a collaboration with Bright Eco, a Singapore based company with several decades of developing products with Telcos worldwide. As a consequence, two machines have been scheduled to commence operations in Singapore in April 2021.

These vending machines have been fitted with strong UV lights within its laminating chamber which kills viruses during the lamination process and then offers long-term protection from the antiviral film. The vending machines create a path to market for all of Nanoveu's products – EyeFly3D, Nanoshield and the upcoming EyeFyx vision correction product.

Exhibit 5 above demonstrates the importance of the mobile phone market for NVU longer-term given the number of units in circulation.

**Exhibit 7: Customskins vending machine**



Source: Company presentation



In theory the return metrics are strong purchasing the machine outright or leasing a vending machine for an estimated price of US\$10k.

The exhibit below looks at the theoretical payback leasing a machine with a \$10k purchase price selling phone laminations at a rate of 5 per day and 10 per day.

**Exhibit 8: Estimated metrics of vending machine**

	5 per day	10 per day	Comments
Unit sales/month	150	300	
Unit Price	30	30	Estimate
Revenue	4,500	9,000	
Gross profit	3,150	6,300	70% margin
Operating costs	1,367	1,817	
Rent	450	900	10% of sales
Financing	67	67	8% interest rate on \$10k purchase
Labour	750	750	1 hour per day @ \$25/hour
Insurance	100	100	
Operating profit	1,783	4,483	
Payback (months)	5.6	2.2	

Source: RaaS estimates

## Key NVU Financials

### Sales

Given the number of potential products, potential applications and potential routes to market we have kept our sales analysis at a relatively high level, and frame/crosscheck our numbers from two angles.

- We convert sales into square meters and forecast square meter sales going forward at an average wholesale selling price of US\$40/sqm. There is an opportunity for NVU to move up the value chain (cutting for example) and extract a higher sell price and margin.
- We have looked at each individual exclusive distribution agreement signed over the last 9-months, and what hitting and maintaining such Minimum Order Requirements (MOR's) would imply in sales terms. We use this as a guide to whether our sales assumptions are achievable (this is before any OEM or direct to business sales such as the recently announced Nestle sales).
- NVU's 2HCY20 sales were almost identical to those implied by distributor MOR's at A\$350k by our calculations, and well above 1HCY20.
- Our current sales estimates are well below that implied by the MOR's over the next few halves but build as product knowledge grows and regulatory pathways are cleared (particularly Europe and the US).

**Exhibit 9: RaaS sales estimates against reseller minimum order requirements (MOR's)**

Line item	1H20	2H20	1H21F	2H21F	1H22F	2H22F
<b>RaaS Sales estimate</b>	<b>0.02</b>	<b>0.35</b>	<b>0.58</b>	<b>2.00</b>	<b>3.08</b>	<b>2.72</b>
<b>Reseller minimum order</b>	<b>0.00</b>	<b>0.39</b>	<b>0.64</b>	<b>3.33</b>	<b>6.16</b>	<b>5.44</b>
AIBI (Singapore)	0	0.19	0.18	0.18	0.18	0.18
Sanyo (Thailand & Malaysia)	0	0.20	0.32	1.43	1.43	1.43
CuVira (UK)	0	0.00	0.00	1.30	3.90	2.60
Vial Medikal (Turkey)	0	0.00	0.06	0.29	0.39	0.78
Avolution (Philippines)	0	0.00	0.06	0.13	0.26	0.45
<b>RaaS Sales/MOR</b>	<b>na</b>	<b>90%</b>	<b>90%</b>	<b>60%</b>	<b>50%</b>	<b>50%</b>

Source: Company financials & RaaS Analysis

We note that other significant beneficiaries of COVID in terms of antimicrobial/viral sales (Zoono – ASX:ZNO) and diagnostics (ASX:GSS & AT1) have seen significant sales spikes in recent halves once key distribution partners are in place and market awareness builds. We see no reason why NVU will not have a similar experience given recent supply and distributor agreements.

**Exhibit 10: Half-year revenue & PBT of "COVID" beneficiaries**

Ticker	1H19	2H19	1H20	2H20	1H21
<b>Revenue</b>					
GSS	2.2	2.7	2.5	8.8	18.6
AT1			0.9	4.4	4.6
ZNO	0.7	1.1	1.7	36.6	14.4
<b>PBT</b>					
GSS	-1.7	-1.8	-2.3	0.2	4.5
AT1			-2.0	-1.1	-2.1
ZNO	-1.4	-1.0	-0.7	21.1	2.9

Source: Company announcements

A final check of our sales forecast can be made with the recently proposed sales targets to achieve performance rights for both employees and directors totalling 8.4m rights. The following table suggests our sales estimates would satisfy cumulative performance targets in terms of sales.

#### Exhibit 11: Performance rights sales targets vs. RaaS estimates

Variable	Dec-21	Dec-22	Dec-23
Cumulative A\$ sales target (m)	3.00	8.00	15.00
Implied yearly sales	3.00	5.00	7.00
Rights (no)(m)	2.81	2.81	2.81
RaaS sales/Yearly target	86%	116%	109%

Source: Company announcements and RaaS estimates

### Gross Profit

Key gross profit considerations are listed below:

- We assume a 40% gross profit margin from the cost to manufacture to the wholesale price. This reflects a return from the IP and supply chain established but is also reflective of the additional costs to be incurred by the distributor in selling and applying the product(s).
- The GP% in 2HCY20 was 35%.
- The reseller will then add a margin proportionate with the service levels/labour required to deliver the product to the end consumer and achieve their desired return.
- Our GP% assumption is below ZNO:ASX given their own brand proposition, but above SES:ASX given their high-volume nature.

### Operating Costs

The operating cost base is currently running at ~A\$1.8m per annum:

- We have no vending machine assumptions in our costs as we anticipate the resellers will manage the stocking, maintenance and on-costs involved, while NVU simply supply the film as a wholesaler
- We have assumed 10% operating cost increases over the medium-term, which are predominantly selling and distribution;
- R&D to sales is assumed at 5% of sales.

#### Exhibit 12: NVU forecast P&L (in AUD)

Line item	2019A	2020F	2021F	2022F	2023F
Sales	0.06	0.37	2.58	5.80	7.62
Gross Profit	-0.02	0.13	1.03	2.32	3.05
(GP%)	-25%	35%	40%	40%	40%
Operating costs	2.78	1.86	2.11	2.39	2.70
EBITDA	-2.79	-1.73	-1.08	-0.07	0.35

Source: Company announcements for historicals & RaaS estimates

## Other Financial Commentary

### Quarterly cash flow

NVU has generated an average A\$177k in cash receipts over the last three quarters, which represents an estimated 3,500sqm in film sales assuming an average US\$40/sqm.

Cash burn (including working capital) has been consistent at an average A\$620k/quarter, funded by share issues under the Antiviral Technologies Portfolio facility and a separate share placement. These share placements will need to continue to fund working capital near-term unless sales increase materially.

#### Exhibit 13: NVU quarterly cash flow summary

A\$'000	Q4CY19	Q1CY20	Q2CY20	Q3CY20	Q4CY20	Q1CY21
Cash Receipts	0.053	0.018	0.002	0.150	0.180	0.200
Cash expenses	0.675	0.600	0.613	0.797	0.807	0.815
Manufacturing	0.071	0.011	0.250	0.238	0.275	0.250
R&D	0.164	0.211	0.065	0.034	0.005	0.010
Other	0.448	0.388	0.366	0.528	0.551	0.555
Grants	0.008	0.010	0.068	0.003	0.024	0.000
<b>Net cash flow</b>	<b>-0.622</b>	<b>-0.582</b>	<b>-0.611</b>	<b>-0.647</b>	<b>-0.627</b>	<b>-0.615</b>
Share issues	0.000	0.000	0.000	0.600	0.620	0.000
Cash at end	2.196	1.614	1.003	0.956	0.949	0.334

Source: Company financials & RaaS analysis

#### Shares on issue

The table below looks at the history of capital raisings for NVU, and the likely timing of further drawdown of the Antiviral Technologies Portfolio facility.

#### Exhibit 14: NVU shares on issue history/forecasts

Date	Event	Share issued	Price	\$ raise	Shares on issue
Nov-18	IPO	30.0	0.20	6.0	132.5
Jul-20	Perf Rights	0.2	0.00	0.0	132.7
Aug-20	Facility	1.6	0.00	0.0	134.3
Dec-20	Placement	13.2	0.05	0.7	147.5
Jan-21	Facility	9.6	0.06	0.6	157.1
May-21 (est)	Facility	9.7	0.06	0.6	166.8
Sep-21 (est)	Facility	6.5	0.06	0.4	173.2
Jan-22 (est)	Facility	12.9	0.06	0.8	186.1

Source: Company announcements & RaaS estimates

## Peer Comparison

### Zoono – Antiviral peer

Zoono (ASX: ZNO) offers a range of surface sprays and hand sanitisers under the Zoono brand on-line and via distributors.

Zoono is a deionised water-based product with a Quaternary Ammonium Compound (QAC) as the 1% active ingredient. QAC is derived from a molecule of sand which goes through a synthetic process to activate it. QACs are positively charged surface-active agents with a primary mechanism of action of disrupting cell walls and membranes.

QACs were first introduced in 1917 and are widely used as cleaners/disinfectants on general, non-critical surfaces, in low concentration antiseptics and antimicrobial soaps.

According to Zoono, once the product is sprayed and/or wiped into hands and allowed to dry, the product provides 24-hours of protection. When applied to product surfaces protection is closer to 30-days.

Zoono's Z-71 Germkiller is on the Therapeutics Goods Administration (TGA) register (comprising ~205 products - <https://www.tga.gov.au/disinfectants-use-against-covid-19-artg-legal-supply-australia>) allowing efficacy claims against SARS-CoV2 and COVID-19.

### Aeris Environmental – Antiviral peer

Aeris Environmental (ASX:AEI) is technology company focused on environmentally friendly products that solve real-world problems more effectively than conventional toxic chemicals. Based on validated, green formulations, the company's products provide long-term remediation, and prevention of mould, bacteria growth and corrosion.

AEI's products are also derived from Quaternary Ammonium Compounds (QAC) with a base of benzalkonium chloride and hydrogen peroxide

AEI's Aeris Active is also on the TGA register allowing efficacy claims against SARS-CoV2 and COVID-19 - <https://www.tga.gov.au/disinfectants-use-against-covid-19-artg-legal-supply-australia?page=3>, with specific claims now including "Residual COVID-19 kill for up to 7-days" and "Residual antibacterial for up to 30-days (or 200 touches) against gram negative E. coli and gram-positive S. aureus".

### Sesco – Niche film manufacturer peer

Sesco (ASX:SES) is a producer of eco-friendly bioplastics using starch based polymers to produce a wide range of certified compostable and bio-based resin, film and bag products.

SES is vertically integrated from raw materials to finished goods and can sell product at any point in the chain to converters or use internally to create & sell the end-product.

The group's customers include supermarket giant Woolworths, IGA and a number of city councils for bin-liner and dog-waste bags including Brisbane, Wodonga, Melville and Penrith.

**Exhibit 15: Broad comparison of NVU and selected peers**

Variable	ZNO	AEI	SES	NVU
Underlying technology	Quaternary Ammonium Compound	Quaternary Ammonium Compound	Starch polymers	Cuprous based film coating
Target market	Households and B2B	Ventilation systems	Councils & Supermarkets	Mobile phones/B2B
Manufacturing				
Raw Material	In-house	Outsourced	In-house	Outsourced
Finished product	Outsourced	Outsourced	In-house	Outsourced
Distribution	Own & third party	Own & third party	Own	Third-party
Trademark/Brand(s)	Zono	Actisan, Aeris Active	BioHybrid, MyEcoBag	Nanoshield
<b>2HCY20 Financials</b>				
Sales	14.40	5.20	13.85	0.32
GP%	59.1%	39.4%	18.2%	35%

Source: Company financials & RaaS Advisory estimates

A more detailed financial comparison can be seen in exhibit 16 below using actual FY20 financials.

**Exhibit 16: Peer Group financial comparison**

Company Name	Ticker	Share price (cps)	Mkt Cap (A\$m)	FY20 Net Cash (A\$m)	FY20 EBIT (A\$m)	FY20 Sales (A\$m)	EV/EBIT (x)	Working Capital/Sales	GP%	R&D/sales
Secos	SES	0.250	133	2	-1	21.0	nm	20%	18%	0%
Zono	ZNO	0.870	143	10	20	38.3	6.5	37%	74%	0%
Aeris	AEI	0.230	56	14	1	14.6	30.1	44%	55%	4%
Nanoveu	NVU	0.058	9	1	-2	0.4	nm	115%	35%	58%

Sources: Company financials, Refinitiv Eikon

From NVU's viewpoint we would highlight the following:

- Given the low sales base of NVU, many comparisons to peers are not meaningful, particularly using FY20 metrics;
- NVU has by some way the lowest market cap relative to peers, but also the lowest sales;
- Peers metrics are mixed across sales, profitability and balance sheet ratios;

## DCF valuation

We derive a DCF valuation for NVU of \$0.128/share on the current share count. We have, in our modelling assumed additional capital raisings may be required, and on our analysis, this could result in our valuation tempering to \$0.118/share, assuming the price at which shares are raised is as we assume. Key assumptions in this valuation include:

- Discount rate of 12.5% (Beta 1.5, RFR 2.0%, ERM 7.0%);
- Sales generally building from 50% to 70% of current MORs in the forecast period for antiviral across all distributors as product knowledge builds;
- 15% medium-term sales growth;
- 2.2% terminal growth;
- No specific sales for EyeFly3D™ and EyeFyx, or vending sales outside of film sales;
- Gross margins 40%;
- Operating cost growth of 10% medium-term and R&D to sales of 5%;
- Medium-term days payable of 30-days and days receivables of 40-days;
- R&D to sales to 5%;
- Tax payment from CY25.

### Exhibit 17: NVU Base Case DCF valuation

Parameters	Outcome
Discount Rate / WACC	12.5%
Beta	1.5
Terminal growth rate assumption	2.2%
Sum of PV	3.2
PV of terminal Value	15.8
PV of Enterprise	19.0
Debt (Cash)	(1.1)
Net Value - Shareholder	20.1
Current shares on issue	157
NPV/Share	\$0.128

Source: RaaS estimates

Should NVU's distributors achieve and sustain their MORs over the forecast period, our DCF valuation would be closer to \$0.21/share, all else equal.

## SWOT analysis

There are plenty of opportunities on the horizon for NVU, the challenge is obtaining the funding to execute without significant dilution and capitalising on increased market awareness of virus protections.

### Exhibit 18: Strengths, Weaknesses, Opportunities, Threats

Strengths	Opportunities
Solid manufacturing package from sourcing to process	New product launches using the existing technology
Proven product efficacy indoors and outdoors for up to a year	The signing of new distribution agreements in new regions
Product can be manufactured at scale with consistent quality	OEM distribution at scale
Independently tested and selected by Nestle for antiviral	Telco/retail partner adopts vending machine model
	Relaunch of EyeFly3D and launch EyeFyx
Weaknesses	Threats
Balance sheet is reliant on regular equity funding	The NIL manufacturing process is a widely available
Limited human resources to support marketing and distribution	Lack of funding limits market penetration
Product requires precise application, often time consuming and wasteful	COVID vaccination reduces the interest in antiviral/antimicrobial products
Source: RaaS analysis	

## BOARD & MANAGEMENT

### Directors

**Mr Alfred Chong, Executive Chairman & CEO.** Alfred is the founder of NVU and currently the largest shareholder. Prior to NVU Alfred was APAC CEO for Atex Media Command, a global provider of solutions and services to the media industry, CEO of THISS Technologies Inc, a satellite communications company and CEO of 121View, a digital signage company.

**Mr Michael van Uffelen, Executive Director, CFO and Company Secretary,** has over 30-years company and business management experience gained with major accounting firms, an investment bank and public and private companies.

Michael is currently a Director of Tian Poh Resources (ASX:TPO) and Anson Resources (ASX:ASN).

**Mr Steven Apedaile, non-Executive Director,** has worked in the accounting profession for over 30-years, gaining experience in all facets of international business, corporate finance and forensic accounting.

**Mr David Nicol, Non-Executive Director,** is a seasoned director and advisor for technology based companies. David currently serves on three other boards, all US based, one privately held (PropertyTrak) and two Nasdaq listed companies, Evolving Systems and CCUR Holdings. He is the Audit chair for both Nasdaq companies.

## Exhibit 19: Financial Summary

Nanoveu Ltd						Share price (21 April 2021)						A\$	0.058
Profit and Loss (A\$m)						Interim (A\$m)		H120	H220	H121F	H221F	H122F	H222F
Y/E 31 December	FY19A	FY20A	FY21F	FY22F	FY23F								
Revenue	0.1	0.4	2.6	5.8	7.6	Revenue		0.0	0.3	0.6	2.0	3.1	2.7
Gross profit	(0.0)	0.1	1.0	2.3	3.0	EBITDA		(0.8)	(0.9)	(0.8)	(0.3)	0.1	(0.2)
GP margin %	(24.6%)	34.6%	40.0%	40.0%	40.0%	EBIT		(0.8)	(0.9)	(0.8)	(0.3)	0.1	(0.2)
Underlying EBITDA	(2.8)	(1.7)	(1.1)	(0.1)	0.4	NPAT (normalised)		(0.8)	(1.0)	(0.8)	(0.4)	0.0	(0.2)
Depn	0.0	0.0	0.0	0.0	0.0	Minorities		0.0	0.0	0.0	0.0	0.0	0.0
Amort	0.0	0.0	0.0	0.0	0.0	NPAT (reported)		(0.8)	(1.0)	(0.8)	(0.4)	0.0	(0.2)
EBIT	(2.8)	(1.7)	(1.1)	(0.1)	0.4	EPS (normalised)		nm	(0.007)	(0.005)	(0.002)	0.000	(0.001)
Interest income	0.0	0.0	0.0	0.0	0.0	EPS (reported)		nm	(0.007)	(0.005)	(0.002)	0.000	(0.001)
Tax	0.0	0.0	0.0	0.0	0.0	Dividend (cps)		0.000	0.000	0.000	0.000	0.000	0.000
NPAT	(2.8)	(1.7)	(1.1)	(0.1)	0.4	Imputation							
Adjustments	0.0	0.0	0.0	0.0	0.0	Operating cash flow		na	na	na	na	na	na
Adjusted NPAT	(2.8)	(1.7)	(1.1)	(0.1)	0.4	Free Cash flow		na	na	na	na	na	na
Abnormals (net)	(0.5)	(0.1)	0.0	0.0	0.0	Divisionals		H120	H220	H121F	H221F	H122F	H222F
NPAT (reported)	(3.2)	(1.8)	(1.1)	(0.1)	0.4								
Cash flow (A\$m)													
Y/E 31 December	FY19A	FY20A	FY21F	FY22F	FY23F								
EBITDA	(2.8)	(1.7)	(1.1)	(0.1)	0.4	Total Revenue		0.0	0.3	0.6	2.0	3.1	2.7
Interest	0.0	0.0	0.0	0.0	0.0	Gross profit		0.0	0.1	0.2	0.8	1.2	1.1
Tax	0.0	0.0	0.0	0.0	0.0	Underlying GP Margin %		23.5%	35.1%	40.0%	40.0%	40.0%	40.0%
Working capital changes	(2.4)	0.7	0.4	(0.0)	0.1	Operating Costs							
Operating cash flow	(5.2)	(1.0)	(0.7)	(0.1)	0.5	Selling & Distribution		0.2	0.3	0.3	0.4	0.3	0.4
Mtce capex	0.1	0.0	0.0	0.0	0.0	Administration		0.5	0.6	0.6	0.7	0.7	0.7
Free cash flow	(5.1)	(1.0)	(0.7)	(0.1)	0.5	Other		0.1	0.1	0.1	0.1	0.2	0.1
Growth capex	0.0	0.0	0.0	0.0	0.0	Total costs		0.8	1.0	1.0	1.1	1.1	1.3
Acquisitions/Disposals	0.0	0.0	0.0	0.0	0.0	EBITDA		(0.8)	(0.9)	(0.8)	(0.3)	0.1	(0.2)
Other	0.0	0.0	0.0	0.0	0.0	EBITDA margin %		(4800.0%)	(260.1%)	(133.9%)	(15.7%)	2.8%	(5.9%)
Cash flow pre financing	(5.1)	(1.0)	(0.7)	(0.1)	0.5	Margins, Leverage, Returns			FY19A	FY20A	FY21F	FY22F	FY23F
Equity issues	0.0	0.0	0.0	0.0	0.0	EBITDA margin %			(4573.8%)	(471.3%)	(42.1%)	-1.3%	4.6%
Debt	0.0	1.3	1.2	0.6	0.0	EBIT margin %			(4573.8%)	(471.3%)	(42.1%)	-1.3%	4.6%
Net Dividends paid	0.0	0.0	0.0	0.0	0.0	NPAT margin (pre significant items)			(4516.4%)	(459.1%)	(42.1%)	-1.3%	4.6%
Net cash flow for year	(5.1)	0.3	0.5	0.5	0.5	Net Debt (Cash)			-2.2	-0.8	-0.4	-1.0	-1.2
Balance sheet (A\$m)													
Y/E 31 December	FY19A	FY20A	FY21F	FY22F	FY23F								
Cash	2.2	1.1	0.8	1.3	1.5	Net debt/EBITDA (x)		(x)	0.8 x	0.5 x	0.4 x	13.1 x	-3.4 x
Accounts receivable	0.2	0.2	0.5	0.6	0.8	ND/ND+Equity (%)		(%)	53.1%	40.6%	25.2%	34.3%	35.1%
Inventory	0.0	0.4	0.4	0.4	0.4	EBIT interest cover (x)		(x)	n/a	n/a	n/a	n/a	0.0x
Other current assets	0.0	0.0	0.1	0.1	0.1	ROA			nm	(79.6%)	(59.0%)	(3.4%)	12.8%
Total current assets	2.4	1.7	1.8	2.4	2.9	ROE			nm	nm	nm	nm	nm
PPE	0.1	0.1	0.1	0.1	0.1	ROIC			nm	nm	nm	nm	nm
Goodwill	0.0	0.0	0.0	0.0	0.0	NTA (per share)							
Right of use asset	0.0	0.0	0.0	0.0	0.0	Working capital			-0.3	0.3	0.7	0.7	0.8
Deferred tax asset	0.0	0.0	0.0	0.0	0.0	WC/Sales (%)			(557.4%)	83.7%	26.5%	11.5%	10.1%
Other	0.0	0.0	0.0	0.0	0.0	Revenue growth			nm	501.4%	602.0%	125.3%	31.4%
Total non current assets	0.1	0.1	0.1	0.1	0.1	EBIT growth pa			nm	nm	n/a	n/a	(575.3%)
						Pricing			FY19A	FY20A	FY21F	FY22F	FY23F
Total Assets	2.6	1.8	1.9	2.5	3.0	No of shares (y/e)		(m)	132.5	135.0	166.7	176.0	176.0
Accounts payable	0.5	0.2	0.2	0.3	0.4	Weighted Av Dil Shares		(m)	132.5	135.0	166.7	176.0	176.0
Short term debt	0.0	0.3	0.3	0.3	0.3	EPS Reported		cps	nm	(0.013)	(0.006)	(0.000)	0.002
Provisions	0.0	0.0	0.0	0.0	0.0	EPS Normalised/Diluted		cps	nm	(0.012)	(0.006)	(0.000)	0.002
Lease liabilities/other	0.0	0.0	0.0	0.0	0.0	EPS growth (norm/dil)			nm	nm	-48%	n/a	-575%
Total current liabilities	0.6	0.6	0.5	0.7	0.8	DPS		cps					
Long term debt	0.0	0.0	0.0	0.0	0.0	DPS Growth			n/a	n/a	n/a	n/a	n/a
Other non current liabs	0.0	0.0	0.0	0.0	0.0	Dividend yield			0.0%	0.0%	0.0%	0.0%	0.0%
Total long term liabilities	0.0	0.0	0.0	0.0	0.0	Dividend imputation			30	30	30	30	30
Total Liabilities	0.6	0.6	0.5	0.7	0.8	PE (x)				nm	-	8.9	-
Net Assets	2.0	1.2	1.3	1.9	2.2	PE market				18	18	18	18
Share capital	13.3	14.2	15.4	16.0	16.0	Premium/(discount)				nm	(149.6%)	(864.6%)	60.9%
Retained Earnings	(10.2)	(11.9)	(13.0)	(13.1)	(12.8)	EV/EBITDA			(2.0)	(4.0)	(8.5)	(124.6)	25.6
Reserves	(1.2)	(1.1)	(1.1)	(1.1)	(1.1)	FCF/Share		cps	-0.2	-1.7	-0.9	0.0	0.1
Minorities	0.0	0.0	0.0	0.0	0.0	Price/FCF share			-29.4	-3.4	-6.5	-127.2	45.2
Total Shareholder funds	1.9	1.2	1.3	1.9	2.2	Free Cash flow Yield			(2.9%)	(24.9%)	(16.2%)	(0.9%)	2.5%

Source: RaaS Advisory



# FINANCIAL SERVICES GUIDE

**RaaS Advisory Pty Ltd**

**ABN 99 614 783 363**

**Corporate Authorised Representative, number 1248415**

**of**

**BR SECURITIES AUSTRALIA PTY LTD**

**ABN 92 168 734 530**

**AFSL 456663**

**Effective Date: 26<sup>th</sup> November 2018**

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- our services
- how we transact with you
- how we are paid, and
- complaint processes

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In writing to: Australian Financial Complaints Authority, GPO Box 3, Melbourne, VIC, 3001.

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