

Action Summary – 9 February 2023

Analyst Theodore R. O'Neill – Advancing commercialization with multiple events - *Reiterate our Buy rating and \$10 PT*

- **Moving commercialization forward.** On Feb. 7, 2023, Cyngn announced it has been awarded a multi-phase contract to implement autonomous vehicle technology by a company in the heavy machinery industry, that is ranked in the top 1000 of the Forbes Global 2000. It has already successfully achieved initial milestones in the multi-phase agreement that is geared toward the mining industry. The goal is to introduce leading-edge AV and artificial intelligence solutions (its DriveMod AV stack), into the client's industrial vehicles, including vehicles already in commercial use.
- **Scalable, vehicle agnostic products.** The DriveMod AV Stack is a vehicle agnostic scalable solution for AV technology integration. It is designed to streamline retrofitting of existing industrial vehicles or simplify integration onto newly manufactured vehicles.
- **Building its commercial salesforce.** On January 19, the company announced it had hired Chris Wright as Head of Sales. He brings years of experience selling AI solutions. Perhaps, more importantly, it signals to us that the technology has reached an important milestone.
- **Attractive Valuation.** Based on our discounted future earnings model, the value of all future earnings is \$10/share. Compared to peers, if the current out-year multiples of sales, holds into 2024, it would also support our price target.

2/8 Closing price: \$1.10 USD	Market cap: \$37 million	Multiple of book: NMF	EV/2023 Sales: NMF
Diluted shares outstanding: 34 million	Insider ownership: 57%	3-mo avg. daily trading volume: >230,000	Dividend/Yield: NA/NA

GAAP estimates (EPS in USD – Revenue in USD millions)

Period	EPS	Revenue	Op Margin
1Q21A	(\$1.63)	\$0.00	
2Q21A	(\$2.20)	\$0.00	
3Q21A	(\$2.17)	\$0.00	
4Q21A	<u>(\$0.10)</u>	<u>\$0.00</u>	
FY21A	<u>(\$1.33)</u>	<u>\$0.00</u>	<u>NMF</u>
1Q22A	(\$0.14)	\$0.00	
2Q22A	(\$0.15)	\$0.00	
3Q22A	(\$0.16)	\$0.00	
4Q22E	<u>(\$0.17)</u>	<u>\$0.00</u>	
FY22E	<u>(\$0.63)</u>	<u>\$0.00</u>	<u>NMF</u>
1Q23E	(\$0.18)	\$0.00	
2Q23E	(\$0.14)	\$0.00	
3Q23E	(\$0.14)	\$0.00	
4Q23E	<u>(\$0.15)</u>	<u>\$0.00</u>	
FY23E	<u>(\$0.61)</u>	<u>\$0.00</u>	<u>NMF</u>

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

Cash balance (in USD thousands)

• 2020A	• \$6,056
• 2021A	• \$21,946
• 2022E	• \$23,225
• 2023E	• \$7,063
• 2024E	• \$9,186

Debt (in USD thousands)

• 2020A	• \$696.0
• 2021A	• \$0.00
• 2022E	• \$0.00
• 2023E	• \$0.00
• 2024E	• \$0.00

Risks/Valuation

- Risks: emerging technology, limited commercial development, new business model and potentially competitive markets
- Our \$10 price target is derived from our discounted future earnings model

Company description: Cyngn is an autonomous vehicle technology company focused on addressing industrial uses for autonomous vehicles. Cyngn believes that technological innovation is needed to enable the adoption of autonomous industrial vehicles that will address the substantial industry challenges that exist today. These challenges include labor shortages, lagging technological advancements from incumbents, and high upfront investment requirements.

Figure 1 – Cyngn Inc. – One-Year Trading snapshot



Source: FactSet

Valuation and Price Target

Valuation Methodology

We believe CYN is undervalued, and we support that belief with two valuation techniques. For the purposes of determining our price target we use a discounted future earnings model, which we then compare to its valuation relative to peers. 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 \$10 is based on a discounted earnings model. For valuation purposes, we sum up all future earnings on a GAAP basis and discount them at 10%. We assume the company reaches breakeven in 2026 and grows rapidly until 2034 before growth eventually slows to GDP. Our valuation model is shown in Figure 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 \$10.25 which we round down to \$10.

Figure 2 – Cyngn Inc. – Price Target Calculation

Disc. Future Earnings \$10.25		
Year	EPS	Discounted EPS
2023	(\$0.61)	(\$0.61)
2024	(\$0.41)	(\$0.37)
2025	(\$0.12)	(\$0.10)
2026	\$0.00	\$0.00
2027	\$0.20	\$0.14
2028	\$0.40	\$0.25
Terminal Value:		\$10.94

Source: Litchfield Hills Research LLC

Valuation Relative to Peers

Figure 3 is a summary of our CYN peer comparison. The average Market Cap/Sales for 2023 is ~6.2X. If, two years from now, that were to be the multiple for 2024 and if CYN reached our preliminary revenue target of \$50MM in 2025, the Market Cap would be \$310MM, which implies a price of just over \$9/share. This broadly confirms our view that, along with our discounted earnings model, the shares are undervalued.

Figure 3 – Cyngn Inc. – Valuation of Peers

FactSet Ticker	Company Name	Closing Price	Market Cap \$MM	EV \$MM	2023 Consensus Multiples except Book			
					Market Cap / Sales	EV /Sales	Price to Book	PE
PCAR-US	Paccar Inc	\$73.53	38,355	51,561	0.83	1.44	2.62	11.48
APTV-US	Aptiv PLC	\$115.91	31,406	36,942	1.62	1.91		26.13
TRMB-US	Trimble Inc	\$59.63	14,706	16,225	3.61	4.04	5.55	19.48
LEA-US	Lear Corporation (US Listing)	\$141.48	8,362	9,972	0.38	0.45		12.96
AUR-US	Aurora Innovation, Inc.	\$1.90	1,407	1,089	NMF	NMF	3.78	
INVZ-US	Innoviz Technologies Ltd.	\$5.22	709	513	22.82	16.23	2.85	
TSP-US	TuSimple Holdings, Inc.	\$2.40	484	(478)	NMF	NMF	5.99	
AEVA-US	Aeva Technologies, Inc.	\$1.93	421	78	21.77	3.68	3.56	
VLDR-US	Velodyne Lidar Inc.	\$1.38	329	92	5.38		3.06	
OUST-US	Ouster, Inc.	\$1.74	321	219	3.04	1.90	3.43	
CPTN-US	Cepton, Inc.	\$1.35	211	199	6.89		1.26	
REE-US	REE Automotive Ltd.	\$0.50	120	(19)	3.56		7.04	
EMBK-US	Embark Technology, Inc.	\$5.51	105	(38)	NMF	NMF	NMF	
OTMO-US	Otonomo Technologies Ltd.	\$0.54	75	(54)	4.08		2.17	
GTEC-US	Greenland Technologies Holding Corporation	\$2.55	33	62	0.25	0.46	1.17	3.84
QNGY-US	Quanergy Systems, Inc. Class A	\$0.04	1	(6)			1.38	
AVERAGE					6.19	3.76	3.37	14.78

Source: Litchfield Hills Research LLC and FactSet

Financial Projections and Guidance

The company does not provide guidance except to say it expects to see modest revenue in 2022 and 2023. Because there is no clear way to calendarize that assumption, we have chosen to make no revenue projection for 2022 or 2023 until we have a better basis for making such a forecast.

Figure 4 – Cyngn Inc. – Comp Table

FactSet Ticker	Company Name	Closing Price	Market Cap \$MM	EV \$MM	2023 Consensus Multiples except Book			
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EMBK-US	Embark Technology, Inc.	\$5.51	105	(38)	NMF	NMF	NMF	
OTMO-US	Otonomo Technologies Ltd.	\$0.54	75	(54)	4.08		2.17	
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QNGY-US	Quanergy Systems, Inc. Class A	\$0.04	1	(6)			1.38	
	AVERAGE				<u>6.19</u>	<u>3.76</u>	<u>3.37</u>	<u>14.78</u>

Source: FactSet and Litchfield Hills Research LLC

Figure 5 – Cyngn Inc. – Income Statement \$000

December ending year	2020A Year	2021A Year	2022E Q1A	2022E Q2A	2022E Q3A	2022E Q4E	2022E Year	2023E Q1E	2023E Q2E	2023E Q3E	2023E Q4E	2023E Year
Total revenue	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<i>Growth</i>		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cost of Goods	0	0	0	0	0	0	0	0	0	0	0	0
Gross Profit	0	0	0	0	0	0	0	0	0	0	0	0
R&D	5,121	4,990	1,681	2,256	2,726	2,862	9,525	2,948	3,037	3,128	3,221	12,334
G&A	3,253	4,410	2,138	2,357	2,552	3,000	10,047	3,090	3,183	3,278	3,377	12,927
Total Operating Expenses	8,374	9,400	3,819	4,613	5,278	5,862	19,572	6,038	6,219	6,406	6,598	25,261
Operating Income	(8,374)	(9,400)	(3,819)	(4,613)	(5,278)	(5,862)	(19,572)	(6,038)	(6,219)	(6,406)	(6,598)	(25,261)
Total Other Items	35	1,601	(0)	1	19	0	20	0	0	0	0	0
Pre-Tax Income	(8,339)	(7,800)	(3,819)	(4,612)	(5,259)	(5,862)	(19,553)	(6,038)	(6,219)	(6,406)	(6,598)	(25,261)
Taxes (benefit)	0	0	0	0	0	0	0	0	0	0	0	0
Tax Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Net Income	(\$8,339)	(\$7,800)	(\$3,819)	(\$4,612)	(\$5,259)	(\$5,862)	(\$19,553)	(\$6,038)	(\$6,219)	(\$6,406)	(\$6,598)	(\$25,261)
EPS, as reported	(\$8.78)	(\$1.33)	(\$0.14)	(\$0.15)	(\$0.16)	(\$0.17)	(\$0.63)	(\$0.18)	(\$0.14)	(\$0.14)	(\$0.15)	(\$0.61)
Diluted Shares Outstanding	950	5,862	26,862	30,706	33,636	33,836	31,260	34,036	44,036	44,236	44,436	41,686

Source: Company reports and Litchfield Hills Research LLC

Figure 6 – Cyngn Inc. – Balance Sheet \$000

December ending year	FY2024E	FY2023E	FY2022E	FY2021A
Balance sheet				
Current Assets				
Cash and S.T.I.	\$9,186	\$7,063	\$23,225	\$21,946
Accounts receivable	50	50	50	50
Inventories	3,000	2,000	1,000	525
Other assets	0	0	0	0
Total Current Assets	12,236	9,113	24,275	22,521
PP&E	2,000	1,000	500	103
Intangibles				
Long term assets	200	200	50	31
Total Assets	\$15,186	\$10,963	\$24,825	\$22,655
Current Liabilities				
Accounts payable	\$3,000	\$1,000	\$200	\$112
Accrued expenses and other current liabilities	200	100	0	0
Due to related parties				
Other current liabilities	2,000	1,000	500	295
Total current liabilities	5,200	2,100	700	407
Note payable, Paycheck Protection Program	0	0	0	0
Other long-term	0	0	0	0
Total Liabilities	5,200	2,100	700	407
Stockholders' Equity				
Preferred stock	0	0	0	0
Common stock	170	170	170	170
Additional paid-in-capital	190,000	170,000	160,000	138,570
Retained earnings	(180,185)	(161,307)	(136,046)	(116,494)
Accumulated other comp. and NC Interest	0	0	0	0
Total stockholders' equity	9,986	8,863	24,125	22,248
Total Liabilities and equity	\$15,186	\$10,963	\$24,825	\$22,655

Source: Company reports and Litchfield Hills Research LLC

Figure 7 – Cyngn Inc. – Cash Flow \$'000

	2024E	2023E	2022E	2021A
Net Income / (loss)	(18,878)	(25,261)	(\$19,553)	(7,800)
Restricted cash	0	0	0	350
Prepaid expenses and other current assets	(1,000)	(1,000)	(475)	(476)
Other	0	0	0	0
PP&E	(1,000)	(500)	(397)	31
Intangibles	0	(150)	(19)	3
Long term assets	(100)	(650)	0	0
Accounts payable	2,000	800	88	39
Accrued expenses and other current liabilities	100	100	0	0
Due to related parties	0	0	0	0
Other current liabilities	1,000	500	205	(12)
Note payable, Paycheck Protection Program	0	0	0	(695)
Other long-term	0	0	0	0
Preferred stock	0	0	0	0
Common stock	0	0	0	170
Additional paid-in-capital	20,000	10,000	21,430	24,279
Accumulated other comp. and NC Interest	0	0	0	0
Other				
Total Cash Flow	2,122	(16,161)	\$1,279	15,890

Source: Litchfield Hills Research LLC

Disclosures:

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Cyngn Inc.

CYN-US - Buy \$10 PT

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