Terranet

Mangold Insight – Commissioned research - Update 20 September 2021

Forward at a faster rate

Terranet, which develops technology for advanced driver support and self-driving vehicles, is entering a new development phase with VoxelFlow. A prototype has been presented at the Startup Autobahn. This was well received and the company will now develop a new generation. The company has also broadened its network, which includes the technology company Nvidia, and an investment in holoride, an AI technology start-up company from Germany. Mangold believes that more collaborations can be realised in line with increased knowledge of VoxelFlow.

New team takes shape

In order to be able to develop VoxelFlow into a product, Terranet needs to strengthen its team. The company has recruited Nihat Kücük as Product Manager. He has experience from software companies with a start-up character, focused on the automotive industry. He also has experience of VoxelFlow from his time at Mercedes-Benz where he worked on the innovation of sensors for navigation systems. Mangold expects further recruitments to follow.

High sector activity - buy the stock

Mangold reiterates its Buy Recommendation for the stock. Estimates from previous updates remain unchanged. One change is that more shares will be added after the offer to exercise subscription warrants. Mangold is setting a new target price of SEK 4.40, an updside over 150 percent for the stock. Activity in the sector is high, which Mangold sees as positive. This provides Terranet with good opportunities to find new partners.

Information

Rec. price/Price target	Buy 4.40
Risk	High
Price (SEK)	1.70
Market value (MSEK)*	448
No. of shares (million)**	328
Free float	77%
Ticker	TERRNT B
Next report	19 Nov 2021
Website	terranet.se
Analyst	Jan Glevén

**Incl. dilution of shares

* not diluted

Ownership structure

Ownership structure	Shares	Capital
Maida Vale Capital	44 446 035	16.8%
Avanza Pension	19 865 637	7.5%
Fredrik Olsson	8 125 000	3.1%
Oliver Aleksov	8 117 394	3.1%
Knutsson Holdings	7 933 328	3.0%
Nordnet Pension	4 023 494	1.5%
Maths Hultbom	2 425 905	0.9%
Percy Nilsson	1 881 122	0.7%
Total	264 913 256	100.0%

Price performance %	1m	3m	12m
TERRNT	-8,1	-11,9	61,2
OMXSPI	-2,4	4,4	30,6

Key ratios (MSEK)	2020	2021P	2022P	2023P	2024P
Sales (TSEK)	3 871	4 000	4 000	4 000	62 586
EBIT (TSEK)	-31 662	-33 131	-37 712	-41 638	-31 060
Profit before tax (TSEK)	-18 604	-16 543	-21 370	-21 369	-21 368
EPS, adjusted (SEK)	-0.06	-0.05	-0.07	-0.07	-0.07
EV/Sales	nm	nm	nm	nm	nm
EV/EBITDA	neg	neg	neg	neg	neg
EV/EBIT	neg	neg	neg	neg	neg
P/E	neg	neg	neg	neg	neg

Terranet - Investment case

Winning technology on Radar

Mangold reiterates its Buy Recommendation for Terranet with a price target of 4.40 SEK over a 12 month period. Terranet is developing a new technology, VoxelFlow, for advanced driver assistance systems in vehicles that will complement Radar and Lidar.

Price target of 4.40 SEK - the upside, over 150 percent

Business deals and collabroration a probable route

Terranet is in an early development phase but has already managed to attract heavyweights, such as the German vehicle manufacturer Mercedes -Benz. Mangold observes good opportunities for Terranet to attract more partners in the future and sees acquisitions as a likely scenario. Major players in autonomous vehicles are looking for technology for Lidar and Radar, whose technology has limitations which VoxelFlow can complement. Some subcontractors choose to develop new Lidar technology themselves, or buy up start-up companies with the latest technology. This creates opportunities for new players such as Terranet, as there is still room for improvement in driver assistance systems for vehicles.

Collaboration with Mercedes-Benz carries considerable weight

Competitive technology

Voxelfow technology offers several advantages in comparison with existing technologies, such as Radar and Lidar. It is both cheaper and easier to integrate into vehicles. The image quality for VoxelFlow is sharper, and the technology's ability to work in bad weather conditions is significantly better than the existing options. The speed of classifying and tracking objects is its most unique attribute. The technology is intended as a standard in vehicles which can be complemented with both Lidar and Radar.

VoxelFlow technology - complements Radar and Lidar

Attractive market

Mangold's opinion is that the market for cameras and imaging systems for vehicles is growing, and is a very lucrative market. The goal for Terranet is that VoxelFlow will complement both Radar and Lidar. We believe that this will receive a lot of attention and provides opportunities for both agreements and collaborations with players in the automotive industry. Mangold's view is that Terranet can become part of a business deal and see a number of potential collaboration partners (see initial analysis). Such a deal is likely to increase the company's value.

Growing market

Active players in the sector... ....high business probability

Terranet – Update

Forward at a faster rate

Terranet, which is developing VoxelFlow, safety technology used as collision warning for advanced driver support and self-driving vehicles, is entering a new development phase. A new generation of VoxelFlow will be developed with better performance and a wider range of applications. Within the vehicle branch, the company intends to develop technology for cars, however electric scooters, e-bikes and motorcycles may also become relevant. The company is concentrated to Lund and Stuttgart: Stuttgart has a larg automotive industry, with companies such as Daimler, Porsche and Bosch. In Lund, the company has its base for the CEO and the organisation.

VoxelFlow will be developed to have wider area of use

Building a new team - new Product Manager from Daimler

In the coming year, VoxelFlow will be transformed from a prototype to a product. The company has proof of concept for VoxelFlow, but in order for the automotive industry to choose to use VoxelFlow, a developed product is needed. The company intends to build a larger team around VoxelFlow with good know-how within AD/ADAS to be able to implement this. An important step in the company's development has been to recruit Nihat Kücük as a product developer. He has extensive experience of software in cars and has previously worked at the vehicle manufacturer Daimler, which includes Mercedes-Benz. He has completed projects in software, AI and Cloud solutions in various start-up companies. During his time at Daimler, he mainly developed navigation software. Nihat Kücük has collaborated with Terranet for some time, concerning VoxelFlow in Mercedes Benz. He has now chosen to take the step to work fully with Terranet.

Early product development phase

Nihat Kücük from Daimler becomes Product Manager

New generation of VoxelFlow

The new generation VoxelFlow is to be updated to work even better in the urban environment, where speed, traffic intensity, and accident statistics over time are important data for the design of the technology. VoxelFlow will be deployed in an ecosystem for autonomous cars with cloud solutions and AI. VoxelFlow will be able to detect, classify and position objects early.

VoxelFlow to obtain better performance

In less than 20 milliseconds, Terranet's technology can detect an object, which can be compared with traditional technology at 300 milliseconds, corresponding to 5-6 metres in distance compared to 6 centimetres. Terranet intends to reduce the reaction time to 3 milliseconds. A faster braking reaction will help reduce traffic accidents.

Shorter braking reaction will result in fewer traffic accidents

The new generation VoxelFlow will consist of a better camera and more lasers with a longer range. The product also needs to be integrated into an IT platform. Where this is concerned, Terranet has yet to find good solutions. One aid along the way is that Terranet has been admitted to Nvidia's accelerator programme, which provides the company a better opportunity to get in touch with companies that develop integrated IT solutions for autonomous cars. In addition to graphics cards and other semiconductor components, the American technology company Nvidia also develops technology for self-driving cars with AI.

Closer to Nvidia

Terranet – Update cont.

Further collaborations

Collaborations with established players in autonomous vehicles are required in order for Terranet to succeed with its technology. To attract these, events such as the Startup Autobahn are a good showcase. Terranet has demonstrated a prototype for Mercedes-Benz at this event, and also received an invitation to participate at the next occasion and show an improved version of VoxelFlow.

VoxelFlow demonstrated at Startup Autobahn

Another form of collaboration is the investment in the German start-up company holoride, which supplies technology within VR/AR (virtual reality). It is a spin-off company from Audi. The two companies intend to benefit from each other's technology. Holoride's technology can transmit the car's position, surroundings and direction of travel to VR. Terranet has to date received a small customer order from holoride.

Investment in holoride can bear fruit

Audi, Schell Games, and two Asian players were also included in this funding round. Terranet has invested 11 per cent in this company, which corresponds to MEUR 3.2.

Activity high in the field

Terranet is expected to find a collaboration partner that can contribute knowledge and that complements their own technology. We have seen examples of this previously in the automotive industry. Most recently when Veoneer, formerly part of Autoliv, seems to be acquired after the semiconductor company Qualcomm placed a competing bid of $4.6 billion for Veoneer. The Canadian automotive subcontractor Magna had previously placed a bid for the company.

Qualcomm and Magna wants Veoneer

VoxelFlow can complement

A collaboration partner for Terranet with complementary laser technology can become a reality within a few years. Laser technology, such as Lidar (laser-based Radar), is good at longer distances but is limited at short distances, which is where VoxelFlow can complement. Luminar Tech could be a possible collaboration partner. This company has, among others, a collaboration with Volvo Cars.

Luminar Tech - possible partner

Examples of other Lidar companies include Ouster, Velodyne Lidar, and Aaeva Technologies. Innoviz from Israel, which intends to mass-produce Lidar, has collaborations with subcontractors Magna, Appsiv, Harman (acquired by Samsung Electronics) and Chinese Hirain Technologies. The Lidar company AEye from Ireland was recently listed on Nasdaq with a stock market value of $1.5 billion.

AEye - a new Lidar company listed

Terranet – Financing & Valuation

Financing

For Terranet, it could be said that a higher gear is what is needed in order to produce the next prototype. The company has no income that can cover its development costs and so needs capital. Terranet carried out a new share issue in 2020, which also included subscription warrants in three series. Subscription for the third series, TO3, provide the company with MSEK 40. In conjunction with its half-year report, the company had MSEK 47 in cash. During the first half of the year, Terranet made a loss of almost MSEK 20. In an authorisation, the Board of Directors has decided on a new issue of subscription warrants of two series, series TO4 B and TO5 B, for financing the acquisition of shares in holoride. Through these subscription warrants, Terranet can be provided with an additional MSEK 50 for each series (a total of MSEK 100) at the end of the first quarter of 2022. We believe that financing for continued operations thereby is secured for 2022.

Subscription warrants programme - secures financing

Valuation

Mangold introduced new estiamtes for Terranet in the previous up-date from March 2021 (see previous analysis for details). These were based on the number of cars and trucks that can be equipped with VoxelFlow technology as a part of the Radar and Lidar market. These fore-casts have since been used in our DCF model to obtain a justified value for the company. As the uncertainty can be described as great, we have used a discount rate of 16 percent. Mangold has chosen to take future dilution of shares into account.

Fair value demonstrates upside in the stock

TERRANET - DCF

(TSEK)	2021P	2022P	2023P	2024P	2025P	2026P	2027P...	2030P	
EBIT	-39 765	-52 711	-60 674	-53 757	-24 555	25 747	89 992	717 762	
Free cash flow	-40 372	-98 537	-97 270	-85 118	-7 310	35 304	94 836	257 549	
Terminal value									4 724 998

Assumptions	Disc. rate	Growth	Tax
	16%	3%	22%

Fair value

Enterprise value	1 427 749
Equity value	1 457 468
Price target per share	4.40

Source: Mangold Insight

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Terranet – SWOT

Strengths

- Product with unique technology

- Attractive price compared to competitors

- Founder of VoxelFlow part of the company

Weaknesses

- Balance sheet
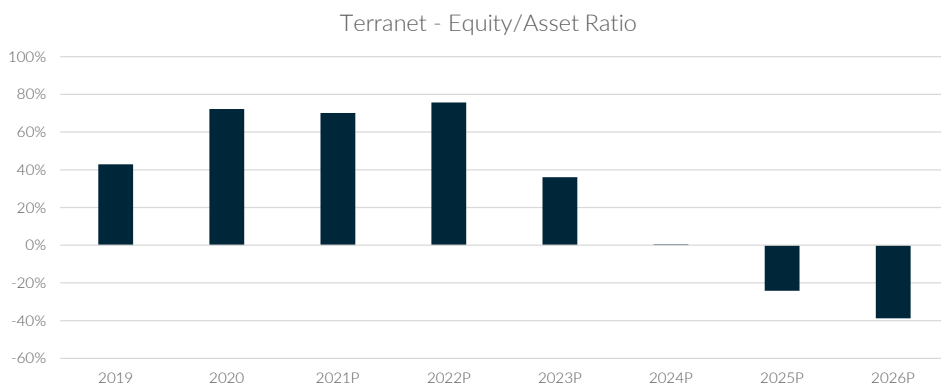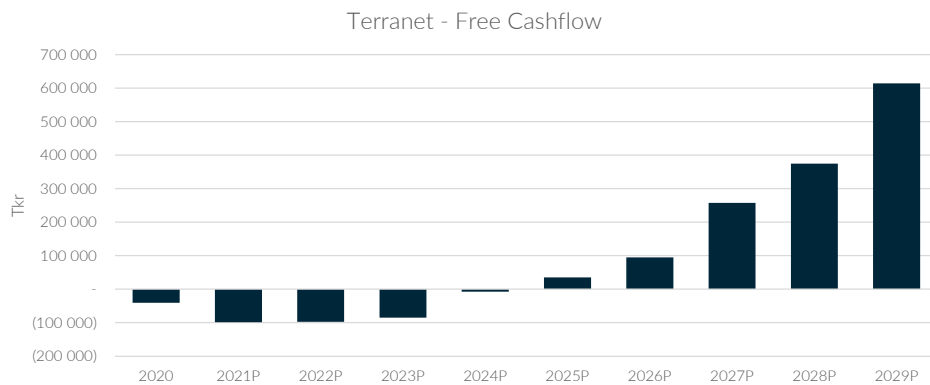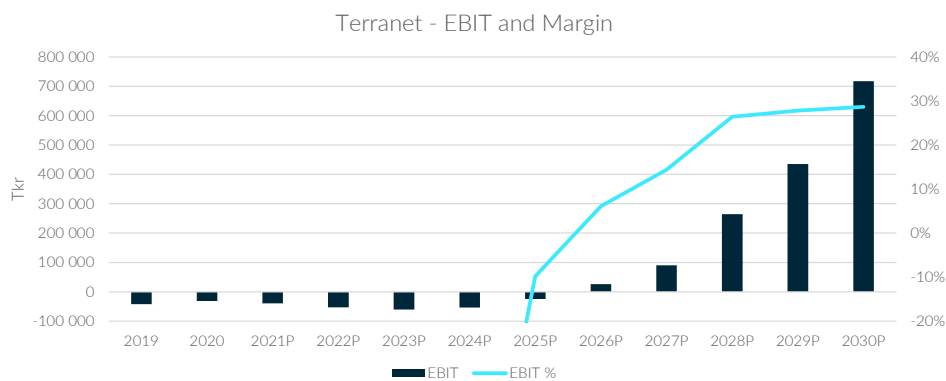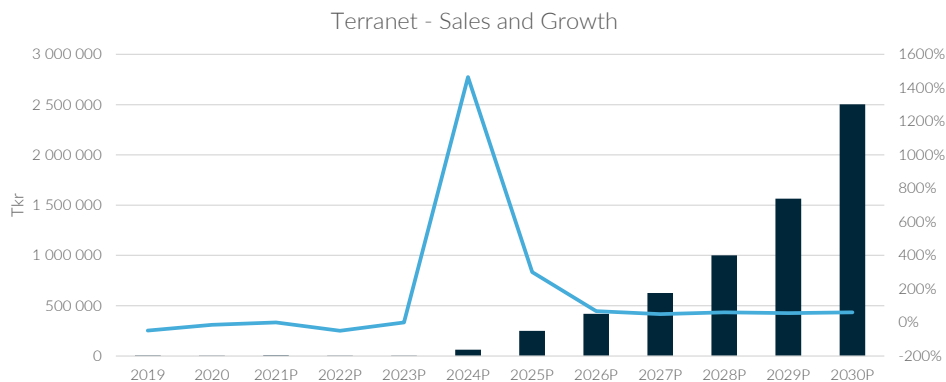
- Dependent on key people

SWOT

Opportunities

- Need for new technology

- Changed mentality around accidents, zero tolerance

- Collaborations with OEMs and Tier1 companies

Threats

- The Lidar technique is being developed

- Vehicle manufacturers develop their own technology

Terranet – Appendix

Terranet - Sales and Growth

Terranet - EBIT and Margin

Terranet - Free Cashflow

Terranet - Equity/Asset Ratio

Terranet – Income statement & balance sheet

Income statement	2019	2020	2021P	2022P	2023P	2024P	2025P
Sales	4 510	3 871	8 000	4 000	4 000	62 586	250 342
Costs for goods sold	0	0	0	0	0	-46 939	-162 723
Gross profit	4 510	3 871	8 000	4 000	4 000	15 646	87 620
Gross margin	100.0%	100.0%	100.0%	100.0%	100.0%	25.0%	35.0%
Personnel costs	-16 555	-11 853	-14 400	-16 800	-19 200	-19 200	-21 600
Other operating expenses	-20 469	-20 544	-32 000	-32 000	-32 000	-32 000	-75 103
Depreciation	-9 680	-3 136	-1 365	-7 911	-13 474	-18 203	-15 472
Operating result	-42 194	-31 662	-39 765	-52 711	-60 674	-53 757	-24 555
Net interest income	-4 482	-3 231	-2 660	-8 960	-9 955	-29 955	-33 955
Profit after net financial items	-46 676	-34 893	-42 425	-61 670	-70 629	-83 712	-58 511
Taxes	0	0	0	0	0	0	0
Net profit	-46 676	-34 893	-42 425	-61 670	-70 629	-83 712	-58 511

Balance sheet	2019	2020	2021P	2022P	2023P	2024P	2024P
Assets							
Cash & bank balances	11 569	44 495	112 043	113 776	111 786	65 320	116 366
Accounts receivable	1 050	897	986	493	329	5 144	20 576
Stock	0	0	0	0	0	3 858	13 374
Other assets	1 224	730	730	730	730	730	730
Fixed assets	12 511	14 670	52 738	89 827	121 353	103 150	87 677
Total assets	**26 354**	**60 792**	**166 497**	**204 827**	**234 197**	**178 202**	**238 724**
Liabilities							
Accounts payable	2 787	2 103	0	0	0	7 716	26 749
Liabilities	12 264	14 776	49 776	49 776	149 776	169 776	269 776
Total liabilities	15 051	16 879	49 776	49 776	149 776	177 492	296 525
Equity							
Restricted equity	50 503	78 802	199 602	299 602	299 602	299 602	299 602
Unrestricted equity	-39 200	-34 889	-82 881	-144 551	-215 181	-298 892	-357 403
Total equity	11 303	43 913	116 721	155 051	84 421	710	-57 801
Total liabilities & equity	**26 354**	**60 792**	**166 497**	**204 827**	**234 197**	**178 202**	**238 724**

Source: Mangold Insight

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