



## Sensing strong growth

Sensera Limited (ASX:SE1) is an ASX-listed technology company with two distinct revenue pillars; Micro Devices (Micro Electro Mechanical Systems or MEMS) and location-aware wireless networked sensors and systems that comprise solutions for the Internet of Things (IoT).

### Clients' product roll out is driving growth of MEMS

Rapidly advancing MEMS technology facilitates usage of MEMS devices across Industrial and Medical industries, in products such as pressure sensors, organ-on-a-chip (OoC) and electro-optic devices. The global microfluidics market alone is predicted to grow at an 8-year CAGR of 18.7% to US\$23.4bn in 2025. As OEM customers ramp up production, SE1 should be able to grow on the back of their commercial success.

### Increasing recurring revenues to drive Nanotron's growth

SE1's is shifting towards becoming a systems provider rather than just a component supplier. This is changing its revenue model and customers will be charged a recurring monthly fee rather than a one-time licencing fee and product sales. The share of recurring revenue is expected to be in the range of 5% to 10% by the end of FY2020 and is anticipated to reach >50% over the next 3–5 years. We believe a higher share of recurring revenue should lead to better predictability of revenues, and hence a higher valuation of the shares.

### Valuation range of A\$0.50–0.58 per share

We believe that as the company scales up operations and production, cuts back on R&D expenses and moves towards a recurring revenue stream, margins should expand significantly. Our DCF-based valuation projects an intrinsic value of A\$0.50–0.58 per share.

Year to June (USD)	2017A	2018A	2019f	2020f	2021f
Sales (m)	1.2	6.4	10.9	16.1	21.1
EBITDA (m)	-5.3	-6.6	-6.4	0.3	2.7
Net Profit (m)	-5.3	-6.8	-6.8	-0.7	2.4
EBITDA Margin	NM	NM	-58.2%	2.1%	12.6%
Net Margin	NM	NM	-62.5%	-4.1%	11.2%
ROA (%)	-69.6%	-45.9%	-3.8%	10.8%	19.7%
EPS	-5.67c	-4.51c	-2.81c	-0.24c	0.86c
EV/Sales	4.5x	4.1x	2.0x	1.3x	0.9x
EV/EBITDA	-1.0x	-4.0x	-3.4x	64.3x	6.8x
P/E	NA	NA	NA	NA	8.9x

Source: Company, Pitt Street Research

Share Price: A\$0.11

ASX: SE1

Sector: Semiconductors and Semiconductor

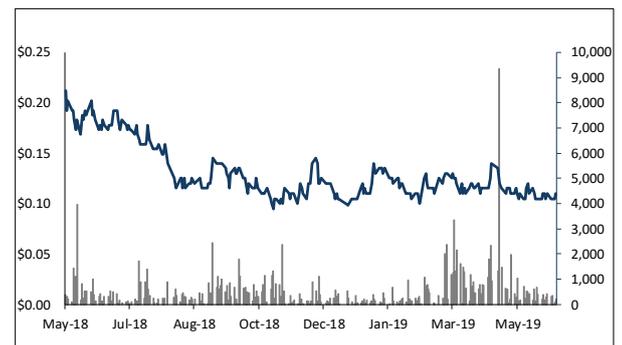
Equipment

11 June 2019

Market Cap. (A\$ m)	30.0
# shares outstanding (m)	272.8
# share fully diluted	281.3
Market Cap Ful. Dil. (A\$ m)	30.9
Free Float	88.5%
12 months high/low (A\$)	0.23 / 0.10
Website	<a href="http://www.sensera.com">www.sensera.com</a>

Source: Company, Pitt Street Research

### Share price (A\$) and avg. daily volume (k, r.h.s.)



Source: Thomson, Pitt Street Research

Valuation metrics	
Fair valuation (A\$)	0.50-0.58
WACC	9.6%
Assumed terminal growth rate	2.0%

Source: Pitt Street Research

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Profit & Loss (US\$m)	2017A	2018A	2019F	2020F	2021F	2022F	2023F
<b>Sales Revenue</b>	<b>1.2</b>	<b>6.4</b>	<b>10.9</b>	<b>16.1</b>	<b>21.1</b>	<b>26.0</b>	<b>31.2</b>
Operating expenses	-5.0	-9.9	-12.2	-8.9	-9.6	-10.0	-10.7
<b>Adjusted EBITDA</b>	<b>-5.3</b>	<b>-6.6</b>	<b>-6.4</b>	<b>0.3</b>	<b>2.7</b>	<b>5.2</b>	<b>7.6</b>
Depn & Amort	-0.1	-0.3	-0.1	-0.2	-0.5	-0.8	-0.9
<b>Adjusted EBIT</b>	<b>-5.3</b>	<b>-6.9</b>	<b>-6.4</b>	<b>0.1</b>	<b>2.2</b>	<b>4.4</b>	<b>6.7</b>
Net Interest	0.0	0.0	-0.4	-0.8	-0.3	0.0	0.0
<b>Profit before tax (bef. Exc.)</b>	<b>-5.3</b>	<b>-6.8</b>	<b>-6.8</b>	<b>-0.7</b>	<b>2.0</b>	<b>4.5</b>	<b>8.4</b>
Tax expense	0.0	0.0	0.0	0.0	0.4	1.2	1.9
<b>NPAT</b>	<b>-5.3</b>	<b>-6.8</b>	<b>-6.8</b>	<b>-0.7</b>	<b>2.4</b>	<b>5.7</b>	<b>8.6</b>
Cash Flow (US\$m)	2017A	2018A	2019F	2020F	2021F	2022F	2023F
Profit after tax	-5.3	-6.8	-6.8	-0.7	2.4	5.7	8.6
Depreciation	-0.1	-0.3	-0.1	-0.2	-0.5	-0.8	-0.9
Change in trade and other rec.	0.2	-0.9	-0.8	-0.4	-0.5	-0.6	-0.6
Change in trade payables	0.1	-3.2	2.5	0.0	-0.2	-0.2	-0.1
Other operating activities	0.6	5.0	-2.3	2.4	3.3	2.4	0.9
<b>Operating cashflow</b>	<b>-4.5</b>	<b>-6.1</b>	<b>-7.5</b>	<b>1.2</b>	<b>4.5</b>	<b>6.6</b>	<b>7.9</b>
Capex (- asset sales)	-0.9	-1.3	-0.9	-1.6	-1.9	-2.4	-5.6
Other investing activities	0.0	-3.1	0.0	0.0	0.0	0.0	0.0
<b>Investing cashflow</b>	<b>-0.9</b>	<b>-4.4</b>	<b>-0.9</b>	<b>-1.6</b>	<b>-1.9</b>	<b>-2.4</b>	<b>-5.6</b>
Equity raised (repurchased)	9.9	8.9	8.5	0.0	0.0	0.0	0.0
Other financing activities	-0.8	-0.6	-0.4	0.0	0.0	0.0	0.0
Net change in cash	3.7	-2.1	-0.2	-0.4	2.6	4.2	2.2
Cash at End Period	4.0	2.0	1.8	1.4	4.0	8.2	10.4
Net Debt (Cash)	-4.0	-2.0	1.2	0.7	-4.0	-8.2	-10.4
Balance Sheet (US\$m)	2017A	2018A	2019F	2020F	2021F	2022F	2023F
Cash	4.0	2.0	1.8	1.4	4.0	8.2	10.4
Total Assets	5.4	14.0	15.7	18.6	24.8	33.1	42.6
Total Debt	0.0	0.0	3.1	2.1	0.0	0.0	0.0
Total Liabilities	0.4	5.7	6.4	5.4	3.5	3.8	3.9
Shareholders' Funds	5.0	8.3	9.3	13.2	21.3	29.3	38.7
Ratios	2017A	2018A	2019F	2020F	2021F	2022F	2023F
Net Debt/Equity (%)	-80.8%	-24.4%	13.5%	4.9%	-18.8%	-27.9%	-26.9%
Interest Cover (x)	NM	NM	14.4	0.2	7.5	NM	NM
Return on Equity (%)	NM	NM	NM	NM	13.6%	22.6%	25.3%



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## Key reasons to look at Sensera

- 1) SE1's MEMS customers are starting to significantly ramp up production, especially in the Medical Devices space. The company should be able to significantly increase revenues on the back of its customers' revenue growth in the next few years.
- 2) SE1's Nanotron unit (IOT Systems) is strategically shifting from being a component supplier to becoming a systems supplier, charging monthly recurring fees rather than one-off upfront fees. This should result in a higher share of recurring revenues, leading to greater predictability of revenues. The recurring fee structure is expected to grow from the current 5 - 10% of revenue to >50% in 3-5 years' time.
- 3) The strong R&D backing available to SE1, as a result of its partnerships with prestigious institutes such as Harvard University and MIT, enables the company to keep pace with innovations in this fast-paced technology segment despite its relatively small size.
- 4) As SE1's MEMS unit is often involved in a customer's product design straight from the start, its relationship with these customers is expected to remain robust and non-detachable during the lifetime of the product. This is expected to result in high client retention.
- 5) SE1 is exploring new applications for its sensor technology, such as gas sensors used for animal health, mining safety and to monitor food wastage. Big players, such as Ahold and Walmart, are working in this field, which can provide SE1 an opportunity to expand its scope of business.
- 6) The strong ramp up in revenues from MEMS and Nanotron, combined with the expected cash flow positive nature of the operations from FY20 onwards, lead us to believe SE1 is substantially undervalued at the company's current share price.



*MEMS are used in a wide variety of applications*

## MEMS for Microfluidic devices driving growth

MEMS are micro devices that consist of miniaturized mechanical and electro-mechanical components and can be used to measure a wide range of different variables, such as pressure, vibration, acceleration, angles of inclination, temperatures etc., and set off a signal to another system in response to that measurement (Figure 1).

For instance, in crash sensing in cars, MEMS can sense a fast deceleration of a car and send off a response to the airbag in order for it to deploy if that deceleration is deemed to be too fast and can be associated with a crash of the car.

Figure 1: MEMS sensor



Source: Sensera

*MEMS have become very sophisticated and are increasingly used at the cutting edge of medical technology*

## Countless application areas for MEMS

Application areas for MEMS are plentiful. Just in Automotive, MEMS are used for things like crash sensing, seat belt tension, suspension control, vehicle roll, brake pressure, in-car microphones, tire pressure, fuel injection systems etc.

In Medical System, MEMS are mostly used in pressure sensors, such as for coronary pressure measurements and blood pressure. But MEMS have also increasingly found their way into other devices, such as micro pumps, and measurement tools, e.g. to measure glucose levels, enzymes and antibodies.

Additionally, MEMS have enabled Medical Devices to become more sophisticated over time. For instance, MEMS-based pacemakers and defibrillators can adjust their electrical shocks to a patient's activity level, rather than being set to just one heart rate, regardless of activity level, which was the case with older pacemakers.

SE1 is currently developing Organ-on-a-Chip and Lab-on-a-Chip types of MEMS that can replicate the functioning of a human organ and perform diagnostics functions respectively. The company also develops other fluidic sensors for products such as heart pumps and nebulizers.

Optical MEMS are widely used in opto-electronics, such as optical switches and micro mirrors used in fibre optic systems and optical shutters as well as laser scanners. Many Consumer Electronics products make use of MEMS as well, such as accelerometers and gyroscopes used in mobile phones.

## Microfluidics is a highly attractive niche for SE1

The advent of MEMS structures has catapulted the practical usage of microfluidics devices. Microfluidics, the process of manipulating fluids at a micron level, is one of the major beneficiaries of the rapid development of



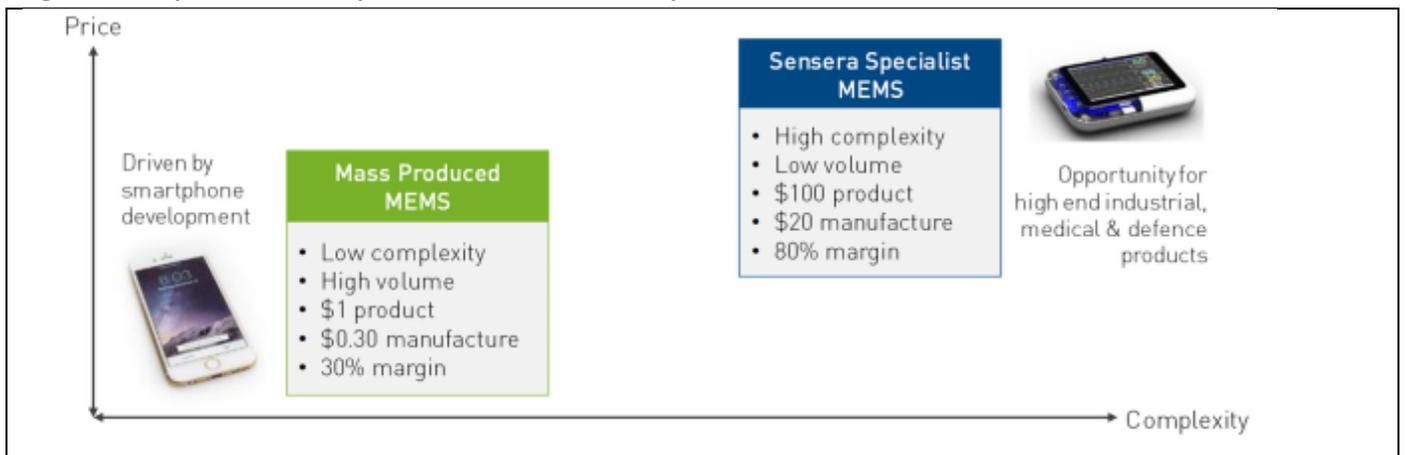
**Microfluidics expertise provides a tremendous revenue opportunity**

MEMS technology. SE1 has leveraged this technology in bringing custom devices from concept to market.

The combination of MEMS and microfluidics enables execution of processes on a micro scale in a much more cost and time effective manner when compared to today’s methods. This enables applications in various high-margin verticals within healthcare, including in-vitro diagnostics, pharmaceutical research, drug delivery and laboratory testing (Figure 2). As per a report by Data Bridge Market Research, the global microfluidics market is predicted to grow at a CAGR of 18.7% to US\$23.4bn in 2025 (from US\$5.9bn in 2017). SE1, through its growing expertise in unique microfluidic-based MEMS structures, is expected to grow substantially in this segment.

The lucrative business opportunity has attracted many large industry players, such as STMicroelectronics, Knowles, InvenSense and Bosch, to this niche market. In our opinion, medical and industrial applications of MEMS, coupled with the customisable nature of solutions offered, should bring SE1 more market opportunities.

**Figure 2: Comparison of mass-produced MEMS and SE1’s specialised MEMS**



Source: Company

### Partnership with Harvard University to unlock significant technological potential

SE1 recently announced a vital customer–partner engagement with Harvard University’s Wyss Institute for Biologically Inspired Engineering. The partnership entails development of microfluidic devices with applications in the high-growth precision medical technology market. As per a recent intelligence report by BIS Research, the market for precision medical technology is projected to grow at a CAGR of 10.64% in the 10 years from 2018, reaching a market size of US\$216.8bn by 2028.

Through this partnership, SE1 is expected to enhance its capability in the fabrication of silicon as well as glass-based micro-molds that are used in various applications, including Organ-on-a-Chip and Lab-on-a-Chip. These chips essentially mimic the process of the movement of fluids in an organ, thereby opening up numerous possibilities and use cases, including drug development and toxicity testing, while simultaneously eliminating the need for testing of products on animals.

**Partnership with Harvard University has paved the way for SE1 to engage with a wider customer base**



*OoC market has two product segments – single organ systems and multi-organ platforms.*

*SE1 operates in the single-organ segment and provides offerings such as Liver-on-a-Chip, Lung-on-a-Chip and Heart-on-a-Chip*

*LoC's have many advantages leading to time and cost savings*

### **Organ-on-a-Chip (OoC): Next big thing in drug development**

Due to their ability to reconstitute the architecture of an organ at a micro-level, OoC's are highly viable for conducting drug tests that cannot be performed on animals or human patients. The biggest advantage of OoC is the high precision level of the shape and surface pattern of the organ that allows for controlled microfluidic flow on the chip's surface. Moreover, the OoC's ability to control the microenvironment and provide high-resolution optical access, along with real-time data collection through biosensors, makes it more efficient than traditional models for drug development and toxicity testing.

The OoC industry is still at a nascent stage, but many large companies (such as AstraZeneca and J&J) are entering the domain to leverage the multitude of opportunities that OoC's present in the areas of pharmaceutical, cosmetics and biotechnology. As per a recent research by Market Study Report LLC, the global OoC market is expected to grow at a CAGR of 39.9%, from US\$21m in 2018 to US\$220m in 2025, driven by the substantial cost-saving potential of OoC's in the drug development process by reducing the gap between preclinical and clinical studies.

For smaller companies such as SE1 to remain relevant in this competitive but highly lucrative market, they need to offer a unique quotient and value-add to the end products. Through its MEMS structures, SE1 can stay ahead of the competition and can leverage it to gain a strong client base. Consequently, we view SE1's partnership with Wyss Institute as vital for the company's growth in this segment – positioning it to benefit from strong collaborations with pharmaceutical giants such as AstraZeneca, Roche, Takeda and Merck, powered by the R&D capabilities of Harvard University, and ably supported by its MEMS expertise.

### **Lab-on-a-Chip (LoC): Next-generation diagnostic test methodology**

Like OoC, LoC is a microfluidic device that allows for diagnostic tests that are generally performed in a lab setting to be executed on a micro-scale by monitoring and controlling fluids through millions of micro channels designed on a single chip. As the tests are carried out on a micro-scale, they require significantly less quantity of the sample and reagents. This represents a huge advantage in terms of cost savings.

Moreover, as the tests are conducted in a controlled environment, i.e. inside the device, the time taken to execute them is considerably lower than the time it would take in an ordinary setting, such as a lab. E.g. diagnostic tests using LoC's can potentially be conducted in a GP's office, or even at home, rather than having to take a sample (e.g. blood) and sending that off to a lab.

It has also been observed that these tests provide a greater level of accuracy than the ones carried out in a traditional setting.

The global LoC market is expected to grow at a CAGR of 8.9% over 2017–2025 to US\$9.1bn. SE1 has the potential to capture a leading share in this growing market segment.

### **Deteriorating global health drives the need for faster diagnostic techniques**

According to World Health Organization (WHO) data, every year, ~41m people die of non-communicable diseases (NCDs), accounting for 71% of global deaths. The increasing prevalence of these diseases is a result of the



*As people become more tech-savvy and conscious about physical well-being, PoC devices that allow for home-based testing of common medical ailments such as diabetes are bound to see a rise in demand*

changing lifestyles of people, which includes physical inactivity, excessive use of tobacco and alcohol, as well as unhealthy diets. As people become more prone to NCDs, such as diabetes, cardiovascular diseases, cancers and chronic respiratory ailments, the need for faster diagnostic techniques increases. Moreover, in case of most diseases, early detection is literally a matter of life and death, and this is where point-of-care (PoC) devices come into play.

PoC devices dramatically reduce the time it takes for healthcare professionals and patients to receive test results compared to the time taken to perform the test in a laboratory setting. This can result in faster diagnosis as well as deployment of befitting treatment. Moreover, PoC devices allow for the tests to be carried out in a multitude of settings, from hospital wards to physicians' offices.

Notably, as per the Global PoC Diagnostics Market report by Data Bridge Market Research, the PoC testing market is expected to grow at a CAGR of 9.1% from US\$5.6bn in 2018 to US\$17.2bn by 2026. We believe that with SE1's new PoC MEMS devices, developed in partnership with Wyss Institute, with capabilities for detecting and measuring specific biomarkers for diagnostic purposes, the company has a strong footing in this high-growth vertical.

*LoC devices that leverage SE1's MEMS structures have the ability to detect diabetes, as well as carry out sensitive investigations pertaining to DNA, RNA and proteins.*

### **LoC devices should see strong ramp up**

SE1's newly introduced products in the LoC domain allow it to transition from simply being a designing partner to a customised component supplier for end products. Moreover, as these products are mostly for one-time use, we believe that they entail a huge potential for SE1 to ramp up revenues, and to meaningfully translate into top-line growth starting later in FY2020.

In the LoC devices supply chain, SE1 plays a prominent role by providing the technology needed for capturing the fluid. SE1 receives ~US\$25–50 per device, the total market price of which can be in the hundreds of dollars. Though the market value of these devices is on the higher end, in our view, the value that they unlock for end users – by allowing them to avoid going to a physician – compensates for the relatively high price. This mark-up also provides a buffer to the company, which can substantially reduce the price as it achieves economies of scale if competition intensifies.

### **IP protection secures SE1's position in the supply chain**

SE1 operates as a design partner for most of its customers, and thereby has the required funding for building MEMS structures. This exposes the company to threat of technology theft, but SE1's base technology, on which each MEMS structure is based, is well protected by patents<sup>1</sup>.

- 
- <sup>1</sup> • Symmetrical Multipath method for determining the distance between two transceivers, EPO number EP1815267.
  - Ranging diversity-reception method and receiver, EPO number EP2200384, US patent 9,019,159.
  - Method and System for multipath reduction for wireless synchronizing and/or locating, EPO number EP2525236, US patent application 20130021206
  - Surface wave transducer device and identification system with such a device, US patent number 6,788,204



### Foot in the door into mainstream pharmaceutical applications

Although the microfluidics industry is still in a nascent stage, with most companies in the early trial phases, SE1 has 5 to 6 clients operating in this space – some of which are looking to place orders in CY2020 as they begin deployments.

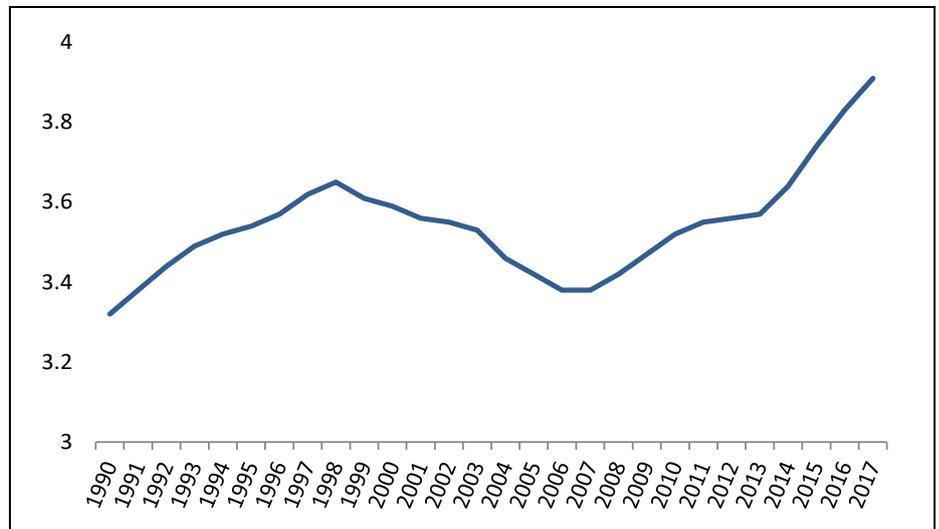
Some of these clients, who are medical OEMs, have big customers such as Roche and AstraZeneca to sell their products to, providing SE1 the opportunity to get a slice of this substantial pie.

However, it should be noted that these customers, typically based in the Boston area, mostly sign with SE1 on the basis of purchase orders rather than on a long-term contractual basis. Hence, in order to strengthen its pipeline, SE1 is looking at the US West Coast to on-board more clients.

### Nebulisers: Rising demand from growth in respiratory diseases

In the drug delivery space, SE1 has clients that engage in the production of nebulisers, a market that is set to witness growth in line with the rise in respiratory diseases (Figure 3) as the air quality continues to decline globally. SE1's MEMS-based microfluidic devices make for better nebulisers for respiratory diseases, including chronic obstructive pulmonary disease (COPD), asthma, tuberculosis and even lung cancer.

Figure 3: Global respiratory disease deaths (mn)

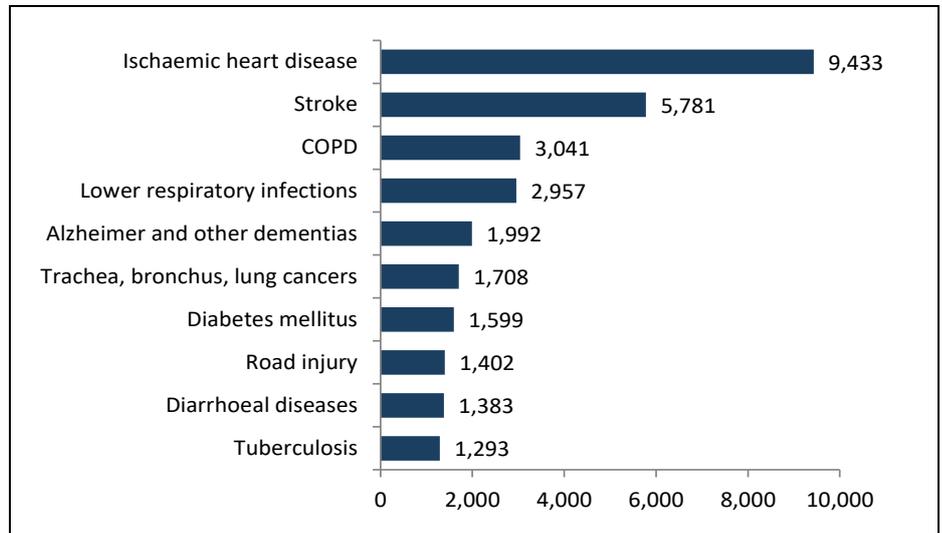


Source: Institute for Health Metrics and Evaluation, Pitt Street Research

According to the Global Health Observatory data released by WHO, respiratory diseases accounted for 3 of the top 10 causes of death in 2016, with COPD ranking 3<sup>rd</sup>, lower respiratory infections ranking 4<sup>th</sup>, and cancers of trachea, bronchus and lung ranking 6<sup>th</sup>. In 2016 alone, COPD was responsible for 3m deaths worldwide, making it the deadliest respiratory disease globally (Figure 4).



Figure 4: Global top 10 causes of death, 2016 ('000)



Source: World Health Organization, Pitt Street Research

Although COPD is not curable, available physical treatments can help alleviate stress as well as reduce symptoms, helping improve the quality of life of patients. One of the treatments available to patients is the administration of drugs through nebulisers, medical devices that relay the medicine to patients in the form of mist.

As per the 'Nebulizer Market 2019' report by Market Reports World, the global market size for nebulisers is expected to grow at a CAGR of 5.2% from US\$720m in 2019 to US\$980m in 2024.

We believe that with SE1's clients in the nebuliser space set to achieve full line production by FY2020, the company is well positioned to claim a piece of this growing industry.

### Micro Mirrors: Novel solution for autonomous vehicles

SE1 is also expanding into another applications area for MEMS – the micro mirrors domain, where it is specifically targeting the Autonomous Vehicle (AV) segment.

With the world rapidly moving towards self-driven cars, demand for optical sensors is set to increase significantly. As these vehicles are based on artificial intelligence (AI) systems, they require data about their immediate surroundings to be able to make decisions in real time. Earlier, it was believed that this functionality could be met by light detection and ranging (Lidar) sensors, used in all sorts of measurements today, mostly of static objects like large utility assets.

However, due to the bulky nature of these devices, their high prices and a resolution that is not high enough for use in AV's, it is hard for the automotive industry to use them as a viable option for mass deployment in future AV's. Micro mirrors (Figure 5) offer a viable alternative as their small scale, coupled with higher accuracy, make them a much more attractive option.



Figure 5: Digital Micro Mirror



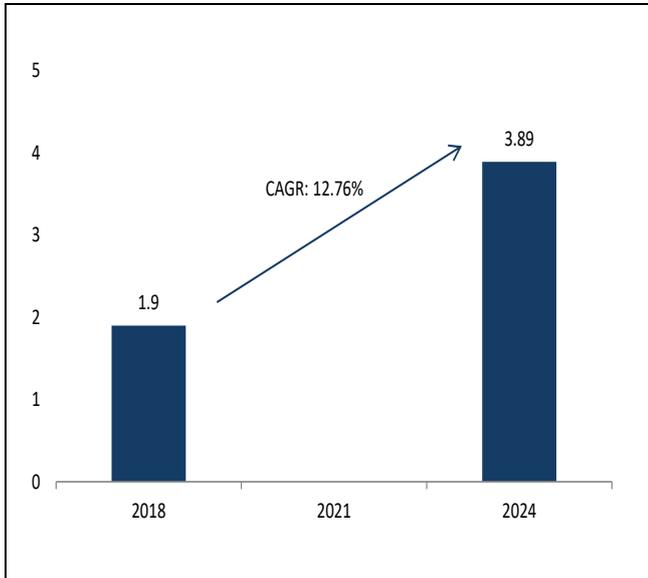
Source: Viewsonic

MEMS-based scanning mirrors have already been developed for space applications and robotics. The use of SE1's MEMS structures based on Lidar technology for AV's has the potential to significantly bring down the cost of Lidar system deployment in AV's. The Lidar system that the automotive manufacturers seek should have capabilities for collision avoidance, terrain mapping, as well as recognising pedestrians and objects. As per Mordor Intelligence, the global Lidar market is expected to grow at a CAGR of 12.8% (Figure 6), providing SE1 with a substantial addressable market.

Though the autonomous vehicle market is still at a very early stage, we believe SE1 can start to generate revenues from this segment from FY20–21, as most automotive OEMs are expected to scale up their advanced driver-assistance systems (ADAS) operations (Figure 7) by then, driven by the increasing deployment of autonomous driving capabilities in cars.

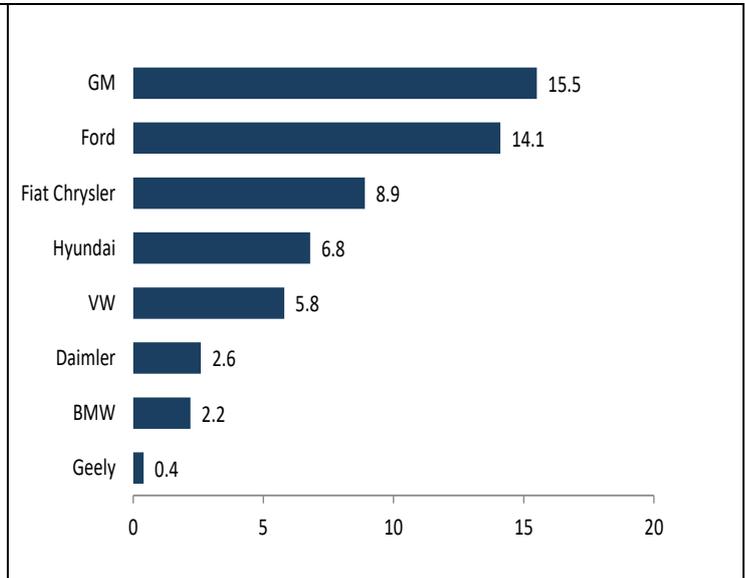


Figure 6: Lidar market growth (US\$ bn)



Source: Mordor Intelligence, Pitt Street Research

Figure 7: Global ADAS unit shipments in 2020, by OEM (m)



Source: Statista, Pitt Street Research

**Moving to full line production is expected to drive the top line for SE1’s Microdevices segment**

### Production ramp-up in FY2020, as customers start volume production

As part of the 3-year supply agreement with NASDAQ-listed medical implant devices manufacturer Abiomed Inc., signed in November 2017, SE1 expects to ramp up the production of its sensors to support Abiomed in transitioning to the manufacturing phase. SE1’s sensor forms a component in Abiomed’s Impella offering, the world’s smallest heart pump, allowing for device implantation without imaging for faster and more accurate positioning. Based on American Heart Association’s prediction that by 2035, ~45.1% of the US population will have some form of cardiovascular disease (CVD), demand for Abiomed’s product offerings is expected to grow exponentially.

Similarly, other clients are also entering into volume production phases with products that include SE1’s components, providing the company with scope for a massive production ramp-up of the MEMS business.

### Substantial growth prospects longer term

In our view, the company’s latest developments in the LoC and OoC domains provide it with substantial revenue opportunities in the medium to longer run. We are particularly excited about the multitude of potential functionalities that these solutions open up in the healthcare domain, especially in the space of medical implants.

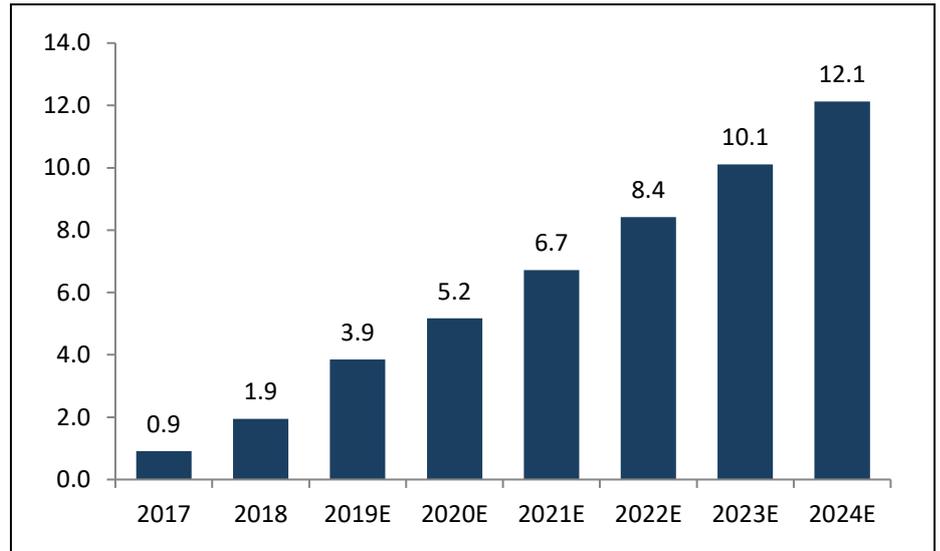
The strong R&D backing available to SE1, as a result of its partnerships with prestigious institutes, such as Harvard University and MIT, offers it the ability to stay abreast with, and even ahead of the innovations in this fast-paced technology segment. We believe that these relationships are crucial for companies such as SE1, whose competitive advantage lies in the customisability of their solutions.



SE1's current OEM partnerships provide it with an opportunity to tap into the addressable markets of pharmaceutical giants, such as AstraZeneca, J&J, Roche and Takeda.

On the back of these factors, we believe that the company's MEMS business is very well positioned. We expect this unit to grow at a CAGR of 25.9% from FY2019 through FY2024, to reach US\$12.1m in revenue (Figure 8).

**Figure 8: Microdevices top-line growth trajectory (US\$ M)**



Source: Pitt Street Research



### Nanotron: SE1 fast becoming a system supplier

In August 2017, SE1 expanded in the IoT vertical by acquiring Nanotron Technologies, a Germany-based provider of electronic location-aware solutions. Nanotron's technology allows real time location services (RTLS) tags to be triangulated, allowing enterprises to track and monitor essential, mission-critical assets. Typical applications include the tracking of people and equipment to avoid collisions in mines, livestock health and movement tracking in agriculture, and medical personnel and patient tracking in hospitals. The company has been referring to this group and business as IOT Systems.

For a technical description of Nanotron's technology please see appendix 1.

### SE1's mining solution is not restricted to components anymore

SE1's IoT-based solutions provide a safe working environment. The company's location-aware sensors allow mine operators to know the real-time location of miners as well as machinery operating underground, where light, air and temperatures are major concerns. With real-time information, companies are equipped to make informed business decisions regarding workflow, thereby optimising both operations and output (Figure 9).

Figure 9: SE1's mining safety application in action



Source: Company

Above ground, SE1's Collision Avoidance Solutions (CAS, see Figure 10) – which come equipped with SE1's proprietary nanoLOC transceiver chips – work with both Chirp- and UWB-based RF, making the CAS solutions highly scalable. These chips help mine operators track the proximity between both the worker and the vehicle, as well as between two vehicles. This empowers miners with the ability to prevent accidents while simultaneously preventing damage to material.



Figure 10: Personnel exclusion zones in mining enabled by Nanotron devices

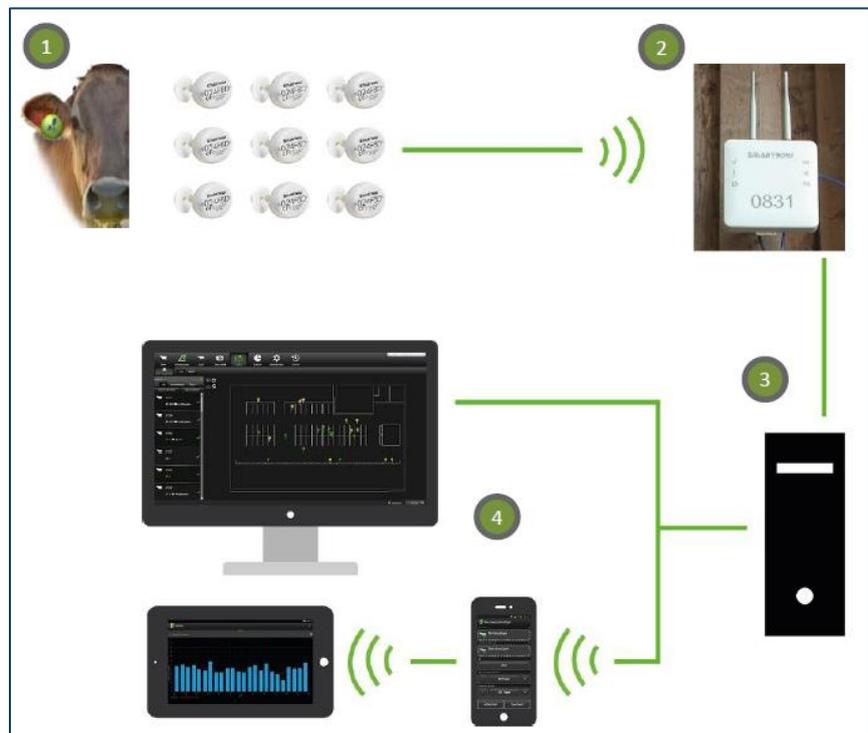


Source: Company

### Nanotron sensors enable data applications in the livestock healthcare segment

Building upon the standardised nature of behaviour patterns among animals, SE1's sensors are also able to gather data on livestock, which can be converted into accurate business insights (Figure 11). Through the use of ear tags deployed on farm animals, SE1's clients can easily get data on the vital signs and rumination patterns of each animal, enabling producers to make better herd-management decisions through the early detection of illness.

Figure 11: Typical Nanotron livestock setup on a farm



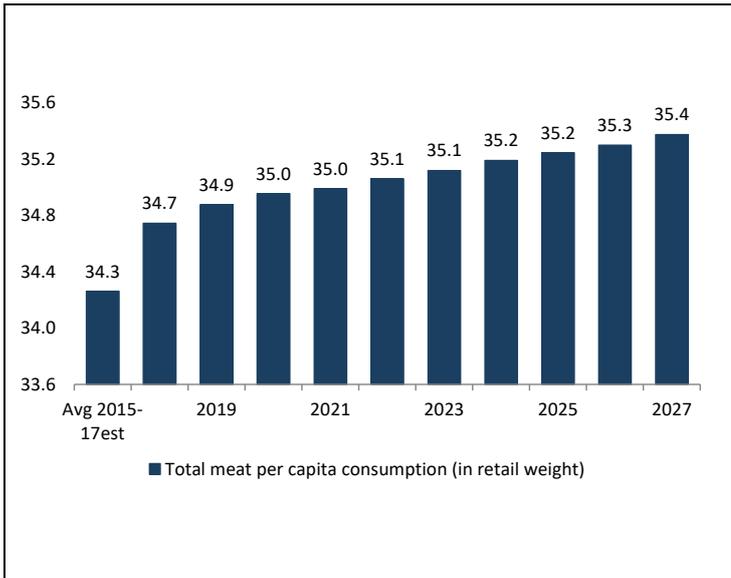
Source: Company, Pitt Street Research

Moreover, location-aware sensors on cattle also help farmers track their movements in real time, from a single site. The data generated through these



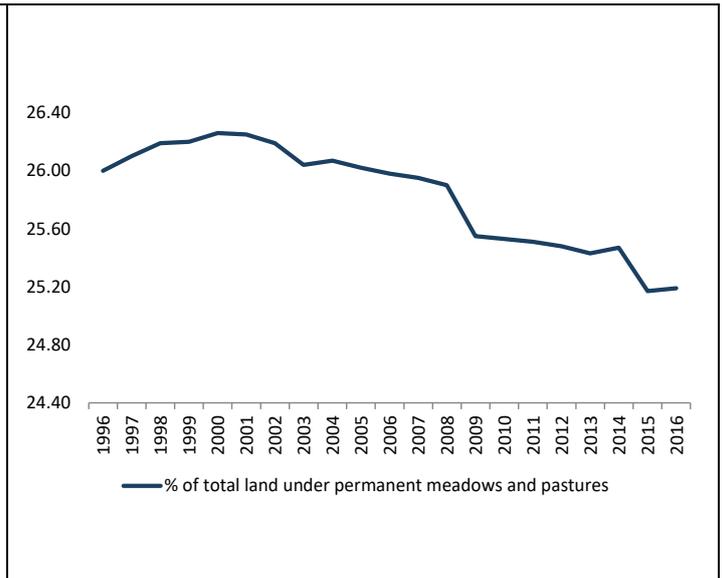
sensors, upon the application of smart algorithms, can provide users a range of information – such as irregular movements in the herd, indicating the possibility of a sore leg or injury in an animal. These solutions empower producers to become more efficient in an industry characterised by increasing disparity between demand for animal protein (Figure 12) and availability of natural resources needed to increase the output (Figure 13).

Figure 12: World meat consumption projection



Source: OECD-FAO Agricultural Outlook 2018-2027, Pitt Street Research

Figure 13: Declining grazing pastures and meadows



Source: FAO, Pitt Street Research

**SE1 is well positioned to reap the benefits of the Smartbow / Zoetis deal for the next two years**

SE1 has partnered with animal healthcare OEMs to embed its proprietary technology in the end products it co-develops with them. SE1 currently provides its technology to Smartbow GmbH, an Austria-based animal healthcare company, to support the production of its Eartag LIFE product.

Notably, animal healthcare giant Zoetis acquired Smartbow in this past year and is now distributing the system through their network of sales and veterinary representatives. Zoetis is uncovering significantly larger opportunities in the North American market with farms as large as 10,000 animals. This was an underpenetrated market due to the limited Smartbow resources. With SE1 already having started its shipments under this agreement from the December 2018 quarter, we expect a significant impact on top-line growth over the next two years as the products gain traction.

### Why customers opt for Nanotron solutions

Nanotron supplies solutions based on their custom chip, which is placed in a radio frequency (or RF) module and ultimately in a tag and anchor. The company has moved more towards providing tags and anchors with the appropriate analytical software to run them. This offers an advantage as these products provide customers with a complete solution which allows them to move away from a capex-based model to an opex-based model. Customers do not need to incur a hefty capex in the form of buying individual components, tags and anchors with a software licencing fee but instead can move to a monthly charge based on either the number of sensors deployed or the data that they use.



*Nanotron's customers get to move away from a capex-based to an opex-based model*

Furthermore, for the segment of customers that SE1 is targeting, the monthly charge that SE1 will bill them represents a small component of their overheads, while the capabilities that the solution unlocks are substantial.

For SE1, these solutions provide a recurring stream of revenue. Through the deployment of these solutions, we expect that 5 – 10 % of SE1's consolidated revenues will be recurring in nature in FY2020. However, we believe that it would take another 3–5 years for a majority of Nanotron revenue to become recurring in nature.

### **Partnership with ClearBlade shifts SE1's revenues model**

In February 2019, SE1 announced the launch of 360° Edge Analytics, a platform solution for Location-as-a-Service, created in partnership with ClearBlade, a company from Austin, Texas, which develops software to run enterprise IoTs. 360° Edge Analytics is a result of SE1's growing relationship with ClearBlade, first announced in April 2018. It is the first product in a new portfolio built entirely on analytical tools, as well as the first in a new line of location-aware sensors developed by SE1, which feeds real-time data related to the surroundings of client operations.

The ability of the 360° Edge Analytics platform to take in data from any sensor and upload it on ClearBlade's IoT Edge Computing platform helps businesses generate meaningful insights. With ClearBlade's analytics engine, SE1's Edge Anchors collect data, which then gets analysed in real time, enabling SE1's clients to make informed decisions about their business faster.

*Nanotron revenues should increasingly become recurring in nature*

The idea behind this partnership is for SE1 to move away from being simply a component supplier, to becoming a provider of the entire system (both hardware and software) of Location-as-a-Service. This offering is also in line with SE1's strategic shift towards realising recurring revenue and moving away from non-recurring engineering (NRE) revenue that it had been recording till now, as most of its contracts were in the design phase. Through this solution, Nanotron records recurring revenues that are earned by deploying the solution at clients' sites and then charging them on a monthly basis for the service offered.

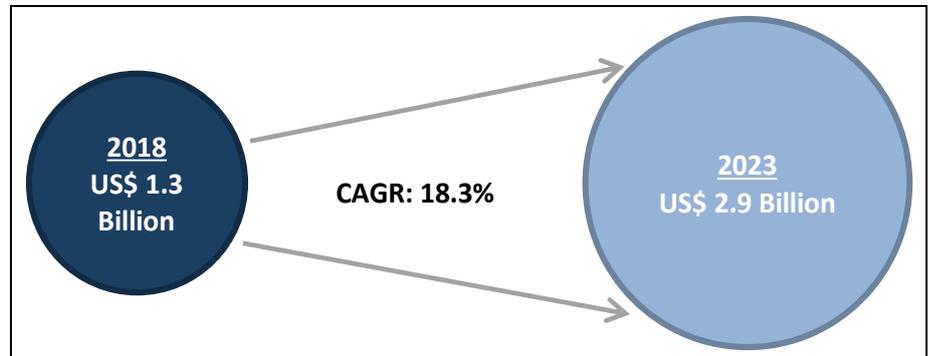
### **360° Edge Analytics applications in healthcare and mining**

*High Rol for hospital operators that use RTLS systems will likely drive demand for SE1's tools*

**Healthcare:** On the back of its UWB and Chirp RT-based tags, SE1 is able to provide location detection capabilities of both long and short ranges to hospitals, enabling them to monitor and track both equipment and patients. Through the use of SE1's real-time location system (RTLS), hospitals can monitor the usage of various equipment and machines to lower the idle time and work towards optimising asset allocation, a driver for higher ROI. As hospital staff's visibility improves through these solutions, managers are in a better position to govern man-hours and take measures to enhance efficiency. We believe that the high-growth potential in this vertical (Figure 14), driven by the aforementioned advantages for hospitals, will substantially benefit SE1's top line.



Figure 14: Growth in RTLS market for healthcare



Source: MarketsandMarkets, Pitt Street Research

**Mining:** Nanotron's RF tags collect data about the movement and location of a mine's critical equipment and workers. This data, when fed into the 360° Edge Analytics platform, allows mine operators to improve the efficiency of their operations while simultaneously ensuring the safety of workers on-site. For instance, the platform allows for the automation of truck weighing cycles by associating the data on timing of drivers' shifts, vehicle availability and load weight. Moreover, the higher visibility into vehicles and assets allows for improved traffic management at the site as well as better fuel efficiency.

**Animal health:** The ability of Nanotron's platform to perform analytical functions on the data collected by the tags unlocks great potential for the animal health sector, both in terms of improved productivity and quality of milk and meat. By combining the cloud storage and licencing abilities offered by ClearBlade with Nanotron's ability to capture data on location, the platform enables farmers to detect lameness in an animal, monitor rumination, as well as detect any sign of illness at a relatively early stage. All of this allows for healthier livestock, which not only reduces the costs for the farm but is also directly correlated with better quality of milk and meat.

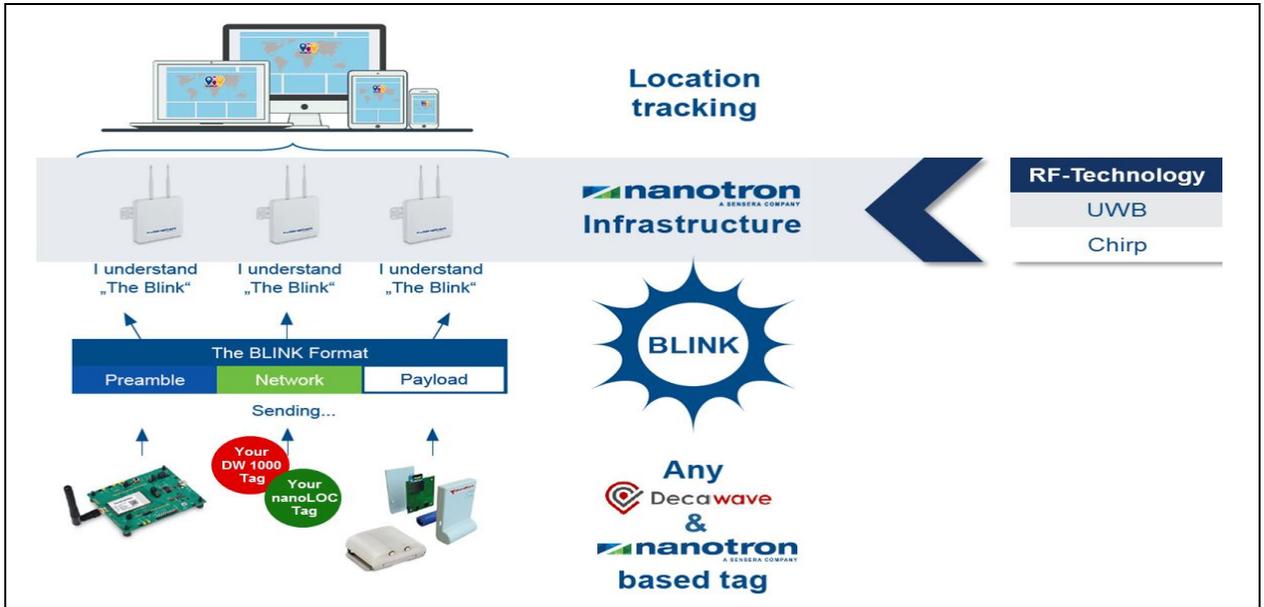
In our view, this acts as a significant ROI driver for farmers, eventually linked to the demand for Nanotron's solutions.

### Nanotron (IOT Systems) provides scalability to customers through Blink

As a result of SE1's partnership with DecaWave, signed in July 2018 for the development of micro-location technologies, the two companies have incorporated the Nanotron communications protocol, Blink, which can be deployed on any DecaWave (DW)-based tag. The new UWB compatible protocol, launched in April 2019, provides substantial scalability to end users in terms of their time difference of arrival (TDOA) infrastructure (see appendix 1).



Figure 15: How Blink operates



Source: Company

**Blink's ability to sync DW tags from any vendor with Nanotron's Edge Anchors provides significant system scalability to clients**

This is driven by the protocol's ability to sync the client's existing DW 1000 tag infrastructure with Nanotron's Edge Anchors (Figure 15), thereby keeping their costs in check as well as significantly reducing the time of deployment. This in turn helps the client go to market faster, a substantial incentive as it speeds up their RoI.

We believe that this operational scalability provides SE1's clients, such as livestock harvesters and mine operators, control over their overheads and allows them to easily upscale or downsize their existing TDOA infrastructure. Additionally, driven by the lower time-to-deploy advantage, this solution allows Nanotron to aim for market penetration in existing domains among customers who already have a TDOA infrastructure in place.

This partnership has also allowed Nanotron to reduce its chip R&D and support an emerging new standard in precise location while shifting some of its resources towards system and software development.

### Potential to hit the jackpot in High Value applications with gas sensors

The company has combined the capability of its MEMs fab and sensor network system in developing a world class, low power gas sensor. This is being deployed through a partnership with an existing gas sensor company, which will first deploy battery powered gas sensors for the mining and animal health markets. The integration of the gas sensor with location is a key differentiator the company is using in their already existing customer relationships.

There are tangential opportunities with this portable gas sensor technology. The application of SE1's gas sensors in examining food for spoilage is expected to support retail giants such as Ahold Delhaize, Kroger and Walmart, which, at any given time, have many containers on the move with huge amounts of



food products of a limited shelf life. The early detection of their spoilage is a substantial value-add for these retailers.

Over recent years, food wastage has become a critical issue across the globe, with the US recording a staggering ~40% of food produced that goes uneaten, according to a report published by ReFED in 2016. Retailers form the major segment responsible for food wastage. As per the most recent study by America’s Natural Resources Defence Council, every year, 43bn pounds of food is wasted by supermarkets.

**Figure 16: How US supermarkets fail to make the grade in reducing food waste**

Company	Grade	Accountability	Prevention	Recovery & Recycling
 Walmart	B	7	16	9
 Ahold Delhaize U.S.	C	16	5	5
 Kroger	C	8	7	9
 Albertsons Companies	C	7	9	6
 Target Stores	D	6	5	6
 Trader Joe's	D	2	8	6
 Whole Foods Market	D	0	9	5
 Costco U.S.	D	3	4	7
 Publix	D	3	2	6
 ALDI U.S.	F	2	2	3

Source: Center for Biological Diversity, Pitt Street Research

However, among major food wholesalers and retailers in the US, Walmart is the one operator that emphasises prevention of food wastage as one of its key priorities. As per the food waste report card issued by the Centre for Biological Diversity in April 2018, only Walmart received a ‘B’ grade (Figure 16), mainly based on its extensive list of preventive actions to avoid food waste, which is also a cost centre for the company.

In 2018, Walmart announced the development of Eden Food System, a machine-learning-enabled technology that can both forecast and detect food spoilage, thereby preventing food wastage. Walmart first deployed Eden at 43 of its food distribution centres in 2017, and in the 12 months that followed, was able to save US\$83m in food wastage. Going forward, Walmart expects the technology to save ~US\$2bn in costs associated with food wastage for the company in the next 5 years.

SE1 is currently in talks with Emerson, a technology solutions giant specialising in cargo solutions, for its go-to-market strategy to approach retailers, such as Walmart. The companies plan on creating smart solutions for retailers to prevent food spoilage, using both SE1’s location and gas detection sensor technologies.

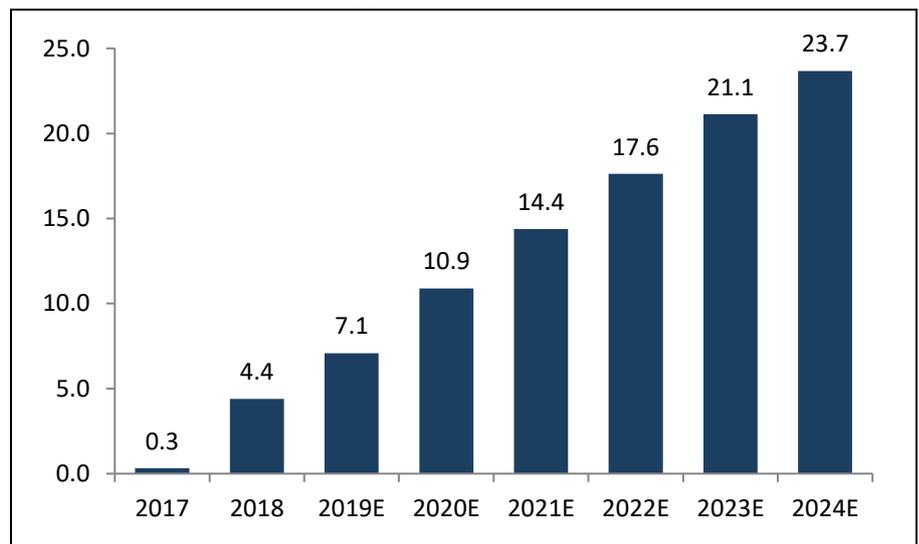


## Nanotron's move towards a recurring revenue model is expected to drive revenue growth

The partnership with ClearBlade allows the company to move towards a recurring revenue model, where it will charge customers a monthly fee based either on the number of sensors deployed or the data used by the client in a given month. As the company starts deploying this solution, with the first deployment completed in May 2019 in the industrial sector and then another one targeted for July 2019, we believe that by the end of FY2020, 5-10% of Nanotron's total revenue would be recurring in nature.

Longer term we expect a majority of the segment's revenue could become recurring as SE1 scales up operations and production of its Location-as-a-Service platforms. Stable and predictable revenue streams should result in higher margins and potentially a higher valuation of the company's listed shares.

Figure 17: Nanotron's revenue growth projection



Source: Pitt Street Research

## Long-term growth prospects of Nanotron (IOT Systems)

In our view, SE1's entrance into the new vertical of data analytics, i.e. analytics at the edge, is a promising growth area for the company. The 360° Edge Analytics solution, which the company has developed in partnership with ClearBlade, provides it huge potential to expand its footprint by leveraging its current relationships with clients in the healthcare and mining domains. We believe that the value add that this technology offers its clients in terms of faster analytics, as they are carried out at the edge anchors itself, significantly reduces the time needed for critical decision-making by these businesses.

The solution also helps customers move to an opex-based model, away from a capex-based model. As customers are now charged a recurring monthly fee rather than a one-time licencing fee, they can free up cash and deploy it elsewhere in their operations.

It is our view that the value-add that Sensera brings through sensor fusion with precise location as a key tenant is very powerful. We believe the use of



gas sensors in mining, animal health and food spoilage detection opens up vast potential for future growth, especially if the opportunity with Emerson takes off with respect to development of leafy containers for Walmart.

On the back of these factors, we believe that SE1's Nanotron business will grow at a CAGR of 26.9% from FY2019 to FY2024, reaching US\$23.7m in revenue (Figure 17).

### SE1 on track to be EBITDA positive by FY2020

The company continues to fund its expansion through customer-partner engagements, wherein SE1 builds the product with its clients, such as with UWB and ClearBlade. Furthermore, as many of its clients are at the end of their designing stages, the company will be incurring lower R&D expenditure in relation to its chip development going forward, although we believe these may tick up again in future R&D cycles for new software products.

SE1 has also outsourced its manufacturing processes for the IOT Systems business. These factors are expected to keep the operating expenditure lower, driving an improvement in profitability.

We expect the R&D expenditure as a % of sales to significantly drop in the near future, enabling the company to report a positive EBITDA from FY2020 onwards (Figure 18).

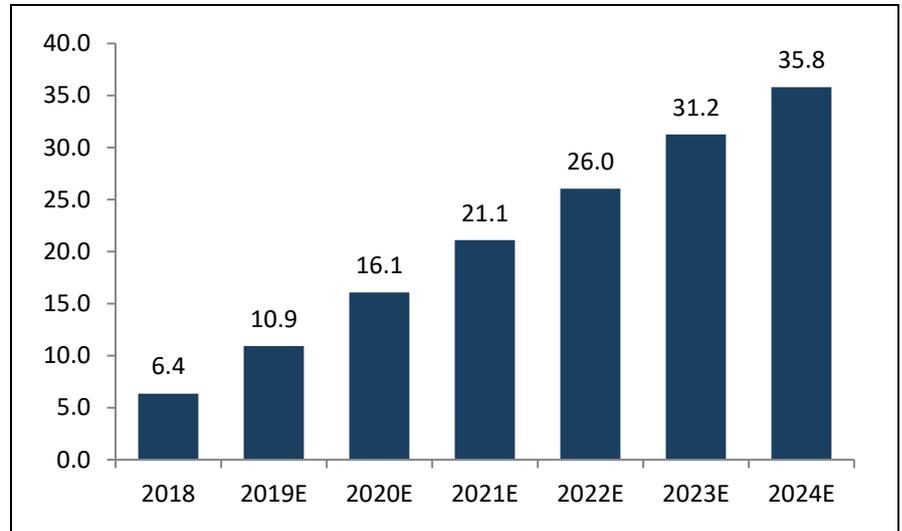
Figure 18: Downturn in R&D to stimulate positive EBITDA growth

	2018	2019E	2020E	2021E	2022E	2023E
<b>Operating expenses (in US\$ million)</b>	<b>-9.90</b>	<b>-12.16</b>	<b>-8.91</b>	<b>-9.59</b>	<b>-10.02</b>	<b>-10.72</b>
Selling and Marketing	-0.41	-0.58	-0.64	-0.74	-0.78	-0.87
% of Sales	6%	5%	4%	4%	3%	3%
General and Administration	-8.25	-10.55	-7.14	-7.58	-7.94	-8.44
% of Sales	130%	97%	44%	36%	30%	27%
Internal Research and Development	-1.24	-1.04	-1.12	-1.27	-1.30	-1.41
% of Sales	20%	9%	7%	6%	5%	5%
<b>Adjusted EBITDA</b>	<b>-6.62</b>	<b>-6.36</b>	<b>0.33</b>	<b>2.67</b>	<b>5.20</b>	<b>7.64</b>

Source: Pitt Street Research



Figure 19: Revenue trajectory for Sensera



Source: Pitt Street Research

### Accelerating revenue through end market expansion

During its Q3'19 earnings call, Sensera guided to a revenue forecast for FY2019 in the range of US\$10.5–11m. We believe this indicates strong revenue growth (Figure 19), driven by the introduction of new products and solutions in both the MEMS and Nanotron business units.

As SE1's strategic and operating model shifts towards system sales with a recurring revenue stream, the share of the Nanotron (IOT Systems) business unit is expected to be higher going forward (Figure 20).

Figure 20: Percentage revenue breakdown

Revenue Contribution (%)	2017	2018	2019E	2020E	2021E	2022E	2023E	2024E
Microdevices	74.4%	30.7%	35.2%	32.2%	31.8%	32.3%	32.3%	33.9%
Nanotron	25.6%	69.3%	64.8%	67.8%	68.2%	67.7%	67.7%	66.1%

Source: Pitt Street Research

### Company adequately funded to serve the Zoetis agreement

With SE1's customers moving into full volume production, SE1 would be required to meet rising demand for its specialised components. We believe that the A\$3m credit facility by Timelio against SE1's working capital assets provides sufficient funding to fulfil the Zoetis agreement. Moreover, this agreement frees up cash, which can be put to other uses.

SE1 has also received additional funding in the form of a US\$1m promissory note from a director and large investor of the company, for the purpose of meeting working capital needs. We believe that this additional funding represents the positive growth outlook of investors and established credit providers regarding the profitability of the company.



## Valuation: Price range of 0.50-0.58 per share

### DCF calculation suggests a substantially higher intrinsic value

Given the relatively nascent stage of SE1's operations, and its presence across niche segments, we believe that its long-term fundamental value is best highlighted through a DCF valuation.

Our DCF model uses a 9.6% WACC for SE1 (risk-free rate of 2.7%, beta of 1.25 and an equity risk premium of 5.5%). Applying this discount rate to our free cash flow projections through FY2028E and using a terminal growth rate of 2%, SE1 yields a value of A\$0.50 per share (Figure 21).

Figure 21: DCF in AUD using various WACCs

Sensitivity Analysis							
WACC	9.6%	Change in WACC					
Terminal Growth Rate	2.00%	7.5%	8.5%	9.6%	10.5%	11.5%	12.5%
Implied Price (AUD cents)	50.4						
Change in Terminal Growth Rate	1.25%	73.0	58.1	45.9	38.7	32.0	26.6
	1.50%	75.9	60.2	47.3	39.7	32.8	27.2
	1.75%	79.1	62.3	48.8	40.8	33.6	27.9
	2.00%	82.6	64.7	<b>50.4</b>	42.0	34.5	28.6
	3.00%	100.5	76.2	57.8	47.6	38.6	31.6
	3.50%	112.8	83.6	62.5	51.0	41.0	33.4
4.00%	128.6	92.7	68.0	54.9	43.8	35.4	

Source: Pitt Street Research

Despite the microfluidics market being in its early stages, SE1 has still been able to on-board 5–6 clients. Moreover, SE1 enjoys customer stickiness as its sensors are used in the customer device design throughout the lifecycle of the product. The company overall has now over 50 customers, which almost doubled during the FY19.

Additionally, SE1's move from being a components supplier to a systems supplier, and shift towards a recurring revenue model will substantially contribute to top-line growth in the next 3–5 years.

### Conclusion: Fair value of A\$0.50–0.58 per share

Our base case value of A\$0.50 per share has been derived through the DCF calculation. Our bull case calculation results in a valuation of A\$0.58 per share. Both the cases imply a substantial upside from the current share price (Figure 22).



Figure 22: DCF valuation: Base and bull case

Base Case Valuation (USD)		Bull Case Valuation (USD)	
Present value of FCF	8,517,676	Present value of FCF	9,836,595
Present value of Terminal FCF	77,846,441	Present value of Terminal FCF	89,212,964
<b>Enterprise Value</b>	<b>86,364,117</b>	<b>Enterprise Value</b>	<b>99,049,559</b>
Net debt (cash)	1,246,688	Net debt (cash)	1,246,688
Equity value	85,117,430	Equity value	97,802,871
Share outstanding (for 2019, million)	243.0	Share outstanding (for 2019, million)	243.0
Implied price (USD cents)	35.0	Implied price (USD cents)	40.2
<b>Implied price (AUD cents)</b>	<b>50.4</b>	<b>Implied price (AUD cents)</b>	<b>57.9</b>
Current price (AUD cents)	11.0	Current price (AUD cents)	11.0
Upside (%)	358.0%	Upside (%)	426.2%

Source: Pitt Street Research

## Risks

In our view, there are four main risks associated with SE1's investment thesis:

1. Execution risk: SE1 has significantly expanded its operations in various new verticals in a very short span of time. While innovating and introducing new products are critical to staying in business, there exists a threat that the company may not be able to manage growth in all these dramatically different areas simultaneously.
2. Risk of cannibalisation: Introduction of the Blink communications protocol, which can be applied to any DW1000-based tag, poses the threat of cannibalisation of the sales of Nanotron's own anchors.
3. Shortening of the supply chain: The current structure of Sensera involves the company selling its products and technologies to OEMs, which in turn sell them to mainstream manufacturers. However, as these manufacturers are large enough to have the capacity to take these processes in-house, such as Walmart's creation of AI-based Eden technology, there is a threat of the company being left out of the market.
4. Regulatory risk: SE1's MEMS for Medical implants are ISO certified (ISO13485). Hence, the risk of the clients' medical devices that use SE1 MEMS not being approved by the regulator is fairly low.

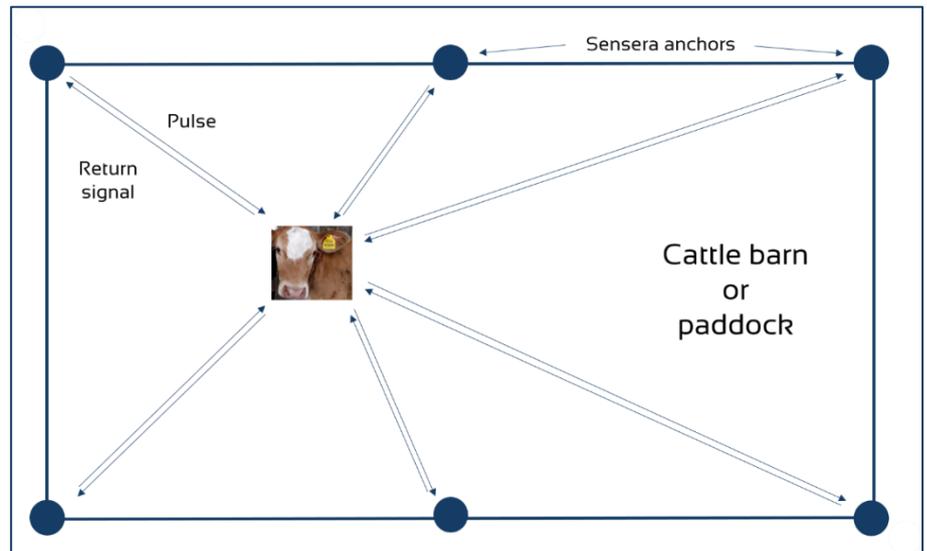


## Appendix 1

### How it works: Time Difference of Arrival (TDOA) and Ranging

In the chart below a Sensera anchor, which comprises both a transmitter and a receiver (a transceiver) emits a signal that is received and returned by a tag, e.g. to range cattle ear tags. The time of flight of that signal can be used to determine the distance between the tag and that transceiver. By combining time of flight data from a minimum of two, but usually three or more signals, the location of a tag can be accurately determined.

#### Locating tags by measuring Time Difference of Arrival



Source: Sensera, Pitt Street Research

Alternatively, in the Time Difference of Arrival (TDOA) technique, the tag itself emits a signal that is received by multiple anchors. The time it takes a tag signal to reach an individual anchor is used to estimate the approximate distance between that anchor and the tag. Combining such data from multiple anchors will yield the approximate location of the tag in a 2D setting.

### Various set ups and technologies to suit different situations

Depending on customer-specific applications, their geographic location, the size of their facilities etc, Nanotron can offer different set ups of its systems. The example above is a fixed set up in which the anchors are positioned in fixed places, in this case a cattle barn or paddock. All location positioning is done from fixed positions.

### Ranging in dynamic situations without anchors

However, in dynamic situations, such as mines with moving vehicles and personnel, collision avoidance and exclusion zones need to take these dynamic elements into account. In other words, there are no fixed anchors and tag positions are relative to one-another, i.e. they change continuously.

In these situations, Nanotron's Swarm Bee product can be used to provide relative positioning and location awareness through collaboration by deploying a swarm of location chips in the field. The Swarm Bee chips can provide relative location awareness by exchanging data packets and measuring the time-of-flight of these packages between each other, for instance between tags on mining vehicles approaching each other. The chips



in these tags are programmed to automatically detect other tags and range with each other.

## Different radio technologies for different applications

Nanotron's most recent chip is designed to manage its proprietary Chirp based RF solutions. The company has determined that it does not need to develop industry standard RF chips and uses merchant silicon for other solutions like Ultra-Wideband (UWB). It applies its embedded software IP and application knowhow to build these solutions.

The company has announced industry standard UWB (Ultra-Wide Band) solutions. UWB is highly accurate, but its pulse signals can only be used for short range transmission, i.e. up to 20 meters, of small data packets. These solutions require far more anchors than a Chirp base solution. Chirp signals are used to measure the range and velocity of moving objects and can be used for longer range detection, i.e. between 10 and 500 meters.

Nanotron's key building blocks are proprietary technology

One of SE1's key strengths is the proprietary nature of its technology, i.e. Nanotron has developed and patented the key building blocks of its product offering in-house.

### Nanotron's nanoLOC chip and tags



Source: Sensera

## Proprietary transceivers and tags

The company's nanoLOC location chip forms the heart of the Nanotron's tags and anchors. It is a 2.4 GHz radio frequency (RF) transceiver. While the current, second, generation of nanoLOC chip has a maximum range of 500 meters, the upcoming next generation of the chip will have a significantly improved ranging capability of up to 1.5 kilometres.

This will expand the applicability of Nanotron's offering to larger farms and mines without having to install more network and infrastructure equipment.

## nanoANQ anchors

Anchors receive data from tags and push this data on to servers where the data can be analysed and served up to users on mobile phones, tablets and desktops. Nanotron anchors also use the company's proprietary nanoLOC chipset.



Nanotron anchors

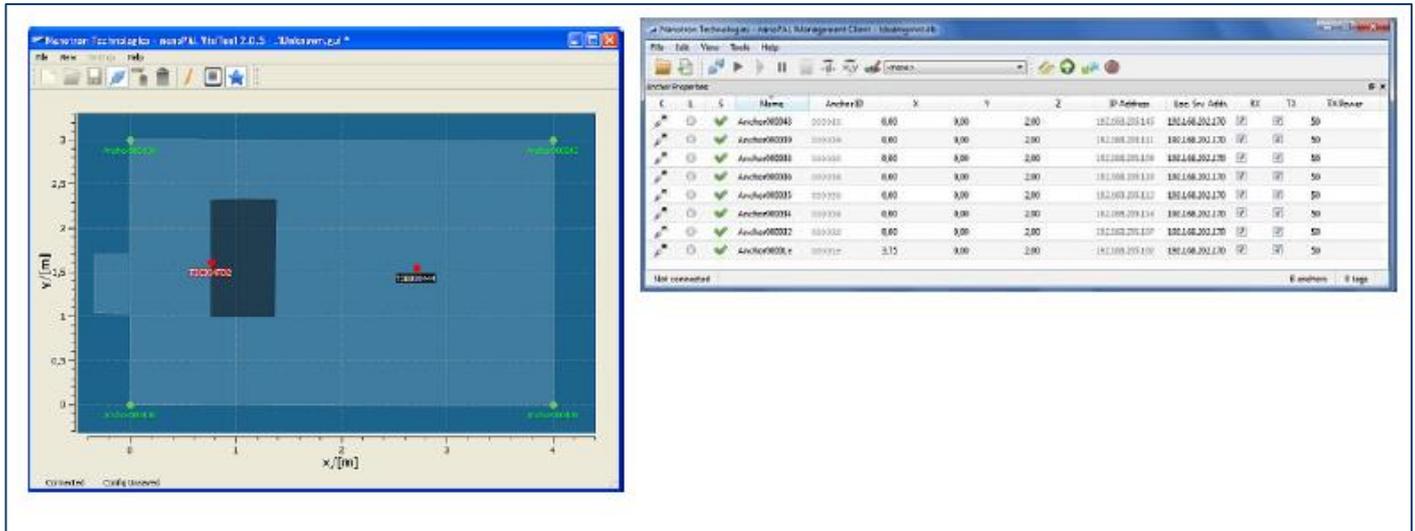


Source: Sensera

Location software

The final building block in Nanotron’s offering is the software suite, used for data analysis and user interfacing. Again, this is proprietary data analytics and location software even though customers, such as Smartbow typically use their own algorithms for data analysis.

Nanotron’s proprietary software



Source: Sensera



## Appendix 2

### SE1's management team

	Name and Designation	Profile
	Ralph Schmitt <b>Chief Executive Officer</b>	<ul style="list-style-type: none"> <li>• A veteran in the semiconductor space, Ralph has extensive managerial experience serving as the executive of Toshiba America Electronic Components Inc., where he was in charge of the development of cognitive computing software for applications in multiple sectors.</li> <li>• Prior to Toshiba, he also served as the EVP of sales and marketing at Cypress Semiconductor and was the CEO of multiple public companies including Sipex Corporation, Exar Corporation, PLX Technology and OCZ Technology.</li> </ul>
	Tim Stucchi <b>GM MicroDevices</b>	<ul style="list-style-type: none"> <li>• Stucchi has ~30 years of experience in start-ups as well as MNCs in multiple domains, including financial, strategic, operations and business development.</li> <li>• He was the founder and CEO of Advanced MicroSensors Inc., a provider of magnetic products and MEMS. The company was later sold to Plures Technologies Inc.</li> <li>• Tim received his B.Sc. from Boston College and completed his MBA from Babson College in Massachusetts. He also attended Harvard University's Program for Management Development.</li> </ul>
	Dr. Jens N. Albers <b>GM IoT Solutions &amp; Nanotron President</b>	<ul style="list-style-type: none"> <li>• Jens has been with Nanotron for ~15 years after joining the company in 2004.</li> <li>• He was the co-founder of Multilink Technology Corp, which later got listed on NASDAQ in June 2001.</li> <li>• Jens received his Ph.D. from Ruhr-University Bochum, Germany, in the domain of Electrical Engineering.</li> </ul>

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