Nexstim

Sector: Medtech

Rethinking Depression

Redeye initiates coverage of Nexstim, a Finnish medtech taking a non-invasive, drug-free approach to depression. It offers a 'navigation' tool that improves treatment accuracy in the established therapy field of Transcranial Magnetic Stimulation (TMS). With regulatory approvals and established KOL network as a catalyst, we see long-term potential as the firm continues to commercialize its TMS therapy and finds high-margin niches.

TMS potential in major segment

Depression is one of the most common causes of disability in the world today, with 4.5m patients affected every year in the US and EU15 alone. Yet up to 40% do not get better even after multiple cycles of anti-depressants. We value the depression market potential to 11 billion Euro alone and the current TMS market to 110 million Euro. TMS carries minimal side effects and has proved effective on treatment-resistant depression. The US market is especially attractive for it, due to good insurance coverage, reimbursement and acceptance of TMS.

Strong diagnostics standing

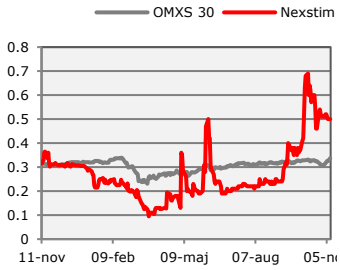
Nexstim has a strong standing in the use of 'navigated' TMS for pre-surgical mapping of brain tumors. While we see greater potential for it in other segments, the diagnostic segment provides reliable income as well as validating the navigation platform as it pivots into the therapy segment.

Longer-term upside intact

While Nexstim is fairly valued after its near 170% rally since August, which has brought it close to our base case of SEK 0.6, we see further potential toward our SEK 1.5 bull case if its progress continues. Besides partnerships and expansion into new potential indications, we look for it to navigate its financing needs successfully, which remains a worry.

FAIR VALUE RANGE (SEK)

BEAR	BASE	BULL
0,1	0,6	1,5



REDEYE RATING

KEY STATS

Ticker	NXTMS
Market	First North
Share Price (SEK)	0.59
Market Cap (mSEK)	237
Net Debt 20E (mSEK)	24
Free Float	74%
Avg. daily volume ('000)	1323

KEY FINANCIALS (mEUR)	2018	2019	2020E	2021E	2022E	2023E
Net sales	3	3	4	5	7	9
EBITDA	-6	-7	-4	-3	-2	-2
EBIT	-6	-7	-5	-3	-3	-3
EPS (adj.)	n.m	n.m	n.m	n.m	n.m	n.m
EV/Sales	1.13	2.73	7.7	7.1	5.7	4.5
EV/EBITDA	-0.5	-1.53	-7.5	-13.3	-15.5	-18.8
EV/EBIT	-0.4	-1.4	-6.4	-9.9	-11.2	-13.0
P/E	NEG	NEG	NEG	NEG	NEG	NEG

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Investment Thesis

TMS Diagnostics market leader with KOL support

Nexstim's NBS diagnostics system benefits from support from key opinion leaders and leading university hospitals for the use of navigated TMS in pre-surgical mapping of brain tumors. Over 100 academic publications have been published using the system. We view Nexstim's standing in this segment as a potential driver of future growth in the therapy area due to the navigation platform's validation by leading neurosurgeons, as well as the source of durable and growing income.

Significant potential in high growth treatment market

TMS is a non-invasive and well tolerated method for the treatment of depression that has gained the approval of payers and regulators in the US and EU in recent years. While the market is still relatively small (EUR 110m in 2020 according to our estimates), the case for broadening the application to other psychiatric disorders and settings is growing. The total market potential exceeds EUR 11bn, we estimate. We see high overall growth in the segment going forward – 15% a year on average between 2020 and 2025 – due to these factors.

Precision positions 'navigated' TMS well

Nexstim's therapy system stands out for its precision compared to established TMS treatments. It enables clinicians to target hotspots accurately, which has increased treatment reliability. The first data from the company's patient registry looks promising, with higher remission and response rates than comparable devices (42% remission, 74% response). Accordingly, we view Nexstim as well positioned for the future compared to 'catch-all' systems like the competitor Brainsway's, particularly once the underlying mechanisms are more widely understood and fine-tuning is able to optimize treatment to an even greater degree.

Attractive model underpins long-term outlook

Nexstim's FDA and CE-approved NBT therapy system has an installed base of some 30 systems, mainly in the US. In view of its attractive leasing and reimbursement model, we see good potential for growth in the coming years through expansion of installed systems, increased use and recurring high margin treatment revenues. We expect Nexstim to take 10% of the overall TMS market (14.5% in the US and 6% in the EU15), with annual recurring revenues of EUR 100,000 per system translating into peak sales of 47 million EUR for this segment.

While the stock has had a strong run recently, it is from a low level due to poor sentiment amongst investors. We see additional upside if Nexstim navigates its financing needs successfully and can further fuel growth by expanding into new indications.

Catalysts

Pilot studies in accelerated treatment and chronic pain

One way of Nexstim finding a niche to dominate is for it to focus more on a newer accelerated treatment protocol, aiTBS, where the benefits of navigation and increased reliability may be more important. It has started two investigator-initiated pilot studies in severe depression and chronic pain this year. Good outcomes would be a proof-of-concept that could take Nexstim into new markets, pending larger studies. It would also increase the likelihood of a partnership, which is a strategic goal to help achieve profitable growth.

Time Horizon: 1 - 6 months

Secured funding and cost reductions

New management started a cost saving program during Covid-19. Profitable growth is a key aspect of the company's strategic vision for the 2020-25 period. Financing still remains a worry. Execution on these points would give us further confidence in Nexstim's capacity to be profitable over the longer term.

Time Horizon: 1 - 6 months

Strategic partnerships

Like its larger competitors, Nexstim's therapy business is not yet profitable. This is mainly due to the high sales costs in attracting each new clinic. Nexstim plans to forge strategic partnerships with clinic chains and hospitals – along with more usage per system, this could create sufficient scale for TMS therapy to become profitable in the future. A partnership with a supplier of other pre-surgical equipment could also further increase the NBS diagnostics system’s value-add.

Time Horizon: 3 - 12 months

Counter-Thesis

Undercapitalized and poor funding record

Nexstim’s cash will get it to Q1 21, but it will need a partnership or new equity funding soon to continue its turnaround (operating expenses, strategic goals and research into new indications). Its history of failure in stroke rehabilitation and costly rights issues still looms in the background. Nexstim has evolved into a more mature company, but it needs to execute its strategy to lift its reputation with investors further – a relevant factor in raising additional capital and taking the company forwards.

Competition creates need for a niche

While TMS is a relatively new field, well established competitors hold clearances for more psychiatry indications. Accordingly, Nexstim has to differentiate its system sufficiently to compete with the more established competitors Neuronetics and Brainsway, as well as challengers. We see its main target as depression clinics and specialized hospitals, for whom a high-quality niche product is still attractive.

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Management and ownership

Management and board

We consider Nexstim's leadership and board to be well-diversified in their backgrounds and experience. Mikko Karvinen and Joonas Juokslahti were appointed interim CEO and CFO, respectively, in February 2020, their positions later being made permanent in June. We deem it positive that both have long experience at Nexstim, accumulating extensive industry expertise from within the company, despite their limited medtech experience beforehand. They work alongside co-managers with more direct industry experience. In their tenure so far, they have mapped out a strategic plan that focuses on profitable growth for the coming five years. We see this as a good starting point that provides a transparent road map to evaluate the company and management against going forward. For a more detailed description of the management team, please see the appendix.

We find the board of directors to have relevant expertise and to be well qualified to guide Nexstim on a path towards profitability. The chair since November 2019 is Leena Niemistö, who has also been the largest single shareholder since earlier in 2019 (Kaikarhenni Oy). She has extensive experience both as a medical doctor and as CEO of healthcare companies. Given Nexstim's troubled stock history, we find it reassuring that the company has attracted a few key stakeholders with representation on the board. We also value the experience of Rohan J Hoare, deputy chairman and board member since 2016. He has extensive experience from managing neuromodulation and medtech companies and holds a physics doctorate from Harvard. For full description of the board, please see the appendix.

Management Ownership			Board of Directors		
Name	**Shares**	**Options**	**Name**	**Shares**	**Options**
Mikko Karvinen	216,227	8,419,998	Leena Niemistö (with company)	65,372,965	
Rest of management	1,250,052	22,787,661	Rohan J Hoare	3,212	
Total	**0.3% of capital**		Martin Forss	267,067	
			Tomas Holmberg	481,419	
			Total	**15%**	

Source Nexstim; Holdings

In terms of insider ownership, the ownership amongst management is low at just 0.3% of the capital. Given Nexstim's stock history, we would like to see more insider ownership going forward to align the interests of management and shareholders. We are, however, more encouraged that some of the management compensation is through options. Amongst the board members, we find the insider ownership to be better.

Key stakeholders

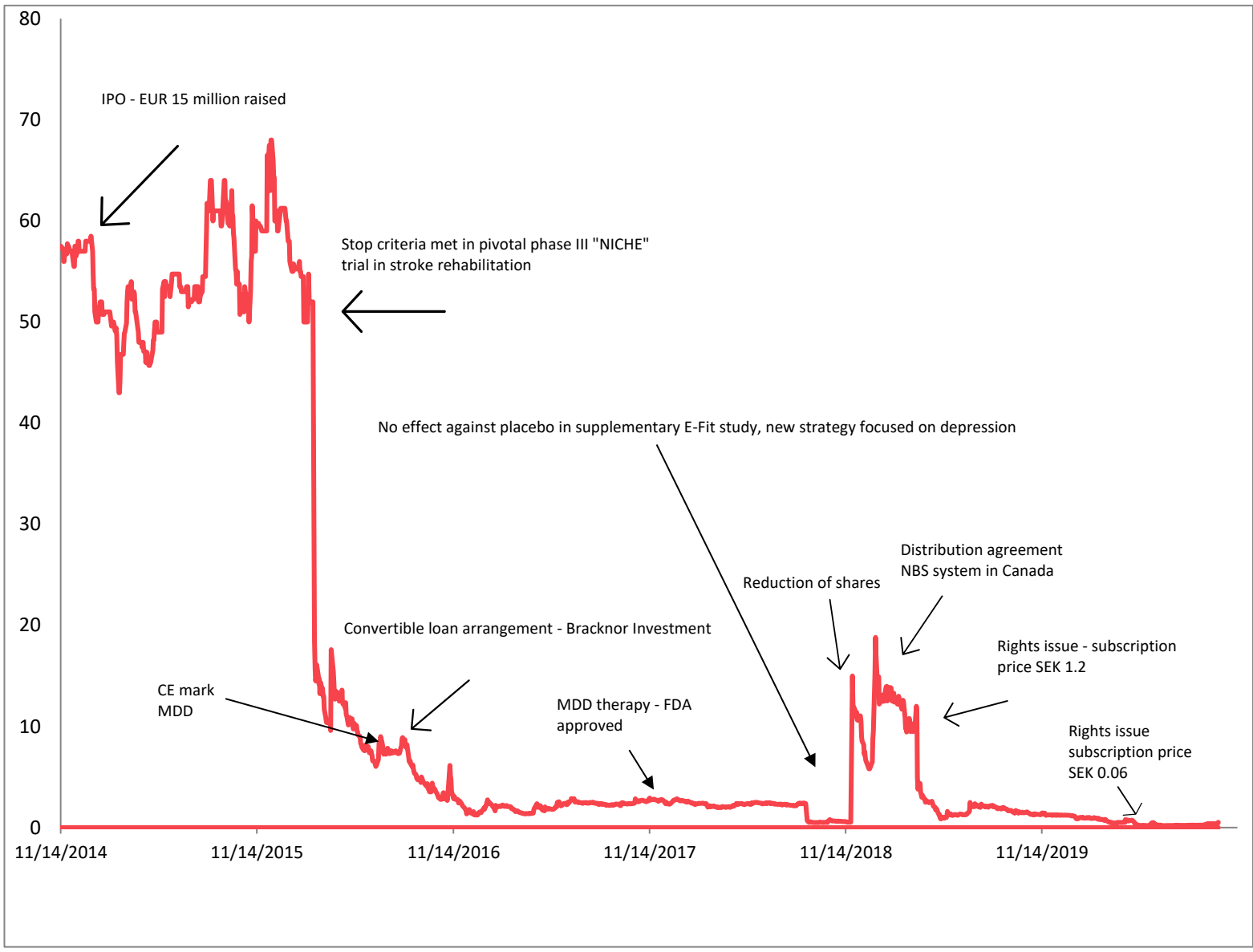
Nexstim oyj: Top owners, per 30th October	Total amount of shares: 439,622,756	
Name	**Shares**	**% of capital**
Nordea Bank ABP*	113,309,540	25.8
Kaikarhenni Oy	65,352,292	14.9
Ossi Haapaniemi	40,873,208	9.3
Joensuun Kauppa ja Kone Oy	13,547,182	3.1
Danske Bank AS Helsinki Branch	10,154,888	2.3
Syrjänen Eva Annika Elisabeth	8,682,387	2.0
Kalksten Properties Koy	7,300 701	1.7
Clearstream Banking S.A.	6,821,382	1.6
Niukkanen Pentti Juhani	6,056,116	1.4
Wetrock Capital & Consulting Oy	5,500,000	1.3
Total 10 top owners	266,041,580	63.14
Remaining owners	173,581,176	36.86

* nominee registered holdings

Source: Nexstim; Holdings

We see a relatively fragmented ownership picture, with the key stakeholders mainly being individual professional investors and the rest mostly retail. As previously mentioned, we favor the representation of the largest shareholders on the board and that they appear to be committed to Nexstim's turnaround. Kaikarhenni Oy is an investment company controlled by Leena Niemistö, the chair of the board since 2019. Ossi Haapaniemi is the second-largest owner, also through the control of Kalksten Properties. The third-largest owner, Joensuun Kauppa Ja Kone Oy, is controlled by businessman Kyösti Kakkonen. Nordea Bank ABP mainly consists of Euroclear Sweden, a technical part of Nexstim's dual public listing.

Share Performance (SEK)



Source: Nasdaq OMX – unadjusted share price

Nexstim's time on the stock market has been challenging. Many factors have been at play, but key contributors have been two failed studies in the now-abandoned stroke indication, heavily diluted rights issues, and uncertainty regarding a convertible loan, resulting in worsened investor sentiment. Since the IPO in November 2014, the stock has decreased by 99% unadjusted. The stock has fared better this year, however. Despite the coronavirus pandemic, the H1 results topped the previous year, and the stock has seen a better development compared to previous periods, indicating better sentiment amongst investors, although from a low level.

Company Profile

Nexstim was founded in 2000 by researchers at the Helsinki University of Technology, headed by Professor Risto Ilmoniemi. Prof. Ilmoniemi led a research group that developed e-field navigation, a way to visualize the stimulation process in TMS (transcranial magnetic stimulation). The commercialization of this technology became the goal of Nexstim. The company's first product was within pre-surgical planning: its Navigated Brain Stimulation (NBS) system received its first FDA clearance for motor mapping in 2009. Nexstim has since mainly focused on developing its therapy product, Navigated Brain Therapy (NBT). Today, Nexstim focuses on major depressive disorder (MDD) and chronic pain, where it is in the commercialization stage in all its segments in the EU.

Nexstim is headquartered in Helsinki, publicly listed on Nasdaq First North Helsinki and Stockholm, and has roughly 30 employees.

Major Events and Financing Rounds - Nexstim

Year		Event
2009	-	First FDA clearance for NBS system in motor mapping
2012	-	Second FDA clearance for NBS system in speech mapping
	-	NBT system receives CE mark for depression and stroke rehabilitation
2014	-	IPO on Nasdaq First North in Helsinki and Stockholm – EUR 15 million raised
2016	-	Stop criteria met in pivotal phase III NICHE trial in stroke rehabilitation
	-	CE mark for NBT system within chronic pain
	-	Financing round including standby equity facility, directed rights issue, and convertible bond arrangement to Bracknor Investment
2017	-	Directed rights issue to City Financial Investment Company
	-	Loan agreement with Kreos Capital V
	-	510k clearance of NBT system in major depression disorder
2018	-	No effect against placebo in supplementary phase III E-FIT trial in stroke rehabilitation
	-	Initiation of depression-focused corporate strategy
	-	Sales launch of the NBT system for depression in the US
	-	Directed rights issue to Capricorn Healthtech fund of EUR 1 million
2019	-	Rights issue of EUR 3.5 million and later EUR 2.9 million from warrant offer and directed rights issue
2020	-	Rights issue of EUR 2.2 million
	-	Mikko Karvinen and Joonas Juokslahti appointed as CEO and CFO, respectively
	-	Initiation of pilot studies in severe depression and chronic pain using aiTBS protocol

Product and Market Background

Transcranial Magnetic Stimulation

Nexstim TMS is a system and technology within the field of transcranial magnetic stimulation (TMS). TMS is a non-invasive brain stimulation that transfers an electrical field using a pulsatile magnetic field from outside the head into a narrow area of the brain. It is today used in diagnostics, "standard" TMS, and repetitive TMS therapy (rTMS).

The technology was first developed in the 1980s as a diagnostics tool and was later developed into a therapy. The first clinical approval in the US for therapy was Neuronetics' Neurostar system in 2008.

Today, 7 TMS devices have FDA approval to treat major depressive disorder, including Nexstim's NBT system since 2017. Nexstim's system uses electric field navigation to precisely localize and target different areas inside the brain; it calls this the Navigated TMS (nTMS).

Use	System	Application	Europe	US	Commercial Status
Therapeutic	Navigated Brain Therapy (NBT®)	Depression	CE marked	FDA cleared	Multiple systems installed globally
		Chronic Neuropathic Pain	CE marked	Additional clinical trials evaluated	Multiple systems installed in Europe
Diagnostic	Navigated Brain Stimulation (NBS)	Pre-operative mapping	CE marked	FDA cleared	Installed base of over 170 systems globally

Source: Nexstim

A rationale for navigated TMS in Diagnostics

Market leader in non-invasive pre-surgical planning – "Navigated Brain Stimulation"

For diagnostics purposes, TMS can measure the function and activity of brain circuits. Nexstim's NBS system is approved by the FDA to map the brain's motor and speech cortices for pre-surgical planning (in 2009 and 2012, respectively).

The literature for TMS as a diagnostics tool dates back to 1985 when it was shown that a single TMS pulse applied over the primary motor cortex (a functional area of the brain) provoked a response in muscles that receive corticomotor input from the stimulated area (Barker et al 1985). These responses can be recorded with surface electrodes and have since been used to analyze motor pathways' functional integrity in various neurological disorders. Depending on the location of the lesion (damaged area), the TMS operator puts electrodes over the muscle of interest and moves the coil over the patient's brain to record and document stimuli responses in a 3D model of the brain. For speech mapping, the focus is on mapping the essential cortical regions associated with language. Locating the brain lesions' proximity to the brain's vital functions can help determine the appropriate treatment option for the patient. Its primary use today is in planning ahead of neurosurgery for brain cancer tumors, but radiotherapists also use the system to plan treatment.

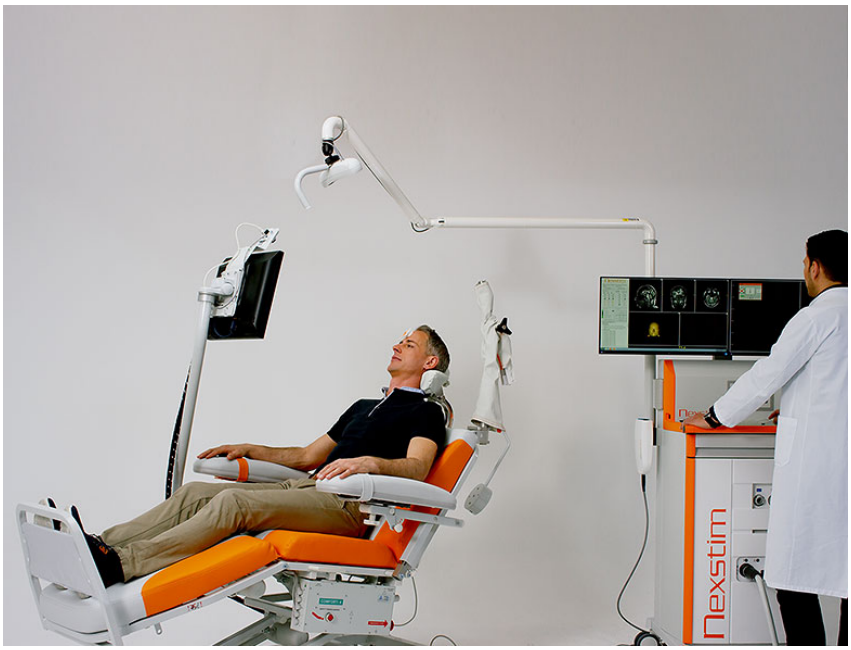
The gold standard for motor mapping is intracranial direct electrocortical stimulation with probe or grid electrodes. This requires an invasive craniotomy, however, a method mainly used in surgery. Nexstim's system is the only TMS method that delivers precision on a par with invasive techniques, thus allowing for precise documentation before surgery. The benefit of the NBS system's pre-surgical planning has been shown by researchers in a vast

array of clinical trials spanning more than 100 academic articles. Nexstim has a strong standing amongst key opinion leaders within neurosurgery and neurology. Its system is used at leading university hospitals such as the Mayo Clinic in the US, Karolinska University Hospital in Sweden, and Charité Hospital in Germany.

Nexstim's Navigation System

Nexstim's software constructs a multi-spherical 3D model of the patient's brain based on an MRI and Nexstim's proprietary software. This brain model accounts for the composition and shape of the individual's brain, such as the gray and white matter and cerebrospinal fluid. Nexstim's e-field navigation differs from line-based navigation in that it visualizes the coil location and the electrical field induced. It re-calculates the e-field location when the operator moves or tilts the coil so that the operator can directly see that the correct hotspot is stimulated. Coil navigation based on rule-of-thumb or a simpler spherical model can mainly observe if the right spot was stimulated by observing the outcome.Today, Nexstim has the only FDA-approved product on the market with the ability to locate and visualize the TMS e-field and hotspot using information about the inside of the patient's brain.

The Nexstim NBS System



Source: Nexstim

Clinical validation – NBS system (selected publications)

Picht et al. (2011)

The goal of this study was to compare navigated TMS to direct electrocortical stimulation (DCS). 20 patients with rolandic tumors were pre-operatively mapped and this was compared to DCS results from 17 of the patients. The study showed that all the hotspots were located in the same gyros with both methods. The mean SEM distance between the methods was 7.83 +/- 1.18 mm. The authors concluded that nTMS is a reliable method for pre-surgical localization of motor functions.

Frey et al. (2014)

The purpose of this study was to evaluate whether pre-surgical planning with nTMS influenced the treatment and outcome in patients with brain tumors in proximity to motor functions. 250 patients were recruited and compared to the results from a control group of 115 patients from before nTMS was introduced at the hospital. The mapping of the nTMS group disproved the suspected involvement of the primary motor cortex in 25% of the cases, expanded surgical indication in 15.8%, and led to more extensive resections in 35% of the cases and restrictive resection in 3.5%. Progression-free survival for low-grade glioma (a type of tumor) was also significantly higher in the treatment group. The authors concluded that pre-surgical use of nTMS enables more patients to undergo surgery and could lead to higher survival rates and neurological outcomes.

Sollmann et al. (2016)

This study (n = 12) investigated the difference between two forms of navigated TMS – electric field navigation (Nexstim NBS) and line navigation – in pre-surgical motor mapping. The authors found that the number of motor-positive stimulation spots and the ratio of positive spots per total amount of stimulations were significantly higher when using e-field navigation. The average difference in hotspots between the method was low on average, but the line-navigated method placed the hotspot in different gyri in two patients. The study also concluded that there is less evidence for the line-based approach in a clinical setting.

Stimulation results differ between e-field and line-based navigation

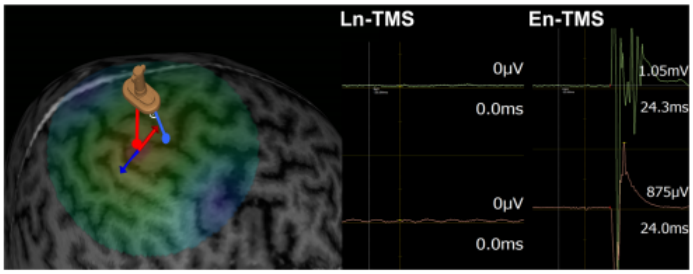


Fig. 5 Comparison of stimulation results with respect to different neuronavigation concepts. In this figure, single-stimulus application over the motor cortex is visualized with corresponding electromyography (EMG) responses for En-TMS and Ln-TMS. The *red line* visualizes the direction of En-TMS and the *blue line* depicts Ln-TMS stimulation direction. The result of the navigation points to the location of the maximum electric field amplitude for En-TMS. In Ln-TMS, the result of navigation points to the intersection between a surface normal vector of the coil and the segmented surface of the skull. As a result of the simulation, the EMG response is elicited for En-TMS at this coil position (stimulation within the precentral gyrus, *red line*). In contrast, Ln-TMS does not elicit a motor response (stimulation in front of the precentral gyrus, *blue line*). Recordings for the abductor pollicis brevis muscle (APB, *green EMG line*) and abductor digiti minimi muscle (ADM, *red EMG line*) are shown

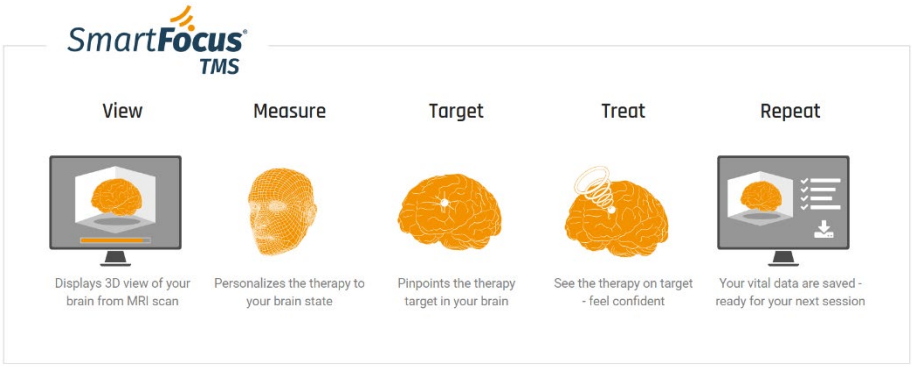
Source: Sollmann et al 2016

TMS as a Therapy

For therapeutic purposes, a repetitive train of pulses is used to stimulate a discrete part of the brain. The primary hotspot for the treatment of depression (MDD) is the dorsolateral prefrontal cortex (DLPFC), a functional part of the brain associated with executive functions and mood regulation that, in relatively recent functional neuroimaging studies, has been found to be a key target for TMS. One abnormality typically found among MDD patients is an asymmetry between the left and right DLPFC, with hypoactivity in the left and relative hyperactivity in the right. A hypothesis is that TMS with high frequencies can increase DLPFC excitability and with low frequencies reduce the same, allowing moderation of the asymmetry through regulators of positive and negative mood. The exact mechanisms of TMS on the DLPFC still have not been fully determined though.

The NBT system uses Nexstim's navigation tool and software in a similar manner to the diagnostics system. The software creates a 3D model of the patient's brain from an MRI scan before the first treatment. The hotspot is then localized, targeted, and visualized using the e-field navigation. The system subsequently saves the data and calibrations for later treatments.

Nexstim SmartFocus



Source: Nexstim

Nexstim's NBT system was approved by the FDA through a 510K with a predicative device, the Neuronetics Neurostar system. Consequently, Nexstim has not conducted a multi-center randomized control trial to compare its NBT system with competitors'. It has, however, set up a registry to follow patients treated with the NBT system. As of October 2020, 108 patients have been analyzed and the results are encouraging: the rate of remission has been 42% and the rate of patients with a clinically meaningful response has been 74%. The treatment effects are considerably higher than the mean effect from meta studies. We conclude that open-label studies of this caliber cannot directly be compared to randomized trials though. Further evidence is needed to prove the efficiency of navigated rTMS compared with its regular TMS counterparts.

Clinical validation of rTMS for MDD (selected publications)

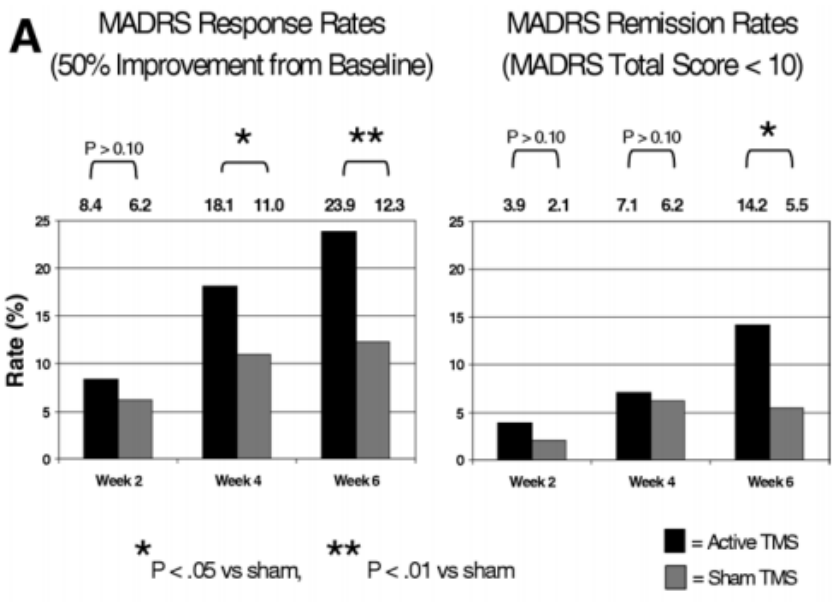
O'Reardon et al. (2007)

O'Reardon et al conducted a large double-blinded, randomized multi-center trial (n=301) on treatment-resistant patients with MDD. Patients were randomized into either active TMS or sham TMS (placebo) and were treated once a day for 4-6 weeks. The primary outcome was the response and remission rates using the MADRS scale of depression. The response and remission rates were significantly superior from the placebo treatment and clinically meaningful after six weeks of daily TMS treatment. The dropout rate was low (4.5%), and the treatment was well tolerated with only mild side effects such as scalp discomfort.

George et al. (2010)

A prospective, multi-center, industry-independent randomized control trial at four US university hospitals (n=199) testing daily rTMS stimulation of the left DLPFC. The study was duration-adaptive with three weeks of weekday treatment that was later followed by continued blinded treatment for those who improved. The treatment had a significant effect on remission (14.1% compared to 5.1% with placebo), which increased to 30% in the open label (non-randomized) follow-up.

Treatment effect – rTMS on Major Depression Disorder



Source: O'Reardon et al 2007

A rationale for navigated TMS in Therapy

Several studies conducted have shown that the standard methods of locating the DLPFC are unreliable. The “5 cm rule” used in most clinical trials is based on the method of localizing the motor cortex by evoking a response in the contralateral hand muscles (Herwig et al. 2001). The coil is then moved 5 cm toward the rostral prefrontal cortex (a functional area of the brain) in the hope of targeting the DLPFC. Studies using navigation methods have shown that the 5 cm rule only manages to stimulate the hotspot 30% of the time, as the technique does not consider individual variation between the two areas. Herbsman et al. (2009) investigated the effect of targeting on antidepressant efficiency. The authors concluded that coil placement is essential for the treatment effect and that precise anatomical targeting such as navigated systems could improve efficiency, especially amongst non-responders to TMS. As pictured to below the left, the 5 cm rule is varied in its precision. To the right, we can see an example of inconsistency in locating the DLPFC using navigation compared to the 5 cm rule. One hypothesis is that the relatively low remission rates with TMS are a result of bad targeting rather than failure of the TMS treatment in itself. We see good potential for navigation going forward. Nexstim's e-field navigation is, thanks to its reputation within neurosurgery, in a good position to be well regarded within MDD therapy as well.

Low treatment effect a consequence of bad targeting

Precision of 5 cm rule compared to navigated TMS

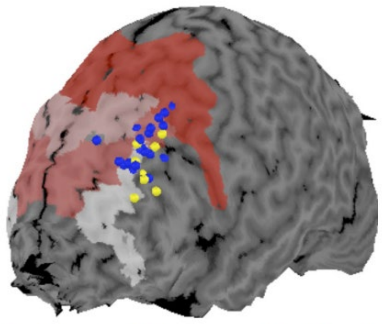
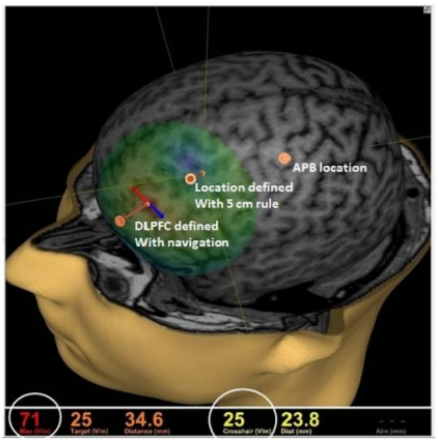


Figure 2. Visualization of the “5-cm rule” corresponding cortical targets in 28 subjects belonging to the active TMS arm on a Talairach size-transformed (normalized) and surface-rendered MRI. The light dots indicate responders to active TMS and dark dots are nonresponders to active TMS. Brodmann areas are shaded on the cortical surface (BA 46, 8, 9, and 6 in order of increasing intensity). BA, Brodmann area; MRI, magnetic resonance imaging; TMS, transcranial magnetic stimulation.



Source: Herbsman et al 2009, Nexstim

Treatment protocol for Major Depressive Disorder

First-line: Antidepressant and psychotherapy

The first-line treatment for MDD today is antidepressant drugs and psychotherapy, depending on the severity of the disorder. A patient can usually go through several drug cycles before moving onto second-line treatment options. As a result, health economic studies (e.g. Simpson et al 2009) have shown that alternative treatments (second-line) such as TMS and ECT are cost-effective early on after initial failed antidepressant treatments, as the greatest economic burden is concentrated on the treatment-resistant group. The response rate amongst patients treated with antidepressants has been estimated at around 50%. The share of patients who do not reach remission, despite several attempts, amounts to 30-40% of all diagnosed patients with MDD.

TMS is cost effective early on

Second-line: Electroconvulsive Therapy (ECT) and TMS

Treatment-resistant depression is defined in a patient who has not reached remission despite one or several attempts of antidepressants. The most common second-line treatment options are electroconvulsive therapy (ECT) and repetitive transcranial magnetic stimulation (rTMS), often used with antidepressants and psychotherapy as a top-up.

ECT is today the most clinically established method and is also used for severely depressed patients in hospitals. Studies have shown a relatively large treatment effect of ECT. Up to 80-90% of depression patients have had a clinical response (Kennedy and Giacobbe, 2007), but this is around 60% when including treatment-resistant depression (Rush and Siefert, 2009). ECT has a controversial reputation and history, mainly due to its earlier "cure-all" status and subsequent overuse. ECT is now generally seen as safe but has side effects that include short-term memory loss.

Over the past decade, rTMS has proven itself a more modern method with fewer side effects, even though the treatment effects of the approved protocols today are not entirely at the same level. rTMS has become a standard, especially among outpatients with mild to medium treatment-resistant MDD due to the possibility to use it in an office and clinic setting. For severe depression, where patients are in-patients in psychiatric hospitals, ECT is still the treatment of choice due to its higher treatment effect and faster treatment cycle.

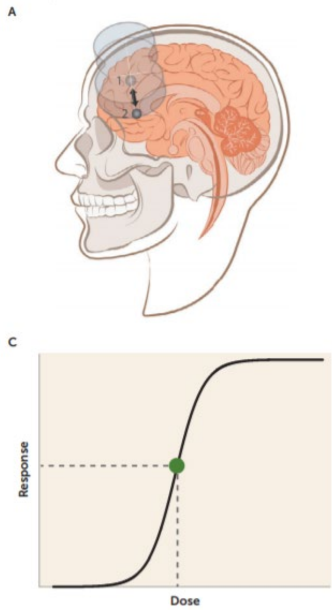
Intermittent Theta-Burst Stimulation and Accelerated iTBS – Future of TMS

A faster treatment with similar effect opens new opportunities

Intermittent theta-burst stimulation is a newer stimulation protocol, first approved by the FDA in 2018 with Magventure. This protocol, developed to mimic the brain's firing power during memory processing, uses short triplets of 50hz for only 600 pulses per session, compared with 3,000 in a regular TMS session. This enables a much faster treatment session (3 minutes compared with up to 40 minutes with the standard method) (Huang et al., 2005; Cole et al. 2020). This makes TMS more appealing for clinics as it is more time- and cost-effective. A randomized non-inferiority study by Blumberger et al. (2018) showed no difference in treatment effect and side effects compared to standard rTMS, which makes iTBS a probable standard protocol for TMS going forward.

An accelerated iTBS (aiTBS) protocol called SAINT (Stanford Accelerated Intelligent Neuromodulation Therapy) has been developed and analyzed by researchers at Stanford University (Cole et al. 2020; Williams et al. 2018). It utilizes the iTBS protocol but triples the pulses per session compared to the FDA-approved protocol and increases the sessions per day from 1 to 10, shortening the treatment days from 30 to 5 (see panel B below). The authors argue that the FDA-approved dose did not maximize the response rate as pictured in panel c on the next page, leaving room for a more extensive treatment effect if the dose was increased. This protocol is seen as especially suited to severely depressed patients and those with no previous treatment response to a lower dose of TMS. The compressed time period combined with a stronger response implies that aiTBS could be used in psychiatric hospitals as a substitute to ECT.

Stanford SAINT protocol



B

Day 1	Day 2	Day 3	Day 4	Day 5
iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI
iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI
iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI
iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI
iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI
iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI
iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
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iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI
iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800	iTBS 1800
50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI	50 minute ISI

Source: Cole et al (2020)

The results in this open-label trial (i.e. not randomized or blinded) were encouraging and showed a remission rate of almost 90%, higher than any other TMS treatments and also than ECT. The researchers are now conducting a follow-up blinded, randomized study to reach a stronger conclusion, which could lead to the protocol's future use in a clinical setting. More research is also being undertaken into dose optimization. <u>We deem that aiTBS has shown promising results so far and that more and larger trials showing similar effects would result in aiTBS taking TMS treatment into a new paradigm.</u>

Nexstim Pilot Study – Severe MDD

In October 2020, Nexstim announced an investigator-initiated pilot study using the aiTBS protocol with Nexstim's NBT system, targeted towards severely depressed patients. The study is being conducted at Kuopio University Hospital in Finland and is expected to be completed during 2020. If the study shows promising data, Nexstim hopes to conduct a larger multi-center trial and to file for de novo FDA approval in this new indication aimed towards psychiatric hospitals during 2023-2024. This would open up a new market for TMS and Nexstim would be well-positioned both in terms of first-mover advantage and in having the most established navigation system on the market.

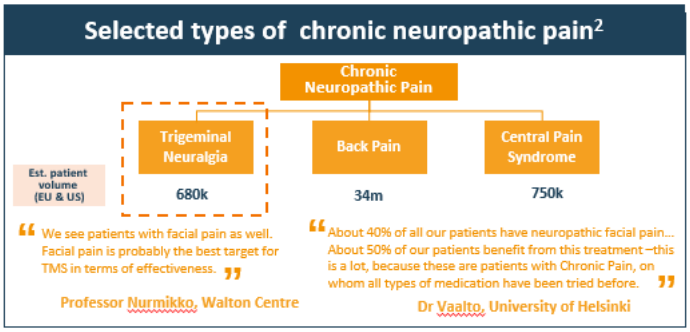
The rationale for navigation in aiTBS is that it is especially beneficial to use the navigation to return to the initial calibration during the intense protocol. As precision affects treatment effect, Nexstim's navigation system may also be especially prioritized by clinicians working with severely depressed patients who need the best possible option. We believe it most likely that a larger study would need to be financed by Nexstim and that more funding would be required to deliver on this indication.

Chronic Neuropathic Pain

Nexstim's second therapy segment is within chronic neuropathic pain – today CE-marked in the EU. The prevalence of chronic neuropathic pain (caused by a lesion or disease of the somatosensory system) is estimated to amount to 6-7% worldwide (Torrance et al., 2006, Bouhassira et al., 2008), suggesting very high market potential. As with MDD, today's treatment options for chronic neuropathic pain are not very effective, with only 30-40% achieving satisfactory pain reduction (Lefaucheur 2014). The effect on quality of life can be severe, and we deem that interest in new treatments within this indication is relatively high. Nexstim has particular experience and interest in trigeminal neuralgia, a sensation felt in the face.

Looking at the evidence today, we have a more conservative view on the use of TMS within chronic neuropathic pain on a larger scale – especially in the US, where no system is currently approved. Our view, also reflected in regulatory feedback, is mainly due to less consensus on stimulation hotspots and protocol standards and less qualitative clinical evidence overall. However, we see this indication in the US as an option for further upside potential if research consensus were to reach maturity. We see potential for growth in Europe but believe that near-term development will not be as strong as for therapy targeting MDD.

Chronic neuropathic pain market



Source: Nexstim

A more complex competitive landscape

The competitive landscape for the treatment of chronic pain is more complex. Typical treatments after non-response to pain medication (including opiates) are antidepressants and anticonvulsants. Within chronic neuropathic pain, invasive treatments such as spinal cord stimulators and implantable peripheral nerve stimulation are also options in later stages of the treatment protocol. For trigeminal neuralgia specifically, surgical options include brain stereotactic radiosurgery using a Gamma knife and microvascular decompression, an invasive method to relocate and remove blood vessels to stop nerve malfunction.

Treatment rationale for TMS in Chronic Pain

Several of today's treatment methods for chronic pain are invasive, which comes with the risk of infections and technical failures. As a well-tolerated and non-invasive method, there is a rationale for TMS as a method within chronic pain as well. Currently, the mechanisms of TMS in chronic pain are not as established as within MDD.

The best evidence for TMS within the indication is high-frequency rTMS in the motor cortex, focused on the M1 contralateral to the pain side, where several smaller studies have been conducted (Lefaucheur 2014). A small (n=37)[1] randomized investigator-initiated study at the Walton Centre in the UK used a Nexstim device to compare the standard M1 hotspot to the reorganized M1. The study concluded that the alternative (the reorganized M1) was as effective as the standard hotspot in terms of treatment effect but increased the total response rate by 58%. This study is a proof-of-concept for the use of a Nexstim device (and TMS) within chronic neuropathic pain but does not in itself provide enough clinical evidence for a filing in the US. A follow-up study is ongoing.

We stress the importance of more extensive multi-center randomized trials, better evidence of long-term outcomes, and more standardization before we expect to see TMS for chronic pain becoming a standard in outpatient pain clinics as TMS is for MDD. One or several larger trials would likely need to be financed by a TMS provider to achieve this. However, we see more potential for Nexstim, rather than other TMS providers, thanks to its early experience in chronic pain and its reputation with TMS in pre-surgical mapping of the motor cortex, and also as navigation is needed to a greater extent in this more complex targeting setting.

Nexstim Pilot Study – Chronic Neuropathic Pain

In October 2020, Nexstim announced a pilot study on 5-10 patients with treatment-resistant chronic neuropathic pain at the Helsinki University Hospital, using the accelerated iTBS protocol. The hospital was already using the NBT system for chronic neuropathic pain. The study is planned to start during Q4 2020, with readout in the first half of 2021. We see this as an interesting option for Nexstim and believe that good results here could inform future focus on the indication, also depending on the outcome of Nexstim's other pilot study. The company has said that the data from the two pilot studies will steer prioritization of new studies. Depending on the investigator-funding amount, we deem it likely that Nexstim will prioritize the indication that shows the best evidence.

[1] Including attrition. Data from 27 patients was analyzed

Market Characteristics – Diagnostics

We see neurosurgical clinics in the US and Europe as the market of interest for the NBS system in pre-surgical mapping. We estimate a system replacement rate of 9 years, one system per clinic, and potential annual revenue as system sales every 9 years + recurring revenues.

Total Adressable Market – NBS System

	2020	2021	2022
		U.S.	
Neurosurgical clinics	500	503	505
System sales (€m)	14	14	14
Recurring revenue (€m)	4	4	4
Systems/clinic	1.0	1.0	1.0
US revenue (€m)	17.6	17.7	17.8
		EU	
Neurosurgical clinics	650	653	657
System sales (€m)	17	17	17
Recurring revenue (€m)	5	5	5
Systems/clinic	1.0	1.0	1.0
EU revenue (€m)	22	22	22
Average yearly total addressable market (€m)	**40**	**40**	**40**
Total addressable market (€)	**290**	**290**	**290**

Source: WHO, American Association of Neurological Surgeons, Nexstim, Redeye Research

We estimate annual TAM for Nexstim's NBS system at EUR 40 million in 2020, with relatively equal shares of market potential in the EU and the US, suggesting that Nexstim's market share is roughly 3% as of this year. While we see Nexstim's NBS system as the leader in its niche – since it is the only navigated TMS device approved by the FDA for motor and speech mapping – we believe there is more upward potential for pre-surgical planning as a whole.

While there are competing technologies to nTMS in pre-surgical planning, we see a continued economic and treatment-based rationale for TMS. Given Nexstim's strong reputation amongst clinicians and its established KOL network, we believe that its diagnostics segment will continue to grow, although less so than Nexstim's therapy segment. One catalyst that could drive sales further is gaining a partner within diagnostics, which could increase value to the clinic as well. We also believe that the finalization of reimbursements, especially in the US, would make surgical clinics more prone to using TMS for pre-surgical planning. Given the positive effect on treatment and the health economics benefit, we see this as a possibility. There are also possibilities within new diagnostics indications, such as difficult brain tumors and epilepsy.

Market Characteristics – Therapy for MDD

Major depression disorder is a clinical mood disorder and one of the most common causes of disability in the world today, with total prevalence estimated by the WHO to be 163 million worldwide. In what we deem to be Nexstim's key markets of the US and EU15, we use Datamonitor and Eurostat statistics and thus estimate that roughly 24 million people have been adequately diagnosed with MDD. Of these, 18 million are being treated with antidepressants. Roughly half are treated with a second-line drug and 30% are estimated to be treatment-resistant. We deem that roughly 70% of the patients with treatment-resistant depression are looking for additional treatment in their current episode and are treatable in an outpatient setting.

Total Addressable Market – Therapy for MDD

	2020	2021	2022	2023
		US		
Diagnosed with MDD	11 401 874	11 474 868	11 557 263	11 646 510
Share treated	9 331 737	9 391 478	9 458 913	9 531 956
Treated with second-line	4 394 665	4 422 799	4 454 557	4 488 956
Treatment-resistant MDD	2 799 521	2 817 443	2 837 674	2 859 587
Addressable TMS market	1 959 665	2 011 655	2 066 621	2 124 231
Revenue (€m)	4938	5069	5208	5353
		EU15		
Diagnosed with MDD	12 310 716	12 384 580	12 458 888	12 533 641
Share treated	10 077 293	10 077 293	10 077 293	10 077 293
Treated with second-line	8 449 424	8 449 424	8 449 424	8 449 424
Treatment-resistant MDD	3 693 215	3 715 374	3 737 666	3 760 092
Addressable TMS market	2 585 250	2 652 777	2 722 068	2 793 168
Revenue (€m)	6081	6239	6402	6570
Total addressable market (€m)	11019	11309	11610	11923

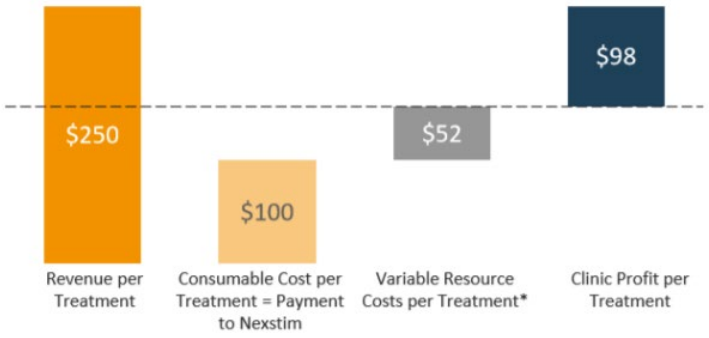
Source: Datamonitor, Eurostat, Redeye Research

We then calculate the share of the reimbursement that is paid as a leasing fee to the TMS provider, using a slightly lower price for the EU15. As reimbursements in the EU are less developed and more heterogeneous, we consider this part of the equation to be less reliable.

We calculate the TAM to be EUR 11 billion, with a slightly higher share in the EU because of its larger population and higher percentage of diagnosed patients. When including the full reimbursement per treatment, including the reimbursement share paid to the clinic, we value the market's total potential treatment value to EUR 28 billion.

Nexstim's Leasing Model

Exhibit 5: Economic benefit to TMS/Psychiatric Centre (pay-per-use lease)



- In a pay-per-use lease, no initial investment is required for clinics so **clinics make profit from first patient**
- A clinic could achieve annual profit of **$147,500**, assuming 30 treatments per patient and 50 patients per year
- Nexstim can make a revenue of **$150,000** for contracted clinic in pay-per-use lease

Source: Nexstim Note: * includes estimated cost of facilities and technician for 45 minutes per treatment, MD costs (3x per patient, 45mins biweekly) and MRI cost of $500/patient divided by amount of treatment. 40% overhead applied.

Source: Nexstim

Nexstim's sales model differs between the NBS and NBT system. The NBS system, used for surgical clinics and hospitals, today mostly consists of capital sales. Beyond the system sales, there are also after-sales such as software upgrades, recalibration, and consumables. We deem these to be a small share of the total revenue for the NBS system.

The sales structure of the NBT system is more complicated as Nexstim has three different models: all-inclusive pay-per-use; pay-per-month with no limit on usage; and capital sales with smaller consumable costs. Today, most of Nexstim's revenue in the therapy segment comes from recurring revenues, such as the pay-per-use sales structure. Looking at the whole TMS market, we believe that the leasing structure will become more dominant going forward. As pictured above, TMS clinics can receive positive cash flow from the first treatment when using the pay-per-use option. This, however, requires enough uptake of treatment per system installed for Nexstim to make a profit.

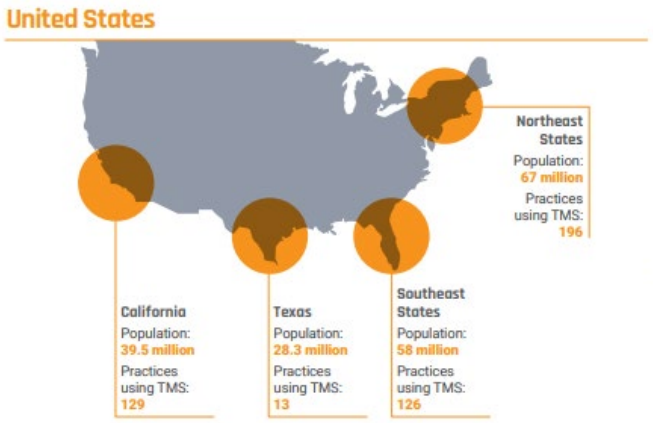
Focus in the short term

We see the US as the market with the most potential for Nexstim, mainly thanks to the high insurance coverage (roughly 90%), good reimbursement structure, and overall growing interest in TMS treatment, including Nexstim's NBT system. Nexstim has previously focused on direct sales in the US to four TMS hubs: California; Texas; south eastern states; and north eastern states (pictured below).

As of 2020, Nexstim has shifted its corporate strategy to focus on growth through potential strategic partnerships, such as a TMS clinic chain, and on increasing recurring revenues from the existing stock of installed systems. As the TMS market will grow, we believe that annual leasing income per system will gradually increase. Today, the annual income per system is an average EUR 70,000. We believe a reasonable target is EUR 100,000 in the

long term. Nexstim has previously focused on direct sales in the UK and Germany while relying on distribution in the rest of Europe. In light of the new corporate strategy, more focus is now on sales through distribution and partnerships.

Selected US markets

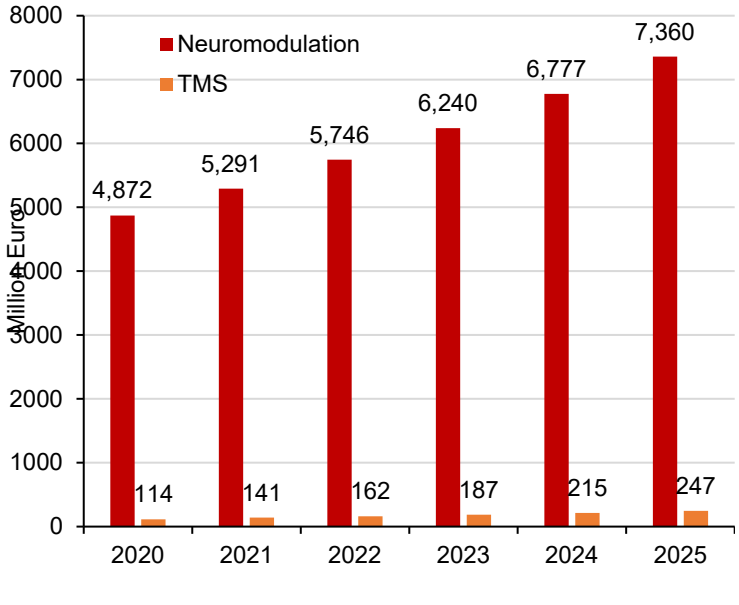


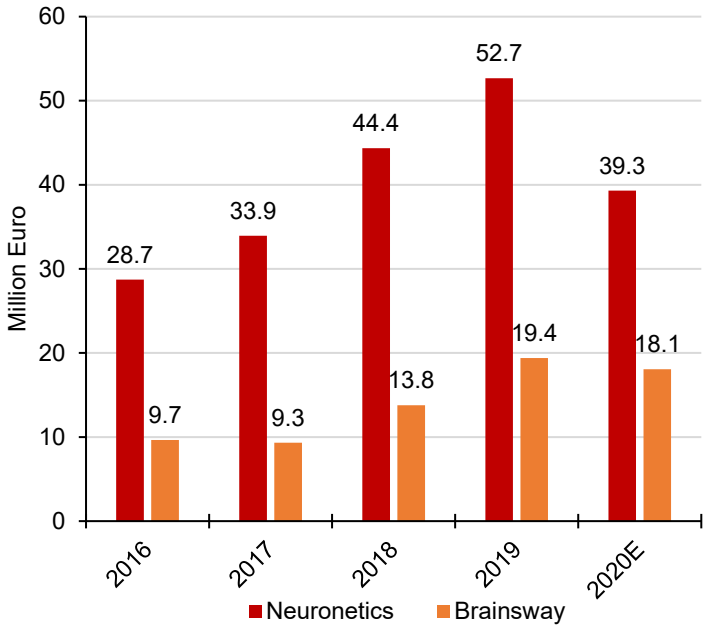
Source: Nexstim, 2018 data

The market and competition today

The global neuromodulation market is estimated to reach EUR 7.4 billion in 2025, with an annual CAGR of 8.6%. The US accounts for the majority of annual sales, with Europe second.

Neuromodulation and TMS Market (EUR million)





Source: Markets & Markets, Redeye Research (left), Bloomberg (right)

By comparison, we estimate that the TMS market currently represents a small share of this market, at 2-3%. The market leaders Neuronetics and Brainsway had pre-coronavirus combined revenue of EUR 72 million and estimated revenue for 2020 of EUR 57 million (chart above to the right). We estimate that they together account for roughly 50% of the total TMS market, giving us a conservative TMS market estimate of EUR 120 million for 2019 and EUR 114 million for 2020. We estimate that the TMS market will grow by a CAGR of 15% in 2020-2025.

Competitors – MDD therapy in US

Company	FDA approval rTMS	Market cap €	Navigation	iTBS FDA clearance
Neuronetics	2008	105 m	No	No
Brainsway	2013	57 m	No	No
Apollo TMS	2018	Private	MRI-based	Yes
Cloud TMS	2016	Private	No	No
Magstim	2015	Private	Line-based	Yes
Magventure	2015	Private	Line and/or MRI	Yes
Nexstim	2017	23 m	e-field navigation	Yes

Source: Meddevicetracker, Clinical TMS Society, company websites, Redeye Research

Market leaders

TMS and therapy for treatment-resistant depression are relatively competitive areas, although the market segment is small and growing rapidly. We see 7 companies (including Nexstim) with FDA approval for TMS in MDD.

Neuronetics, the first company to receive FDA approval for treatment-resistant MDD, has a market cap of EUR 105 million Euro. As of H1 2020, it has 1,100 installed active TMS systems, with consensus estimates of EUR 39m in revenue for 2020. Neuronetics has a market-leading role in terms of sales and emphasizes its support system and smooth user experience. As it is the US's predicative device, it is also the device with most clinical data supporting a significant clinical effect compared to placebo. Neuronetics' coil navigation is, however, less advanced than competitors' offerings and uses a laser-guided system based on external cranial landmarks.

The other market leader is **Brainsway**, which received FDA clearance for MDD in 2013 and has since expanded into OCD and smoking cessation in the US. Brainsway's revenues comprise both capital sales and leasing. Its addition to this segment is the "deep TMS", with an H-shaped magnetic coil (rather than an 8-shape). This method's rationale is a deeper penetration of the magnetic pulse and thus a larger stimulated volume of the gray matter. The protocol is also shorter than the standard TMS protocol (20 vs 40 minutes). The drawback appears to be slightly higher side effects and decreased patient experience (Lonergan et al. 2018), less precision, and a greater risk of seizures (Deng, Lisanby and Peterchev 2013). One third-party study compared deep TMS to standard rTMS and demonstrated a significantly better effect on the secondary outcome, the response rate, but not a significantly different effect in the primary outcome, remission rate (Filipčića et al. 2019). The evidence can thus not prove the merits of deep TMS compared with standard TMS or navigated TMS. We also believe that Brainsway's differentiated coil system can be problematic if the shorter iTBS protocol, approved and validated for the figure of 8-shaped coil systems today, becomes the new TMS standard.

Cloud TMS is the third company with a solid installed base. It also has a broader geographical focus than Brainsway and Neuronetics. We see similarities between Neuronetics and Cloud TMS in that they both focus on usability and affordability rather than innovation, although Cloud TMS operates with a retail-like sales platform.

Market challengers

In this segment, we categorize smaller and more technically innovative companies with a foundation in the research community. **Magstim**, a smaller UK-based company has developed Stimguide Navigated TMS. This line-based navigation method uses four parameters for 3D-based targeting. The focus of Magstim's system is a more straightforward navigation that does not require an MRI. **Magventure**, based in Denmark, uses the Localite navigation system, which is CE-approved. **Apollo TMS** has a navigation solution based on MRI and IR.

We believe the market for TMS will continue to grow rapidly, a result of increased market penetration of TMS, continued R&D, and expansion into new psychiatric indications. Historically, the market leaders have focused on expansion into new indications and the market challengers more on technical innovation. In the past few years, navigated TMS has become increasingly popular, with several systems developed using different techniques and levels of complexity. We argue that it is too early to know the full additional clinical effect and the exact trade-off between usability, economics, and system complexity, however. Many competing systems to Nexstim's are new and lack clinical data. We consider Nexstim's NBT system and navigation method to be well-positioned on the market and believe its strong KOL network within neurosurgery, documented use, and efficiency within pre-surgical planning and evolving patient registry will assist in its future growth. Risks include that competing navigation systems are more adapted for smaller clinics without MRI capacity and standardized for easier day-to-day use.

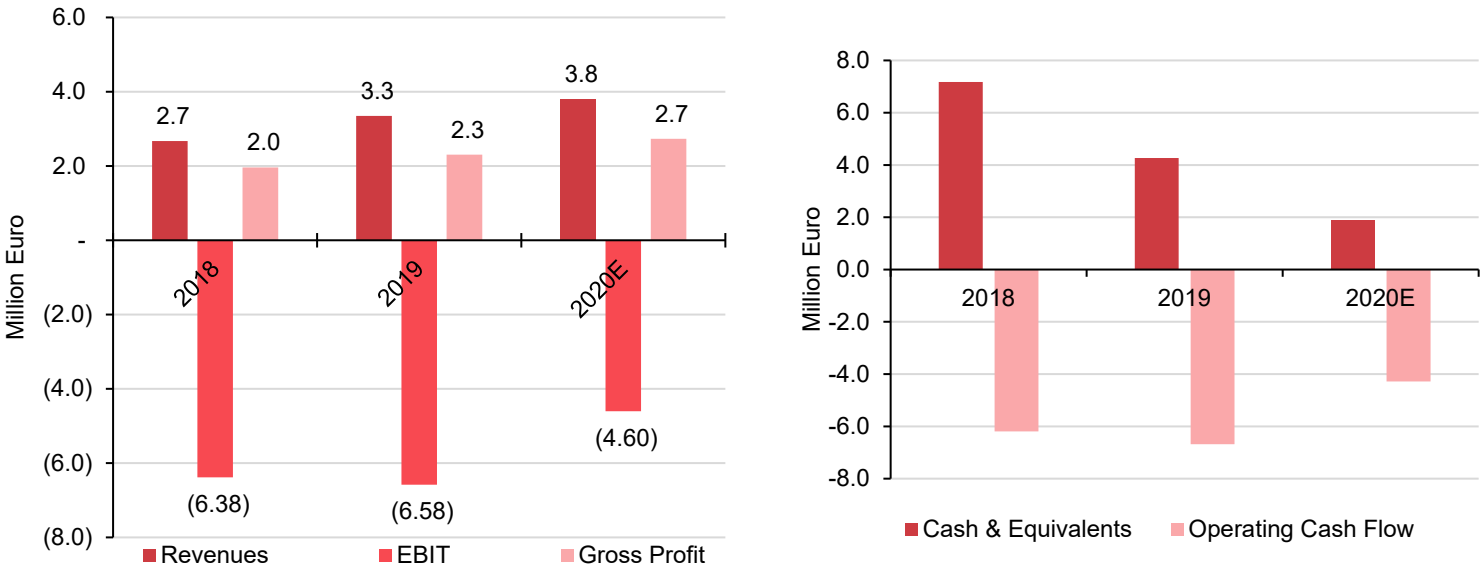
Financial Forecasts

In the first six months of 2020, Nexstim recorded sales of EUR 1.6 million (EUR 1.2 million in H1 2019), resulting in the company's best half-year to date in absolute terms, although growth has been affected by the coronavirus pandemic. Most growth (47% compared to 2019) stemmed from the capital sales of the NBS diagnostics system. Sales from the NBT system for therapy grew by 18% compared to 2019, only through recurring sales in the form of consumables and treatment revenue from system leasing. This is reasonable given the longer sales cycles for the NBS system, although we find the NBS sales to new clinics and hospitals notable. Given the high sales price per system (and subsequently, relatively few system sales per year), we note that there is an element of random variability in growth between individual years in this segment. Leasing income from the NBT system, in comparison, is highly dependent on usage – in other words, it is sensitive to the lockdowns and measures used against the coronavirus pandemic. We believe that system usage will remain somewhat lower throughout 2020 but then increase from 2021.

Revenues	2018	2019	2020E	2021E	2022E	2023E
NBT	0,66	1,52	1,68	2,38	4,00	6,37
Y/Y growth (%)	NA	130,8%	10,3%	41,5%	68,3%	59,2%
NBS	1,27	1,04	1,33	1,56	1,90	2,25
Y/Y growth (%)	-25,8%	-18,7%	28,1%	17,9%	21,2%	18,5%
NBS – other sales	0,7	0,8	0,8	0,8	0,7	0,8
Y/Y growth (%)	NA	7,0%	0,0%	0%	0%	3,3%
Total revenues	**2,67**	**3,35**	**3,80**	**4,70**	**6,64**	**9,39**
Y/Y growth (%)	55,6%	25,3%	13,4%	23,9%	41,3%	41,3%

Source: Nexstim; Redeye Research

Profitability today (left) and cash position (right)



Source: Nexstim, Redeye Research

While the TMS market has some good characteristics for long-term profitability in the form of high gross margins and recurring revenues, Nexstim is not yet profitable. This is mainly the result of high operating costs, stemming primarily from its direct sales structure – especially in the US. We estimate that EBIT for 2020 will be less negative than it was in 2019, mainly owing to stricter cost control in personnel and travel costs. While some cost reductions, such as employee furloughs, are temporary, we are also cautiously optimistic about Nexstim's strategic decision to grow through partnerships with a more trimmed sales force.

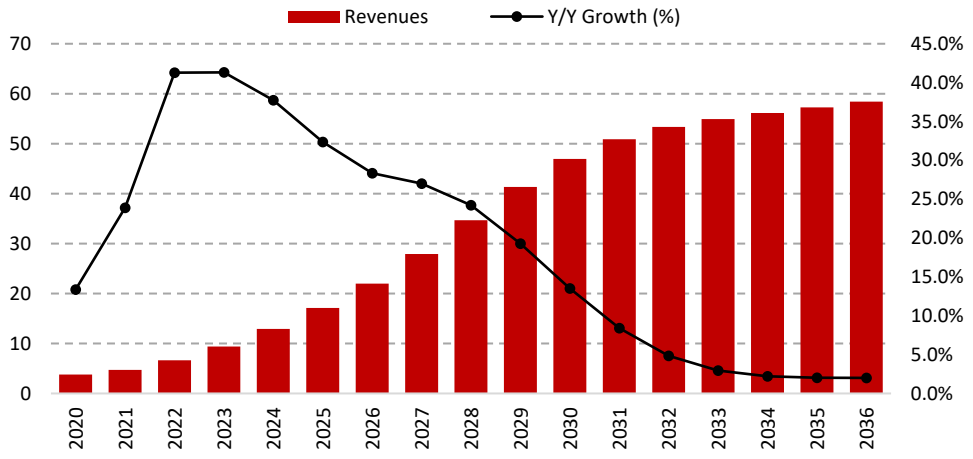
Nexstim's latest rights issue was finalized in June 2020, netting EUR 2.2 million. A loan from Business Finland was also partially cancelled, further increasing Nexstim's cash position by EUR 0.9 million. We deem that Nexstim has a cash runway until Q1 2020 at its current burn rate and cash position and that it will need further financing to maintain its operating expenses, execute its strategic plan, and fund research into new indications. A long-term financial solution would increase our confidence in Nexstim's ability to finance larger studies of new indications, such as severe depression and chronic pain in the US.

Valuation

Our valuation of Nexstim is based on a discounted cash flow model (DCF). Our base case focuses on the core indications already approved and financed: the NBS system for pre-surgical mapping, the NBT system for depression (EU/US), and the NBT system for chronic neuropathic pain (EU). We see the greatest value in the depression therapy segment, with peak sales of EUR 47m, with some 470 installed systems and EUR 100,000 in yearly revenue per system. We expect Nexstim's depression therapy to gain 14.5% of the US TMS market and 6% in the EU, giving an overall 10% - and including a strong position in the premium niche of TMS therapy. Our lower EU estimates result from a more fragmented market, less developed reimbursement structure and less strategic focus currently. We forecast that EU sales for chronic neuropathic pain will peak at EUR 4m and the diagnostics segment at EUR 7m.

DCF Summary			
Assumptions 2020-2036		**DCF Value**	
CAGR Sales	17.5%	WACC	14%
Terminal		Value of Firm (EURm)	27
Terminal Growth FCF	2%	Net Cash (EURm)	-2.3
Terminal EBIT Margin	32.5%	Value of Equity (EURm)	25
Estimated Fair Value (SEK)			0.6

Revenue Growth – Base Case (Million Euro)



Source: Redeye Research

An important part of our valuation is the weighted average cost of capital (WACC). To estimate the WACC, Redeye uses a rating model, Redeye Rating, reflecting the company's qualities and risks on several parameters. In all of the following scenarios we use a WACC of 14% and the same sales forecasts for the NBS diagnostics and NBT for chronic neuropathic pain segments. Our fair value range is broad, indicating both high potential and risk in Nexstim - mostly around its execution in financing and commercialization.

Bear Case SEK 0.1

Nexstim's NBT system for therapy does not manage to differentiate itself against competing TMS systems, leading to less traction and market penetration.

Nexstim remains a smaller niche actor and keeps its current sales structure due to lack of interest from potential partners.

Terminal EBIT Margin: 27.5%

CAGR 2020-2027: 23%
CAGR 2020-2036: 15%

Base Case SEK 0.6

Terminal EBIT Margin: 32.5%

CAGR 2030-2027: 28%
CAGR 2020-2036: 17.5%

Bull Case SEK 1.5

Nexstim manages to grow through larger strategic partnerships while keeping a relatively small sales force.

Nexstim's pivotal study on accelerated treatment for severe depression gets partly investigator-funded and shows encouraging results. Nexstim takes 15% of the in-patient market for severe depression in the US while also succeeding in the other depression segment.

Terminal EBIT Margin: 35%

CAGR 2020-2027: 41%
CAGR 2020-2036: 22.5%

Sensitivity Analysis

	15%	14%	13%
Bull	1,4	1,5	1,6
Base	0,5	**0,6**	0,65
Bear	0,07	0,1	0,12

Source: Redeye Research

Appendix

Management

Name	Title	Experience
Mikko Karvinen	CEO	Mikko is the CEO at Nexstim since February 2020 and joined the company 2014 as CFO. He is currently a Board Member at Buddy Healthcare Oy, and earlier held leading positions in two publicly listed technology companies. Mikko holds a Masters in Science with a major in Management Accounting from Helsinki School of Economics.
Steve Beller	VP and General Manager, North America	Steve Beller has a long experience from the US neuromodulation market where he recently was the Area Vice-President at Abbott Neuromodulation. Prior to this, he held Senior roles at St Jude Medical Neuromodulation. He holds a BA in political science at Texas A&M University.
Henri Hannula	VP, International Sales and Marketing	Henri Hannula joined Nexstim in 2001 and has held several leadership positions within the company since. He assumed the role of Vice President, Sales Europe in 2013. He holds a Master of Science degree from Helsinki University of Technology, Finland and has authored several academic articles.
Joonas Juokslahti	CFO	Joonas Juokslahti started as Nexstim's CFO in February 2020.He joined in May 2014 as Business Controller and was before his role as a CFO the finance manager. He holds a Master in Science (M.S) with a major in Accounting and Finance from Turku School of Economics.
Gustaf Järnefelt	VP, R&D	Gustaf has served as the Vice President of R&D since joining Nexstim in 2008. Before joining Nexstim, he worked at Instrumentarium and GE Healhcare in various leadership roles. He holds five patent families and has amongst others a Master in Science from the Helsinki University of Technology.
Hanna Kotola	VP Legal, Quality and Regulatory Affairs	Hanna has experience in various legal counsel roles from international companies such as Nokia, Digita and Polar Electro. She holds a Candidate of Laws degree from University of Helsinki and a Masters degree in International Business Management from Arcada - University of Applied Sciences.
Jarmo Laine	VP, Medical Affairs	Jarmo Laine, M.D., is a licensed physician and also holds a PhD and MBA from University of Helsinki and Helsinki University of Technology. He has over 60 academic publications, including within Navigated Brain Stimulation/TMS.

Board of Directors		
Name		**Experience**
Leena Niemistö	Chairman of the Board	Leena has been the Chairman of Nexstim since November 2019 and is also the largest single shareholder. She is a medical doctor and has a PhD from the University of Helsinki in physical and rehabilitation medicine. She has experience as a CEO of health care companies and is today active as an investor in growth companies. She also serves on four public boards and several private companies.
Rohan J Hoare	Deputy Chairman of the Board	Rohan Hoare is the CEO of Epiminder, an epilepsy monitoring company. He has worked for long in the neuromodulation industry where he also has served in leading several leading positions. He has also worked at McKinsey and holds a PhD in Physics from Harvard.
Martin Forss	Member of the Board	Martin Forss has been a board member since November 2019. He is an investor, entrepreneur and board professional and was in his last operating position the CEO of the private dentistry company Oral Hammaslääkärit.
Tomas Holmberg	Member of the Board	Tomas has been a member of the board since 2017. He is an experienced business lawyer and has worked at Nokia and Hannes Snellman. He is now an independent advisor within M&A and Investments.

Summary Redeye Rating

The rating consists of three valuation keys, each constituting an overall assessment of several factors that are rated on a scale of 0 to 1 points. The maximum score for a valuation key is 5 points.

Rating in the report

People: 3

Nexstim's team is well composed and have what we deem good prerequisits to take Nexstim onward to a profitable future.

Business: 3

Nexstim's core segment, depression treatment, has high growth potential and operating leverage. The leasing structure is financially appealing to clinics while Nexstim gets a recurring fee for each treatment.

Financials: 1

Nexstim has a high cash burn and will not have a positive cash flow for several years in our view. This leads us to conclude that additional funding is necessary.

INCOME STATEMENT	2018	2019	2020E	2021E	2022E
Net sales	3	3	4	5	7
Total operating costs	-9	-10	-8	-7	-9
EBITDA	-6	-7	-4	-3	-2
Depreciation	0	0	-1	-1	-1
Amortization	0	0	0	0	0
Impairment charges	0	0	0	0	0
EBIT	-6	-7	-5	-3	-3
Share in profits	0	0	0	0	0
Net financial items	0	0	0	0	-1
Exchange rate dif.	0	0	0	0	0
Pre-tax profit	-6	-7	-5	-4	-4
Tax	0	0	0	0	0
Net earnings	-6	-7	-5	-4	-4

BALANCE SHEET	2018	2019	2020E	2021E	2022E
Assets					
Current assets					
Cash in banks	7	4	2	0	0
Receivables	1	2	0	0	0
Inventories	0	0	0	0	0
Other current assets	0	0	0	0	0
Current assets	9	6	2	0	1
Fixed assets					
Tangible assets	0	1	1	1	2
Associated comp.	0	0	0	0	0
Investments	0	0	0	0	0
Goodwill	0	0	0	0	0
Cap. exp. for dev.	0	0	0	0	0
O intangible rights	0	0	0	0	0
O non-current assets	0	0	0	0	0
Total fixed assets	1	1	1	1	2
Deferred tax assets	0	0	0	0	0
Total (assets)	10	8	3	2	3
Liabilities					
Current liabilities					
Short-term debt	1	1	1	2	2
Accounts payable	1	1	0	0	0
O current liabilities	1	1	1	1	1
Current liabilities	3	3	3	3	4
Long-term debt	7	5	6	8	12
O long-term liabilities	0	0	0	0	0
Convertibles	0	0	0	0	0
Total Liabilities	10	8	9	11	16
Deferred tax liab	0	0	0	0	0
Provisions	0	0	0	0	0
Shareholders' equity	0	-1	-6	-9	-13
Minority interest (BS)	0	0	0	0	0
Minority & equity	0	-1	-6	-9	-13
Total liab & SE	10	8	3	2	3

FREE CASH FLOW	2018	2019	2020E	2021E	2022E
Net sales	3	3	4	5	7
Total operating costs	-9	-10	-8	-7	-9
Depreciations total	0	0	-1	-1	-1
EBIT	-6	-7	-5	-3	-3
Taxes on EBIT	0	0	0	0	0
NOPLAT	-6	-7	-5	-3	-3
Depreciation	0	0	1	1	1
Gross cash flow	-6	-7	-4	-3	-2
Change in WC	0	0	1	0	0
Gross CAPEX	-1	0	-1	-1	-1
Free cash flow	-7	-7	-4	-4	-4

CAPITAL STRUCTURE	2018	2019	2020E	2021E	2022E
Equity ratio	-3%	-10%	-168%	-503%	-507%
Debt/equity ratio	-	-848%	-135%	-105%	-110%
Net debt	1	2	6	10	15
Capital employed	1	1	0	0	1
Capital turnover rate	0.3	0.4	1.1	2.5	2.5

GROWTH	2018	2019	2020E	2021E	2022E
Sales growth	0%	25%	13%	24%	41%
EPS growth (adj)	0%	-95%	-89%	-23%	6%

PROFITABILITY	2018	2019	2020E	2021E	2022E
ROE	0%	0%	0%	0%	0%
ROCE	-160%	-97%	-122%	-269%	-381%
ROIC	0%	-825%	-360%	-1649%	-830%
EBITDA margin	-239%	-197%	-102%	-53%	-37%
EBIT margin	-239%	-197%	-121%	-71%	-51%
Net margin	-239%	-197%	-130%	-81%	-60%

DATA PER SHARE	2018	2019	2020E	2021E	2022E
EPS	n.m	n.m	n.m	n.m	n.m
EPS adj	n.m	n.m	n.m	n.m	n.m
Dividend	0.00	0.00	0.00	0.00	0.00
Net debt	0.34	0.03	0.01	0.02	0.03
Total shares	3.25	62.79	439.62	439.62	439.62

VALUATION	2018	2019	2020E	2021E	2022E
EV	3	9	29.2	33.2	38.0
P/E	NEG	NEG	NEG	NEG	NEG
P/E diluted	NEG	NEG	NEG	NEG	NEG
EV/Sales	1.13	2.73	7.7	7.1	5.7
EV/EBITDA	-0.5	-1.53	-7.5	-13.3	-15.5
EV/EBIT	-0.4	-1.4	-6.4	-9.9	-11.2

SHARE PERFORMANCE		GROWTH/YEAR	18/20E
1 month	-20.6 %	Net sales	19.2 %
3 month	145.5 %	Operating profit adj	-15.1 %
12 month	71.4 %	EPS, just	-92.4 %
Since start of the year	77.1 %	Equity	339.1 %

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Redeye Rating and Background Definitions

Company Quality

Company Quality is based on a set of quality checks across three categories; PEOPLE, BUSINESS, FINANCE. These are the building blocks that enable a company to deliver sustained operational outperformance and attractive long-term earnings growth.

Each category is grouped into multiple sub-categories assessed by five checks. These are based on widely accepted and tested investment criteria and used by demonstrably successful investors and investment firms. Each sub-category may also include a complementary check that provides additional information to assist with investment decision-making.

If a check is successful, it is assigned a score of one point; the total successful checks are added to give a score for each sub-category. The overall score for a category is the average of all sub-category scores, based on a scale that ranges from 0 to 5 rounded up to the nearest whole number. The overall score for each category is then used to generate the size of the bar in the Company Quality graphic.

People

At the end of the day, people drive profits. Not numbers. Understanding the motivations of people behind a business is a significant part of understanding the long-term drive of the company. It all comes down to doing business with people you trust, or at least avoiding dealing with people of questionable character.

The People rating is based on quantitative scores in seven categories:

- Passion, Execution, Capital Allocation, Communication, Compensation, Ownership, and Board.

Business

If you don't understand the competitive environment and don't have a clear sense of how the business will engage customers, create value and consistently deliver that value at a profit, you won't succeed as an investor. Knowing the business model inside out will provide you some level of certainty and reduce the risk when you buy a stock.

The Business rating is based on quantitative scores grouped into five sub-categories:

- Business Scalability, Market Structure, Value Proposition, Economic Moat, and Operational Risks.

Financials

Investing is part art, part science. Financial ratios make up most of the science. Ratios are used to evaluate the financial soundness of a business. Also, these ratios are key factors that will impact a company's financial performance and valuation. However, you only need a few to determine whether a company is financially strong or weak.

The Financial rating is based on quantitative scores that are grouped into five separate categories:

- Earnings Power, Profit Margin, Growth Rate, Financial Health, and Earnings Quality.

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Disclaimer

Important information
Redeye AB ("Redeye" or "the Company") is a specialist financial advisory boutique that focuses on small and mid-cap growth companies in the Nordic region. We focus on the technology and life science sectors. We provide services within Corporate Broking, Corporate Finance, equity research and investor relations. Our strengths are our award-winning research department, experienced advisers, a unique investor network, and the powerful distribution channel redeye.se. Redeye was founded in 1999 and since 2007 has been subject to the supervision of the Swedish Financial Supervisory Authority.
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Redeye Rating (2020-11-12)

Rating	People	Business	Financials
5p	21	16	3
3p - 4p	108	88	40
0p - 2p	5	30	91
Company N	134	134	134

Duplication and distribution

CONFLICT OF INTERESTS

Fredrik Thor owns shares in the company : No
Ludvig Svensson owns shares in the company : No
Redeye performs/have performed services for the Company and receives/have received compensation from the Company in connection with this.