



∠ PROBLEM

750
million
chronic insomniacs

Can't fall asleep



Wake up at night



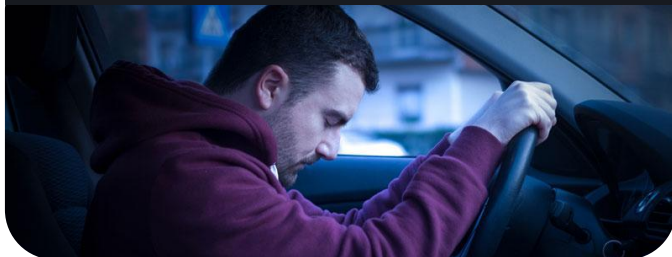
Wake up too early



∠ SOCIETAL AND ECONOMIC IMPACT

€4,108

average annual additional
cost per insomniac



€455 Bn

total annual costs in Europe,
USA and Canada



∠ USER PAINS

“There is virtually **no treatment** of insomnia in the healthcare system.”

Harald Hrubos-Strøm, MD ENT Specialist, PhD, Somnologist

AKERSHUS UNIVERSITETSSYKEHUS



Professional therapy
(CBT-i)



**Scarce and resource
intensive**



Pharmacological therapy
(drugs)



**Negative side-effects,
addiction and tolerance**



Sleep trackers
(apps, monitors & wearables)



**Rebound insomnia and
orthosomnia**

∠ NEED



Accessibility

Available, affordable and timely



Non-pharmacological

Evade negative side-effects

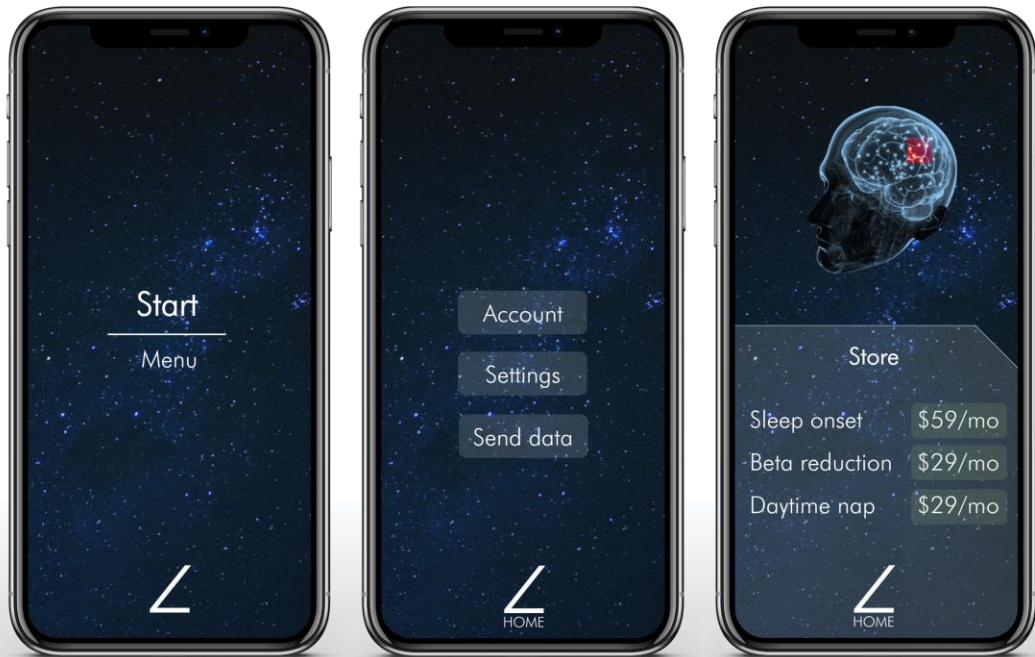


Sleep hygiene

Avoid nocturnal disturbances

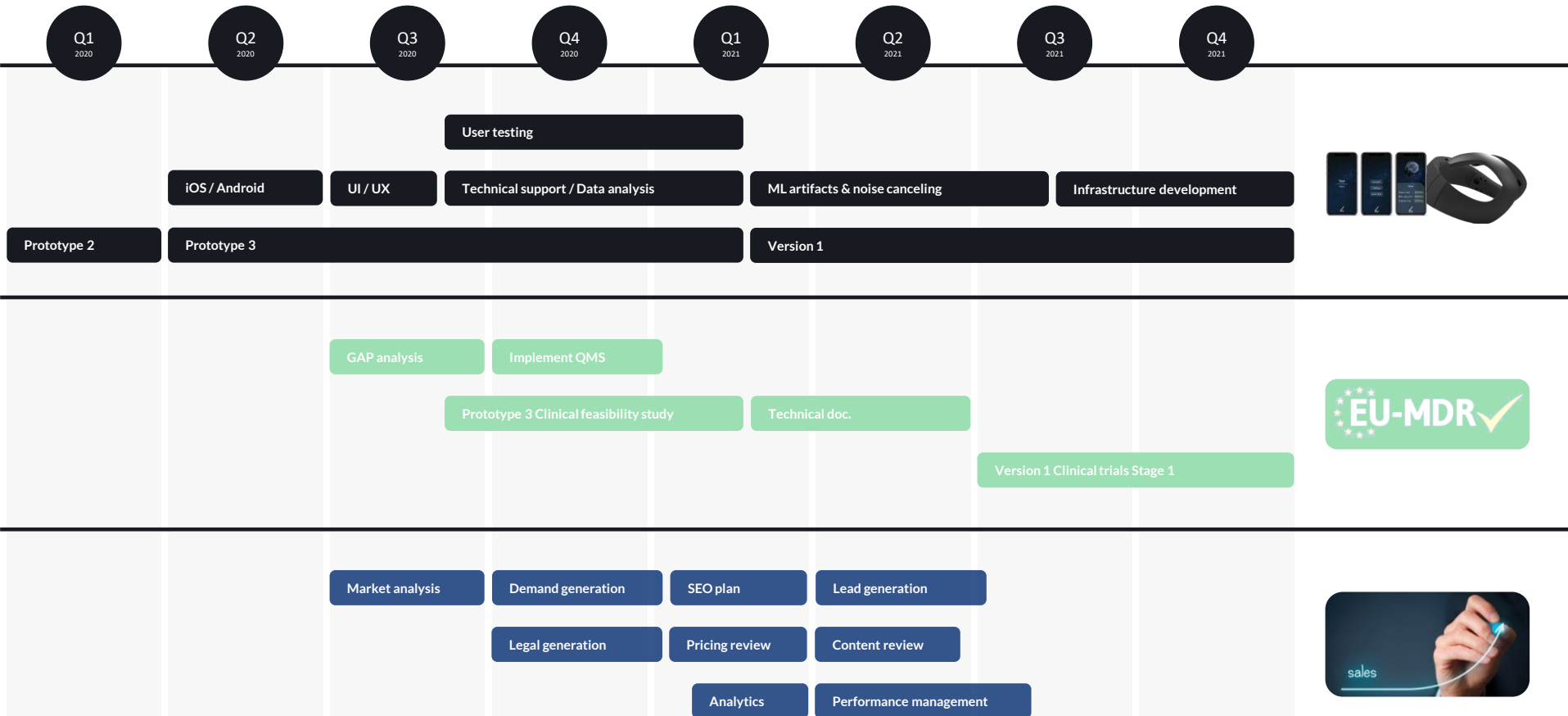
∠ SOLUTION

Day-time Neurorehabilitation for Chronic Insomnia

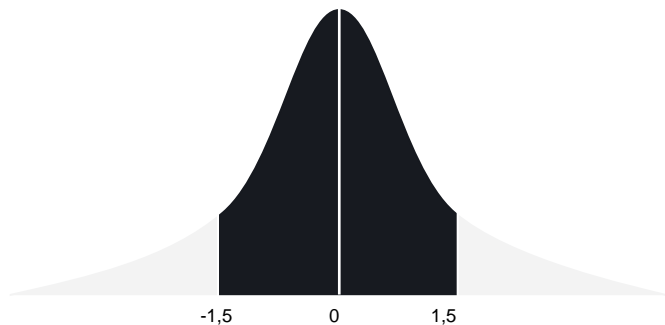


\$1099 one-time fee

STAGE OF DEVELOPMENT



HOW IT WORKS



1. Algorithm is trained on data of healthy sleepers.



2. Instant feedback is provided when healthy state is achieved.

40-50 %
Faster sleep^{1,2}

44-62 min
Increased sleep time^{2,3}

82,5 %
Symptom release⁴

Effect >
Therapy > Controls⁵

Drowzee is based on a training technique that uses brain sensing devices (EEG) to provide instant feedback when the desired mental state is achieved.

¹Hödlmoser et al (2008) Instrumental conditioning of human sensorimotor rhythm.

²Cortoso et al (2010) An exploratory study on the effects of tele-neurofeedback.

³Hammer et al. (2011) Neurofeedback for Insomnia: A Pilot Study of Z-Score SMR

⁴Pérez-Elvira et al (2019) Efficacy of Live Z-Score Neurofeedback Training for Chronic Insomnia

⁵Basiri et al. (2017) Comparison of the Effectiveness of Cognitive Behavioral Therapy and Neurofeedback

∠ TRACTION

B2C

8 units

sold

€ 749 / unit



B2B

25 units

sold

€ 1,200 / unit



∠ MARKET POTENTIAL

€ 749 / unit
€ 59 / mo



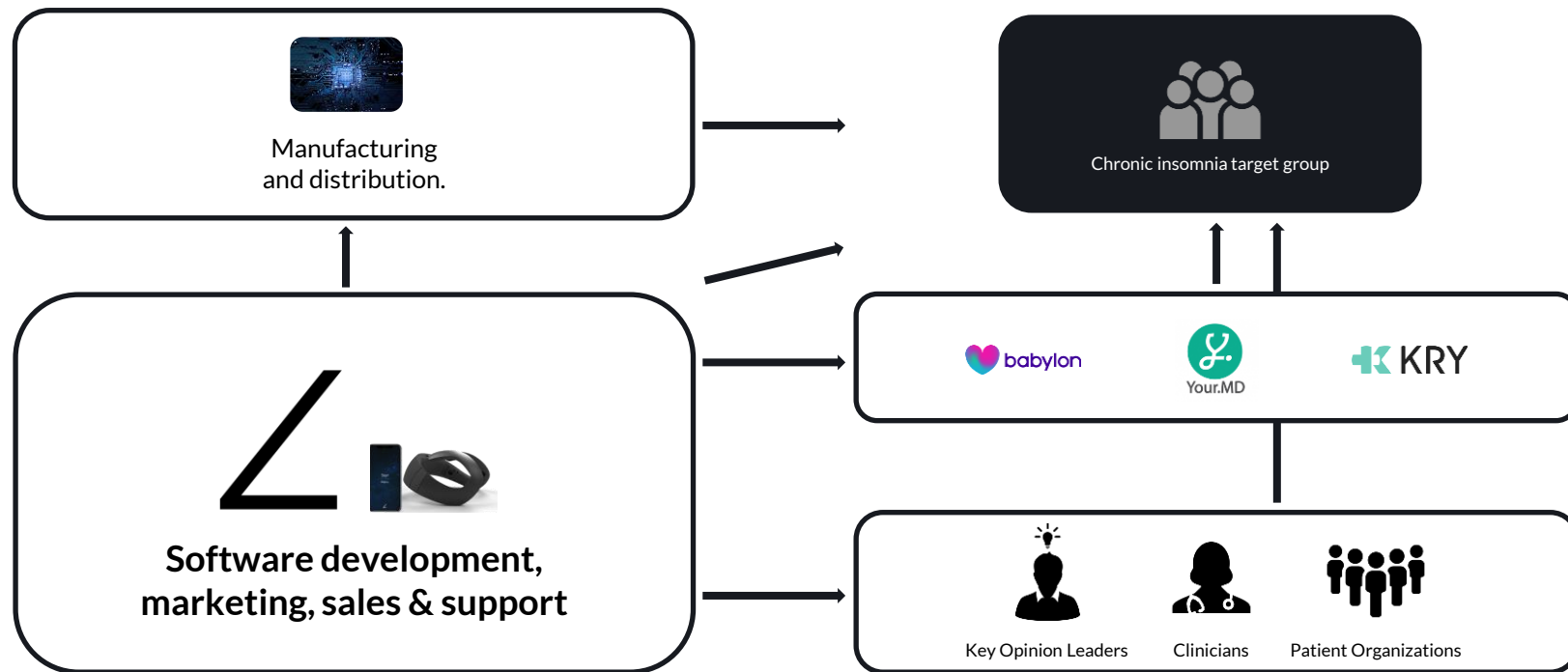
€255
Million

Target Market

€10
Billion

Total Addressable

∠ SERVICING STRATEGY



COMPETITION

	Availability	Side-effects	Sleep hygiene
Drowzee	✓	Tiredness/sleepiness, short-term mental fatigue ¹	✓
Pharmaceuticals	✓	Rebound insomnia, nocturnal confusion, falls, tolerance & dependency ² , physical fatigue, headaches, memory impairment ^{3,4,5}	Reduce deep sleep. Wake up groggy. Treating symptoms not cause.
Cognitive Behavioral Therapy (CBT-i)	Scarce access Long lead-time	Somnolence, fatigue, impaired vigilance ² , stress, worsening in symptoms, strained family relations ⁶	✓
Sleep trackers (apps, monitors, wearables)	✓	Orthosomnia, sleep obsession, sleep concerns ⁷	Wearables during sleep impacts sleep quality. Light at night impacts sleep quality.

1. Rogel et al. (2015) Transient Adverse Side Effects During Neurofeedback Training.
2. Riemann et al (2007) European guideline for the diagnosis and treatment of insomnia.
3. Glass et al (2005) Sedative hypnotics in older people with insomnia: Meta-analysis of risks and benefits.
4. Poyares et al (2004) Chronic benzodiazepine usage and withdrawal in insomnia patients.
5. Vermeeren (2004) Residual effects of hypnotics.
6. Schermuly-Haupt et al. (2018) Unwanted Events and Side Effects in Cognitive Behavior Therapy.
7. Baron et al. (2017) Orthosomnia: Are Some Patients Taking the Quantified Self Too Far?

∠ IPR STRATEGY

COPYRIGHT

Software application



TRADE secret

Neurofeedback algorithm



PATENT

Clinical utility

Design and shape



TRADEMARKS

Drowzee®



drowZee

∠ ACTIVE PROJECTS



INDUSTRIAL PREP

Objective: Supply chain market research

Outcome: Business plan

Period: Jan 20 – Jun 20

Budget: €70,000



TECHNOLOGY VALIDATION

Objective: Validate technology

Outcome: Minimum viable product

Period: Sep 19 – Sept 20

Budget: €100,000



CLINICAL FEASIBILITY

Objective: Pilot clinical trials (n=20)

Outcome: Clinical feasibility

Period: Aug 19 – Dec 20

Budget: €60,000

∠ FINANCING PLAN

Q3 2020

18 months runway

Investor capital

Public matching capital

€300
k

€325
k

- Engineering €400k
- Market activities €140k
- Operations €85k

Pre-money valuation: €1,200,000



PROFITS & LOSSES

	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020		Y2 2021	Y3 2022	Y4 2023	Y5 2024
Sales revenue	€0	€0	€0	€0	€0	€0	Sales revenue	€0	2,892,568	9,311,607	21,290,707
Accumulative	€0	€0	€0	€0	€0	€0	Accumulated	€0	2,892,568	12,204,175	33,494,882
Units sold	€0	€0	€0	€0	€0	€0	Units sold	0	3,290	10,591	24,216
Accumulative	€0	€0	€0	€0	€0	€0	Accumulative	0	3,290	13,881	38,097
Up-front	€0	€0	€0	€0	€0	€0	Up-front revenue	€0	€3,453,045	11,113,886	25,397,928
Recurring	€0	€0	€0	€0	€0	€0	Recurring revenue	€0	€0	€0	€0
Cost of sales	0	0	0	0	0	0	Cost of sales	€0	€2,480,335	€7,671,527	€17,032,836
COGS	0	0	0	0	0	0	Cost of goods sold	€0	€605,680	€1,637,819	€3,244,344
Administration	0	0	0	0	0	0	Administration	€0	€148,130	€476,765	€1,089,516
Distribution	0	0	0	0	0	0	Distribution	€0	€1,726,525	€5,556,943	€12,698,964
Gross Margin	€0	€0	€0	€0	€0	€0	Gross Margin	€0	€412,233	€1,640,080	€4,257,871
Gross Margin %	0%	0%	0%	0%	0%	0%	Gross Margin %	0%	6%	17%	20%
Operating Expenses	21,119	21,119	30,647	30,647	30,647	30,647	Operating Expenses	€931,137	€1,704,313	€2,273,072	€2,717,552
Employment cost	16,994	16,994	25,490	25,490	25,490	25,490	Employment cost	€840,950	€1,591,250	€2,119,509	€2,504,927
Other expenses	4,125	4,125	5,156	5,156	5,156	5,156	Other expenses	€90,188	€113,063	€153,563	€212,625
Net profit	-21,119	-21,119	-30,647	-30,647	-30,647	-30,647	Net profit	-€931,137	-€1,292,080	-€632,991	€1,540,319
Cash at Start of Period	111,115	89,996	68,878	38,231	7,585	-23,062					
Cash at End of Period	89,996	68,878	38,231	7,585	-23,062	-53,708					
Cash In	0	0	0	0	0	0					
Cash Out	21,119	21,119	30,647	30,647	30,647	30,647					

TEAM

FRONT-END



[Lars Karbø](#)
Co-founder & CTO

Founder of napchart.com.
Prev. Software Engineer at SecondBrain and
Smartivate.
Programming since the age of 16.

COMMERCIAL



[Håkon Krogh](#)
Co-founder & CEO

M.Sc. Mechanical engineering & entrepreneurship.
M.Sc. Project management & industrial engineering.
Co-Founder of Easy Intervals, CarGuru and
Dødens Hinderløp.
PhD course in high density EEG analysis.

CLINICAL



[Elisa Lesca](#)
Neuroscientist

M.Sci. Neuroscience, First Class Honors.
Prev. Neuroscience R&D intern at Janssen
Pharmaceutica.

BACK-END



[Cyrielle Albert](#)
BCI Engineer

M.Sc. Electronics and Computer Sciences.
Co-Founder at Useby.
Engineering intern at Valeo in prototyping unit.

BOARD OF ADVICE



[Gaute Myklebust](#)



CTO MyWo AS.
PhD Computer Architecture.
MBD. Mode Sensors AS.



[Nicolas Elvemo](#)



CEO GlucoSet AS.
PhD Clinical Medicine.
MD Medicine, Clinical Research.

HIRING PLAN

2020

Q3 Computational neuroscientist

Q4 Head of Engineering

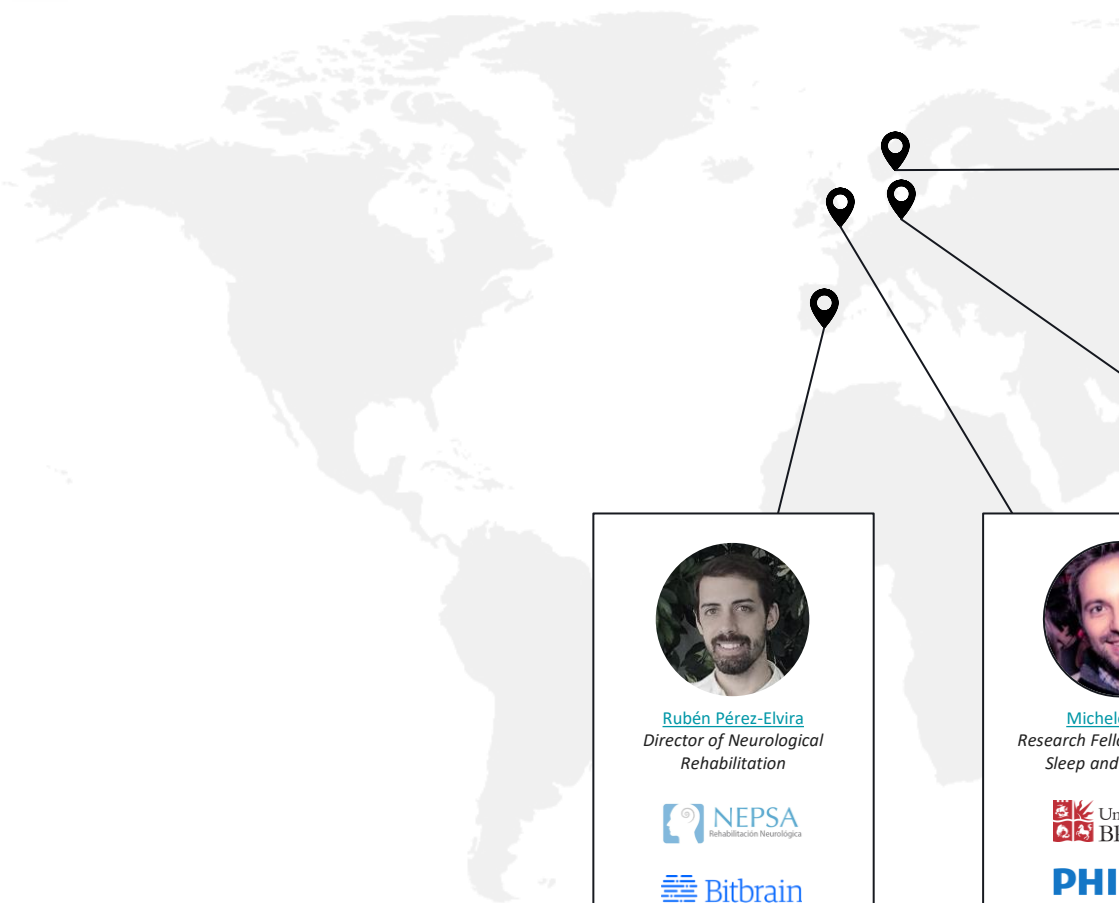
Q4 Lead Market Analyst

| Ongoing interviews

| Receiving applications

| Receiving applications

NETWORK



[Harald Hrubos-Strøm](#)
Somnologist, PhD, MD



[Pål Stensaas](#)
Patient representative



[Michaela Gjerstad](#)
Neurologist and somnologist



[Rubén Pérez-Elvira](#)
Director of Neurological Rehabilitation



[Michele Bellesi](#)
Research Fellow Function of Sleep and Disruption



[Johannes Schiefer](#)
Prof. Dr. Med., Neurologist and sleep physician



[Amir Najafabadi](#)
PhD Neurophysiology and Neurorehabilitation



12-MONTH OBJECTIVES

TECHNOLOGY

T1: Sign manufacturing contract.

T2: Produce pilot batch (n = 25).

80%



OPERATIONAL

O1: Raise pre-seed.

O2: Expand core team.

60%



CLINICAL

C1: Secure clinical partnership.

C2: Clinical feasibility study (n = 25).

80%



COMMERCIAL

M1: Secure market entry points.

M2: Market entry.

20%



Σ SUMMARY

There is a **need** for innovative approaches and techniques to serve the growing population of **chronic insomnia patients**.

Drowzee is developing a **solution that** is scaleable, drug-free, aimed at day-time intervention.

The next steps include manufacturing a pilot batch, conducting clinical trials and establishing market entry points before launching the product.

Drowzee is raising **€0,3 million** at a pre-money valuation of €1,200,000.



Q3 2018

Industrial mentor
Industrial partner



Q1 2019

Pilot project 2
Awarded clinical
feasibility contract



Q3 2019

Prototype 2.0
First sales B2C

H1 2020

HW partnership
iOS/Android



Q2 2018

Incorporation
Raised €18k in grants
Prototype 1.0



Q4 2018

Pilot project 1
+Impact Accelerator



Q2 2019

Raised €180K in grants
Tech team recruited



Q4 2019

Commercial mentor
Neuroscience function
Raised €68K in grants

H2 2020

Raise €0.3 million
Pilot batch
Clinical feasibility



Start

Menu



Contact

hakon@drowzee.com

+47 922 60 177

Visit

Abels Gate 5, Trondheim

www.drowzee.com