

# ONWARD<sup>®</sup> MEDICAL

**Invest in Empowering Movement:**  
ONWARD Medical is ready to revolutionize  
therapies for people with a Spinal Cord Injury  
*Finance Avenue - November 2024*



# Forward Looking Statements

*This Presentation may include statements, including the Company's financial and operational medium-term objectives, that may be deemed to be "forward-looking statements". These forward-looking statements may be identified by the use of forward-looking terminology, including the terms "believes", "aims", "forecasts", "continues", "estimates", "plans", "projects", "anticipates", "expects", "intends", "may", "or" or, in each case, their negative or other variations or comparable terminology, or by discussions of strategy, plans, objectives, goals, future events or intentions. Forward-looking statements may and often do differ materially from actual results. Any forward-looking statements reflect the Company's current view concerning future events and are subject to risks relating to future events and other risks, uncertainties, and assumptions relating to the Company's business, results of operations, financial position, liquidity, prospects, growth, or strategies. Forward-looking statements speak only as of the date they are made.*

# Speaking Today



**Rob Nijs** Marketing Director

Medical technology professional with over 15 years experience in the US and Europe. Nearly 10 years with Edwards Lifesciences in a variety of commercial and strategy roles. Broad experience in building go-to-market plans for innovative products.

**ONWARD<sup>®</sup>**

# ONWARD Medical at a Glance

## Key Facts

- Founded in 2015
- ~100 FTEs
- HQ in the Netherlands
- Science and Engineering Center in Switzerland
- Growing US presence
- IPO 2021; listed on Euronext Brussels, Amsterdam, and Paris
- Research coverage from Stifel, Bryan, Garnier & Co, KBC Securities, Degroof Petercam and Kepler Cheuvreux

- **Technology: 3 purpose-built neuromodulation platforms**
  - **ARC<sup>EX</sup>**® delivers ARC Therapy™ externally through the skin
  - **ARC<sup>IM</sup>**® delivers ARC Therapy via a fully implanted system
  - **ARC<sup>BCI</sup>**™ pairs ARC<sup>IM</sup> with an implanted brain-computer interface to restore thought-driven movement via a wireless DigitalBridge™
- **Innovation: 10 FDA Breakthrough Device Designations; 270+ issued patents<sup>1</sup>**
- **Clinical Success:**
  - **Safety and effectiveness of ARC<sup>EX</sup> Therapy** for upper limb mobility demonstrated in Up-LIFT clinical trial; results published in *Nature Medicine*, May 2024
  - **Positive interim results** for ARC<sup>IM</sup> Therapy to improve blood pressure regulation
- **Market Opportunity: \$20B+ / €19B+ total addressable market with limited competition**
- **Commercialization: First revenues expected 2H 2024** with ARC<sup>EX</sup> launch after FDA clearance

Note: 1 EUR = 1.1 USD; FTE and patent figures as of end of Q2 2024  
<sup>1</sup> Includes EP country validations

There are no cures nor effective therapies for spinal cord injury (SCI)

Unmet Need

## Devastating

Not only paralysis & loss of sensation; frequently also infection, incontinence, blood pressure instability, loss of sexual function, and other challenges

Assistance required to support activities of daily life

Quality of life can be poor

## Prevalent

US & Europe<sup>1,2</sup>

Prevalence ~650,000

Incidence ~50,000

Global<sup>2</sup>

Prevalence ~7,000,000

Incidence ~768,000

## Costly

Avg Lifetime Cost<sup>3</sup> (paraplegic)

**\$2.9M / €2.6M**

Avg Lifetime Cost<sup>3</sup> (tetraplegic)

**\$5.1M / €4.6M**

Note: 1 EUR = 1.1 USD

<sup>1</sup> NSCISC Annual Report, US and Europe only, World Health Organization Fact Sheet, November 2013, estimate 40-80 cases per million

<sup>2</sup> Kumar et al. 2018, Traumatic Spinal Injury: Global Epidemiology and Worldwide Volume

<sup>3</sup> NSCISC Traumatic Spinal Cord Injury Facts and Figures at a Glance (2023 SCI Data Sheet); estimated lifetime costs for a person aged 25 at the time of injury with injury severity AIS ABC; costs for a tetraplegic person calculated as the average cost for a person with high tetraplegia and a person with low tetraplegia

Targeted, programmed electrical stimulation of the spinal cord to restore movement, function, and independence in people with spinal cord injury

# Our Technology



ARC EX



ARC IM



ARC BCI



Note: Investigational devices, not available for commercial use.

Reach commercial stage by year-end,  
then expand labeling and platforms

# Company Focus

## Short Term 2024

## Medium Term 2026/2027

## Long Term 2026/2027+

### Commercialize external platform (ARC<sup>EX</sup>)

First indication: Upper Limb

Population: SCI

Generate revenue and develop market for ARC<sup>IM</sup>



### Commercialize implantable platform (ARC<sup>IM</sup>)

First indication: Blood Pressure

Population: SCI

Enter traditional medtech NASDAQ IPO/M&A window



### Expand labeling and platforms

New indications and platforms to be assessed such as BCI

Populations: SCI, Parkinson's, Stroke



Note: Investigational devices, not available for commercial use; SCI = Spinal Cord Injury.



# Limited competition with safeguards against future competition



# Competition



## Similar Pre-Commercial Technologies

- **Intellectual property** controlled by UCLA and ONWARD Medical
- Limited **funding** raised to date<sup>1</sup>
- **Academic** management teams

## No Direct Competitors

- Potential future competition from spinal cord stimulators for pain and other existing indications
- Currently **supporting academic research** with existing technology
  - **Several years** required to reach parity with ONWARD Medical and market a competing technology
  - Likely to **enter space via M&A**, leveraging balance sheets



## No Direct Competitors

Focus of other BCI companies is to record brain signals to establish the capability to **control or communicate with computers**

ONWARD Medical has **unique focus on restoring movement** of the human body and WIMAGINE BCI has been successfully implanted in 3 humans for this purpose

WIMAGINE BCI is ideal current technology, but our **ARC-BCI System is agnostic and flexible**, providing opportunity to partner with others in the future



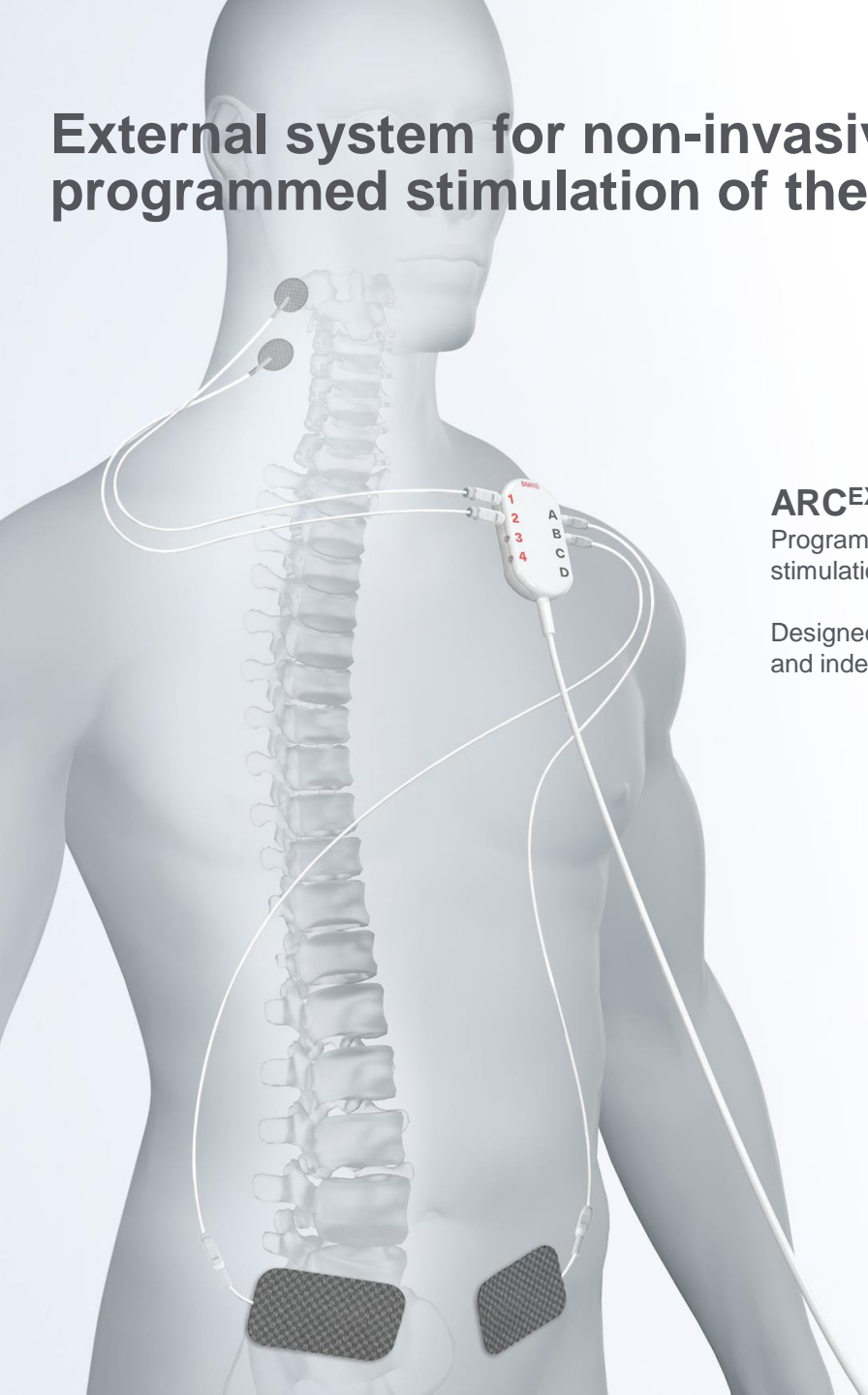
**ONWARD Medical's first-mover advantage has provided path to large and formidable IP position with 270+ patents<sup>2</sup>**

*Note: For investigational use only*

<sup>1</sup> Less than \$4M raised by Company A in private capital as of February 2024 (source: PitchBook); Company B's total funding not sufficiently material to be tracked by PitchBook

<sup>2</sup> Patent figures as of d of Q2 2024, including EP country validations

# External system for non-invasive, programmed stimulation of the spinal cord



## ARC<sup>EX</sup> Therapy

Programmed transcutaneous electrical stimulation to the spinal cord

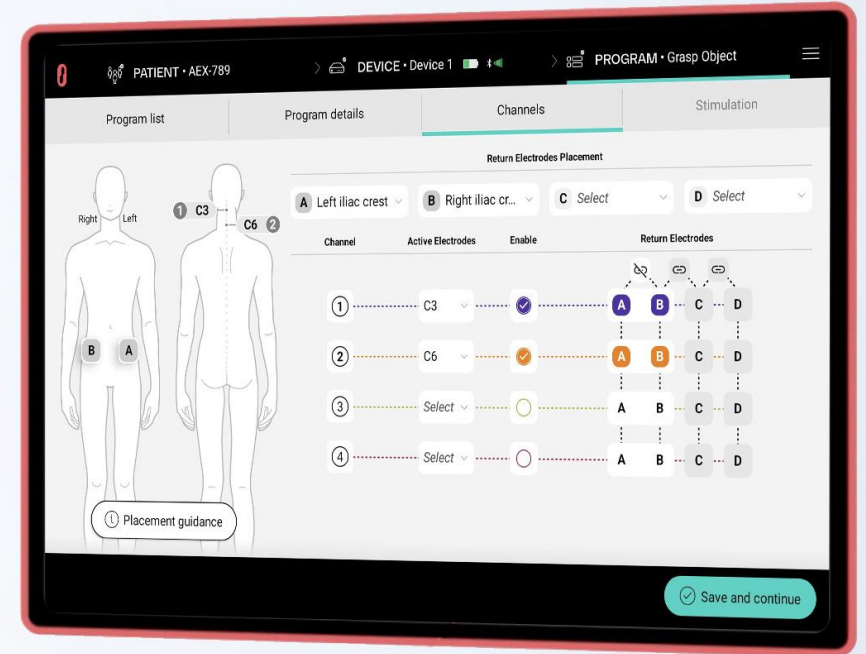
Designed to restore movement, function, and independence in people with SCI



ARC<sup>EX</sup> Stimulator

Note: Investigational devices, not available for commercial use.

# External Platform



ARC<sup>EX</sup> PRO & myARC<sup>EX</sup> app  
via ARC<sup>EX</sup> Programmer

## ARC<sup>EX</sup> Therapy

Individual stimulation parameters can be optimized for each patient's unique needs

ARC **EX**

# First indication: Strength and function of the hands and arms



TAM

**\$6.0B / €5.5B**



US & EU eligible population

**199,000\*** (34% of SCI cases<sup>1</sup>)

\* Primarily driven by home use opportunity (vs. clinic use)

<sup>1</sup> Company data, epidemiology data from 2022 NSCISC Annual Statistical Report Complete Public Version



Pilot Study for Upper Extremities  
University of Washington  
12 years post-injury

# Met all primary and secondary endpoints, demonstrating safety and effectiveness in improving upper limb function after SCI

(n=65, 14 trial sites globally)

**90%**

Improved in at least one primary **strength or function** assessment

**87%**

Reported improvement in overall **quality of life**

**34 yrs**

Improvements demonstrated **up to 34 years post-injury**

- No serious device-related adverse events
- Study participants also reported **reduced spasm frequency, improved sleep, and improved upper body sensation**, including the sense of touch
- Examples of functional progress made by ARC<sup>EX</sup> Therapy users include lifting filled cups, pushing a button on a remote control, and picking up objects with a fork

# Pivotal Trial Results for ARC<sup>EX</sup> Therapy

Improved hand function



Improved quality of life



FDA clearance  
expected  
in **Q4 2024**



Moritz, Chet, et al. "Non-invasive spinal cord stimulation for arm and hand function in chronic tetraplegia: a safety and efficacy trial." *Nature Medicine*. 2024.  
Smaby, Niels, et al. "Identification of key pinch forces required to complete functional tasks." *Journal of Rehabilitation Research and Development*. 2004.  
Kirshblum, Steven C, et al. "International standards for neurological classification of spinal cord injury (revised 2011)." *The Journal of Spinal Cord Medicine*. 2011

SCI = spinal cord injury



# IPG and leads for direct, programmed stimulation of the spinal cord

# Implantable Platform



Note: For investigational use only; IPG = Implantable Pulse Generator



# First indication: Improved blood pressure regulation

 TAM  
**\$7.3B / €6.6B**

 US & EU eligible population  
**215,000** (37% of SCI cases<sup>1</sup>)

<sup>1</sup> Company data, epidemiology data from 2022 NSCISC Annual Statistical Report Complete Public Version

Reported December 2022, 10 participants across studies in Canada and Switzerland

# ARC<sup>IM</sup> Interim Blood Pressure Results

## Summary Results

- All participants had **increased blood pressure** with stimulation
- All participants who were on anti-hypotensive medication **reduced dosage or stopped medication completely**
- All participants reported **reduction of orthostatic hypotension** in daily life, feeling more energized and less dizzy
- Partners report **higher levels of energy and increased participation in social interaction**, during meals and family time
- All participants **use stimulation actively** in daily life, several during the entire waking day (>10h per day)
- **Quality of Life improved in all participants**

*“My outlook on life has become more positive. I feel more awake and less tired and dizzy. I have a lot more appetite for life”<sup>1</sup>*

**Publication of peer-reviewed interim results for blood pressure indication expected in top-tier scientific journal in 1H 2025**

Note: For investigational use only

<sup>1</sup> Comment reflects the experience of a single study participant and should not be extrapolated to reflect study results nor claims.





 ARC 

# Next indication: Standing and walking



TAM

**\$7.6B / €6.9B**



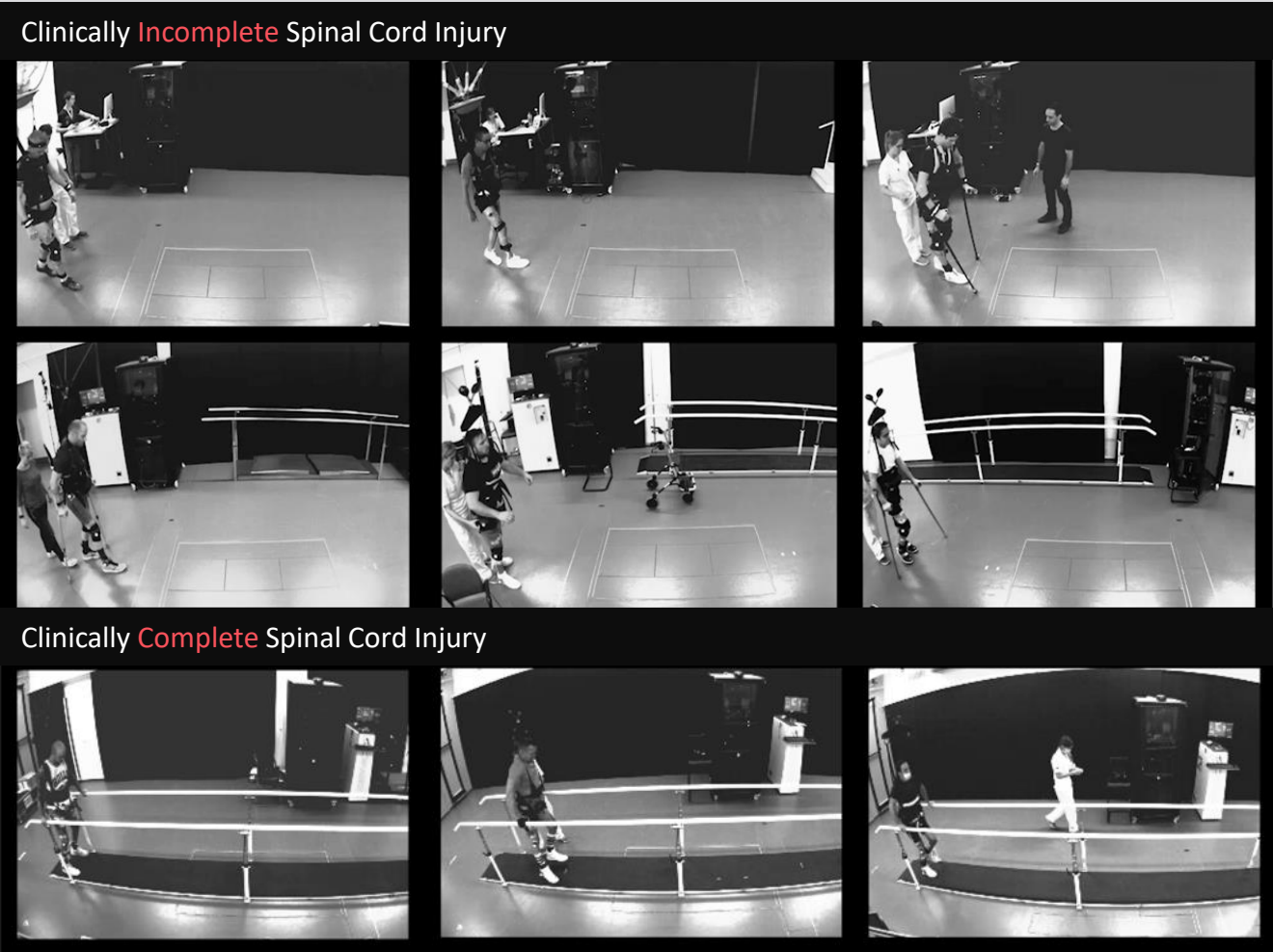
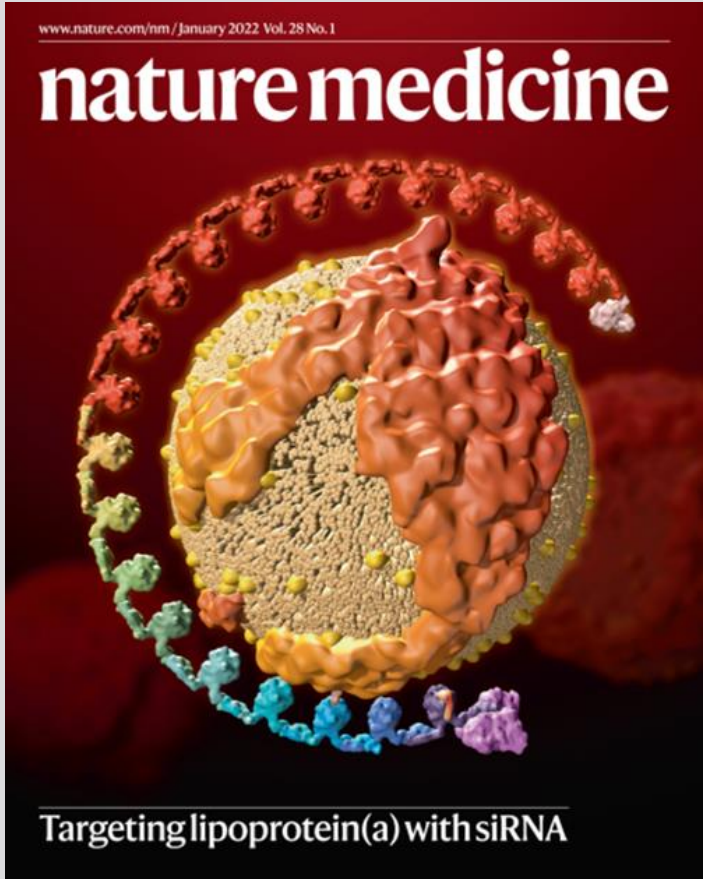
US & EU eligible population

**222,000** (38% of SCI cases<sup>1</sup>)

<sup>1</sup> Company data, epidemiology data from 2022 NSCISC Annual Statistical Report Complete Public Version

Ability to stand and walk restored in 9 participants with chronic injuries; even those with AIS-A severity

# Mobility - STIMO Trial

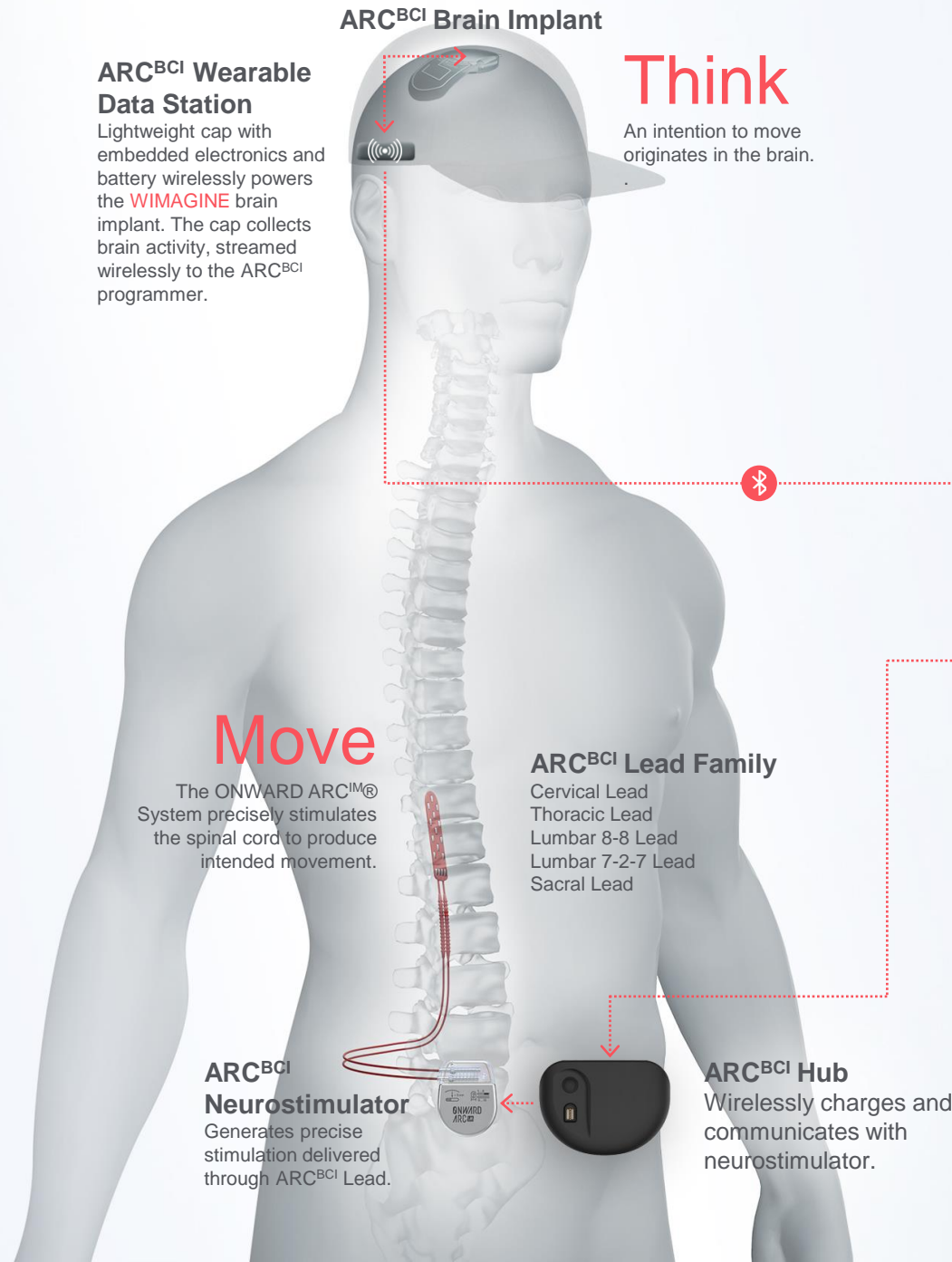


ClinicalTrials.gov Identifier: NCT02936453

Note: Investigational devices, not available for commercial use.

Brain and spinal cord are reconnected by a DigitalBridge™ to restore thought-driven movement

# Implantable Platform Powered Externally by AI



ARC<sup>BCI</sup> Brain Implant

**ARC<sup>BCI</sup> Wearable Data Station**

Lightweight cap with embedded electronics and battery wirelessly powers the WIMAGINE brain implant. The cap collects brain activity, streamed wirelessly to the ARC<sup>BCI</sup> programmer.

**Think**

An intention to move originates in the brain.

**Move**

The ONWARD ARC<sup>IM</sup>® System precisely stimulates the spinal cord to produce intended movement.

**ARC<sup>BCI</sup> Lead Family**

- Cervical Lead
- Thoracic Lead
- Lumbar 8-8 Lead
- Lumbar 7-2-7 Lead
- Sacral Lead

**ARC<sup>BCI</sup> Neurostimulator**

Generates precise stimulation delivered through ARC<sup>BCI</sup> Lead.

**ARC<sup>BCI</sup> Hub**

Wirelessly charges and communicates with neurostimulator.

**Decode**

An AI algorithm translates that intention into instructions for the neurostimulator.



**ARC<sup>BCI</sup>™ Programmer**

ARC BCI

First indication:  
Mobility or  
Upper Limb



ONWARD Medical is strategically well positioned to benefit from advances in BCI technology

# Brain Computer Interface (BCI)

## BCI landscape

- Multiple companies racing to develop implanted **brain recording devices**
- All these companies are focused on recording brain signals to establish the capability to **control or communicate with computers**



## ONWARD Medical differentiation

- Advancing BCI technology **to restore movement of the human body** using our ARC<sup>IM</sup> spinal cord stimulation therapy
- **Secured exclusive rights** to CEA-Clinatec's WIMAGINE BCI technology, optimally suited for ONWARD's indications
- ARC<sup>IM</sup> platform is "**BCI-ready**" (i.e. designed to receive wireless signals from a BCI), meaning ONWARD could eventually **partner with additional BCI companies**

Note: For investigational use only

**Signed BCI license agreement, strengthened Board and raised €50M with cornerstone investment from Ottobock**

# Recent Catalysts



**UBS**



**BRYAN, GARNIER & CO**

The European Growth Investment Bank

**ottobock.**

Secured **exclusive rights to Clnatec's WIMAGINE BCI technology**, providing opportunity to be first to market with BCI-enabled system to restore thought-driven movement after paralysis

Welcomed former Medtronic President and Executive Committee member Rob ten Hoedt as **incoming Chairman of the Board**

Successfully **raised €50M in upsized capital increase**, extending cash runway to two years or more, with UBS and Bryan Garnier as Joint Bookrunners

Secured **strategic investment from Ottobock**, now the company's largest shareholder, with opportunity to explore future development and commercial collaboration opportunities

## Several important catalysts expected in the next 12 months

# Upcoming Milestones and News Flow

**ARC<sup>EX</sup>**  
Regulatory clearance submission  
Upper limb  
**COMPLETED**

**ARC<sup>EX</sup>**  
Up-LIFT pivotal study manuscript publication  
Upper limb  
**COMPLETED**

**ARC<sup>EX</sup>**  
FDA clearance  
Upper limb

**ARC<sup>EX</sup>**  
First commercial sale (US)  
Upper limb

**ARC<sup>IM</sup>**  
First participant enrollment<sup>1</sup>  
Early feasibility study  
Parkinson's mobility

**ARC<sup>IM</sup>**  
Interim results publication  
Blood pressure

**ARC<sup>IM</sup>**  
IDE submission  
Empower BP pivotal study  
Blood pressure

**ARC<sup>IM</sup>**  
IDE approval  
Empower BP pivotal study  
Blood pressure

**ARC<sup>IM</sup>**  
First participant enrollment  
Empower BP pivotal study  
Blood pressure

**ARC<sup>IM</sup>**  
First-in-human<sup>2</sup>  
Bladder

**ARC<sup>BCI</sup>**  
Additional implants<sup>3</sup>  
Upper limb and Mobility

*Note: All platforms and therapies are for investigational use only*

<sup>1</sup> Funded by Michael J. Fox Foundation for Parkinson's Research grant

<sup>2</sup> Funded by Christopher & Dana Reeve Foundation grant

<sup>3</sup> Funded by European Innovation Council and Christopher & Dana Reeve Foundation grants



## A compelling opportunity with large potential upside



**\$20B+ / €19B+** addressable market with current roadmap; straightforward commercialization pathway



**Leaders in BCI technology** and therapy development; already **multiple humans implanted** with ARC<sup>BCI</sup> Therapy to restore movement



One **pivotal study completed with positive top line results; positive interim results from 2<sup>nd</sup> indication**; several additional indications planned



**Experienced, international management team** with proven track record

## Key Takeaways



Innovation highlighted by **ten FDA Breakthrough Device Designation** awards and comprehensive IP portfolio of **270+ issued patents**<sup>1</sup>



**Successful IPO** in October 2021 with strong shareholder base and **access to equity capital and debt financing**

*Note: 1 EUR = 1.1 USD; patent figures as of end of Q2 2024*

*<sup>1</sup> Includes EP country validations*

# Q&A

The image features the company name 'ONWARD MEDICAL' in a bold, white, sans-serif font. The text is centered and arranged in two lines: 'ONWARD' on the top line and 'MEDICAL' on the bottom line. A small registered trademark symbol (®) is located at the top right of the word 'ONWARD'. The background is a vibrant red color with a complex, wavy, and somewhat abstract pattern of darker red lines that create a sense of movement and depth. The overall aesthetic is modern and professional.

**ONWARD<sup>®</sup>**  
**MEDICAL**

Empowered by independence, people with spinal cord injury will enjoy life in the ways that matter to them

# 9 indications under clinical or pre-clinical evaluation, with 3 in current roadmap

# Current Pipeline

Short- and medium-term focus
  Funded primarily through grants and research partners

Platform	Indication	FDA BDD <sup>1</sup>	Pre-clinical	Human PoC	Clinical Feasibility <sup>2</sup>	Pivotal
ARC <sup>EX</sup>	Upper Limb	✓	○	○	○	○
ARC <sup>IM</sup>	Blood Pressure	✓	○	○	○	○
<i>Study expected to start early 2025</i>						
ARC <sup>IM</sup>	Mobility / Second Indication	✓	○	○	○	○
ARC <sup>EX</sup>	Mobility	✓	○	○	○	○
ARC <sup>IM</sup>	Parkinson's – Mobility		○	○	○	○
ARC <sup>IM</sup>	Bladder	✓	○	○	○	○
<i>Human PoC expected in 2025<sup>3</sup></i>						
ARC <sup>BCI</sup>	Mobility	✓	○	○	○	○
ARC <sup>BCI</sup>	Upper Limb		○	○	○	○
ARC <sup>DBS</sup>	Mobility		○	○	○	○

✓ BDD<sup>1</sup> Granted
 ○ Current Roadmap
 ○ Label Expansion
 ○ Platform Expansion

*Note: The company may modify the pipeline based on clinical progress and marketplace considerations*  
<sup>1</sup> BDD = FDA Breakthrough Device Designation. ONWARD has been granted four additional BDDs for ARC<sup>EX</sup> Bladder, ARC<sup>EX</sup> Blood Pressure, ARC<sup>EX</sup> Spasticity and ARC<sup>IM</sup> Spasticity  
<sup>2</sup> Includes both early feasibility (typically before device design finalized) and feasibility (near-final or final device design) studies  
<sup>3</sup> Funded by Christopher & Dana Reeve Foundation grant, conducted by EPFL

CEA's WIMAGINE BCI enables our imperative to be first-to-market with BCI-augmented movement restoration

# BCI Selection Considerations



## Other BCI technologies



### Safety

CEA's WIMAGINE system is cleared for human research with **~7 years of human safety data; already restored movement in three humans**

A limited number of other BCI platforms cleared for investigation in humans; **none have yet been used to restore movement of the human body**

### Invasiveness

WIMAGINE implant procedure is less invasive, offering **lower risk than subdural or brain penetrating electrodes**

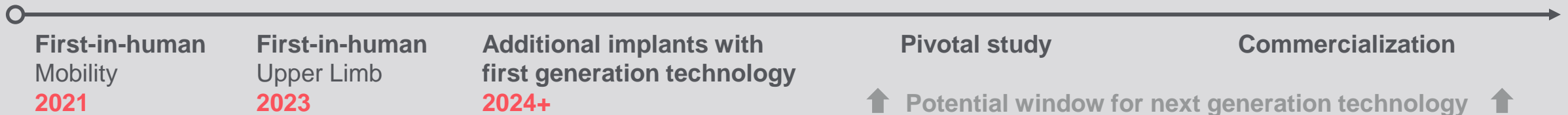
Use subdural, brain penetrating, or intravascular electrodes, bringing **higher risk than the epidural WIMAGINE platform** (e.g. inflammation, perforation, thrombosis)

### Resolution

WIMAGINE provides **sufficient resolution and coverage of motor cortex** to enable thought-driven movement restoration

**May provide too little or too much resolution (overkill);** may face difficulties offering sufficient access to or coverage of the motor cortex

## ARC<sup>BCI</sup> timeline



## Strategic investment from Ottobock, with opportunities for future collaboration

# ottobock.

- A global leader in the fields of prosthetics, orthotics and exoskeleton technology
- Present in **~60 countries** with 9000+ employees and **400+ patient care centers**
- **€~1.5B in revenues** and €~280M adjusted EBITDA in 2023<sup>1</sup>
- **ONWARD's largest shareholder** with ~10% of shares since October 2024 capital raise
- Opportunity to explore future **development and commercial collaboration opportunities**

<sup>1</sup> Preliminary financial data as disclosed on Ottobock's website (details [here](#))

# Strategic Investment

“ *ONWARD Medical has the potential to become a **gamechanger in the therapy of spinal cord injuries** with its innovative solutions... Our investment in ONWARD is an investment in the future of medical technology.*”

- Professor Hans Georg Näder  
Chairman of the Board & Owner, Ottobock SE & Co. KGaA

# Experienced, global management team with the expertise to commercialize

# Team



**Dave Marver**  
CEO

Seasoned medical technology executive with 30 years of global experience. Nearly **15 years with Medtronic**. Has served as **CEO of listed companies on NASDAQ and Euronext**; companies have developed three Time Magazine Best Invention awards.



**Rob Ten Hoedt**  
Incoming Chairman of the Board

Former **Medtronic President and Executive Committee Member**. Over 30 years of experience in medical devices. Former **Chairman of MedTech Europe**, the Association representing the medical technology industry in Europe.



**Jocelyne Bloch, MD**  
Co-founder & Medical Advisor

**Renowned Swiss neurosurgeon** leading functional neurosurgical unit at CHUV. **Adjunct professor at EPFL and Associate Professor at UNIL**. Awarded the **Ronald Tasker Award (2019)** of the World Society for Stereotactic and Functional Neurosurgery.



**Grégoire Courtine, PhD**  
Co-founder & Scientific Advisor

**Professor at EPFL**. Awards include **Schellenberg Prize, Rolex Award, Chancellor Award**, and Fellowship from the European Research Council. Preeminent researcher with **over 120 publications in top peer-reviewed journals**.



**Erika Ross Ellison, PhD**  
VP Clinical, Regulatory & Quality

Former **Leader of Abbott Neuro-modulation's Clinical function**, former neuroscience director at Cala Health and **former professor of Neurosurgery** at Mayo Clinic.



**Julien Camisani**  
VP Engineering

Over 20 years of **leadership experience across R&D, manufacturing, IP and product management** at companies like **Cytiva, GE Healthcare and Biosafe**.



**Bob Odell**  
VP Operations

Decades of medtech experience; **former President & COO of Cardiac Insight** and held leadership roles at **GE Healthcare, Siemens, Philips and Medtronic**.



**Amori Fraser**  
Finance Director

**~20 years of experience** in both finance and auditing; former Senior Manager at EY; holds a degree in Accounting Sciences and is a **qualified Chartered Accountant**.



**Alexandre Casteau**  
Head of Strategy & Corp. Dev.

Former **management consultant with McKinsey & Company**; launched and led the McKinsey Switzerland startup/ scaleup service line; Holds an **MBA from INSEAD** and an **MSc. from MIT**.