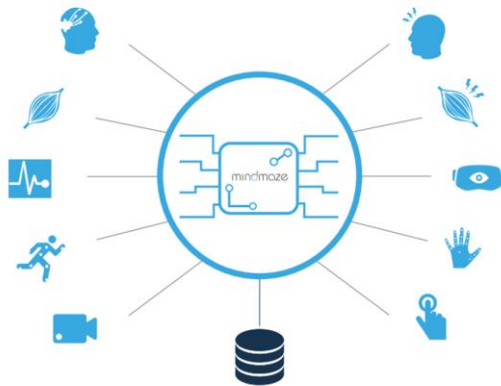think. unlock. connect.

Leveraging data science and virtual reality
for neurorehabilitation

Daniel Pérez-Marcos, Science Coordinator

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MindMaze's POWER Vision – Braintech for a better life

Purpose

Way

Result

MindMaze harnesses
the power of the brain
to enhance interactions between
humans and their environment.

Integrate the complexity
of neuroscience, artificial intelligence
and mixed reality into cost-effective,
simple and intuitive solutions
that disrupt multiple industries.

Assess and help patients recover from
cognitive and motor disorders. Enhance
user experience and safety
in daily activities. Support science
by exploiting large scale longitudinal data.

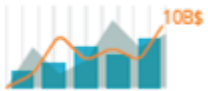mindmaze

Loss of Function after Stroke
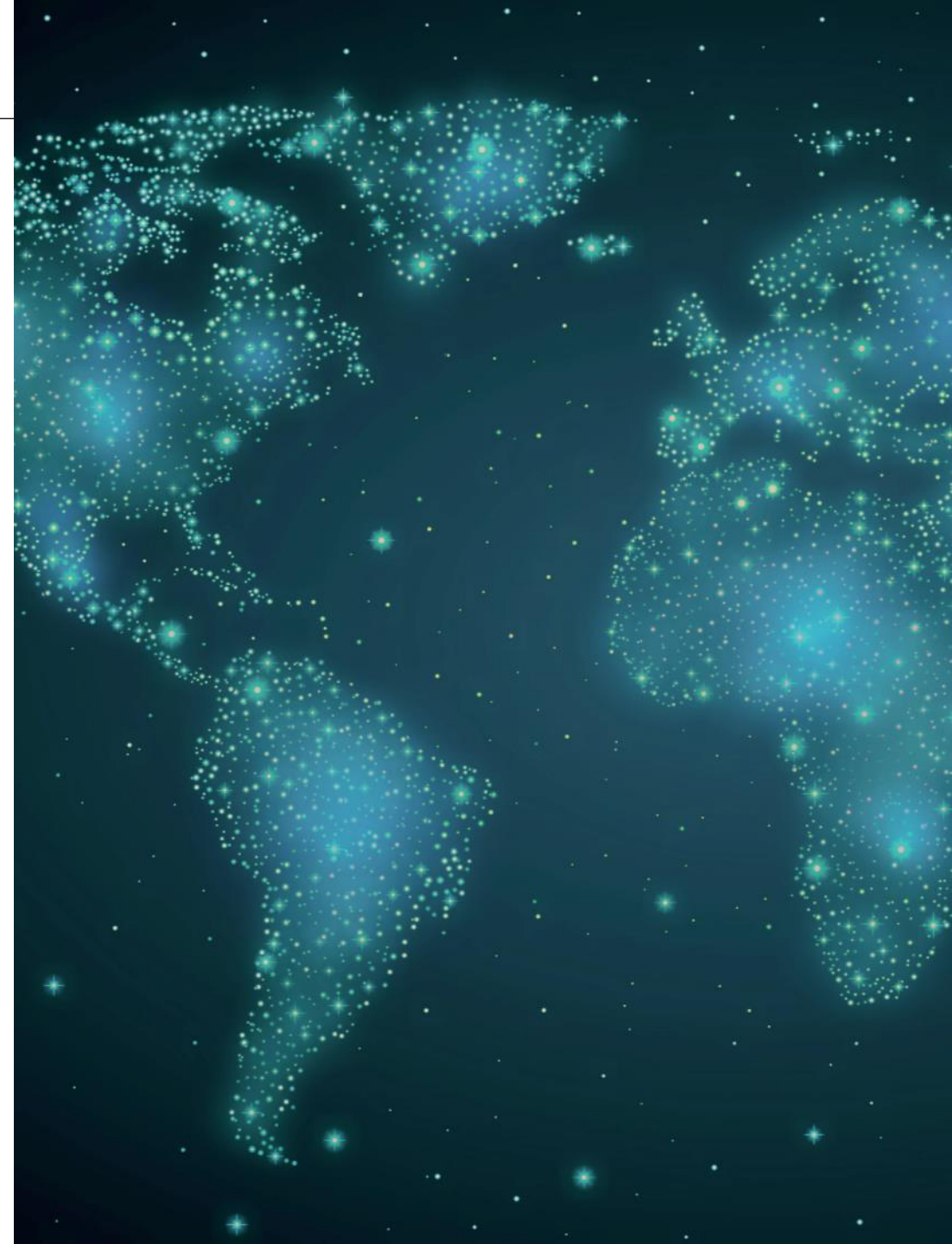
16.9 million strokes per year worldwide

~4.4M stroke survivors have motor disabilities; incidence is growing at 5%/year

~45% require chronic home rehabilitation

10B$ Neurorehabilitation costs in US & EU

The MindMotion™ Platform:
helping stroke patients rehabilitation along the whole continuum of care

MindMotion PRO

Hospital setting
Acute and Sub-acute

MindMotion GO

Rehabilitation clinics
Sub-acute and Chronic

MindMotion Home

Home use
Chronic

MindMotion™ Continuum of Care

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Neurorehabilitation using Embodied Virtual Reality

mindmotion™ PRO

VR for Neurorehab

- Ecological training
- Motor & cognitive functions
- Increase dosage
- Multisensory feedback
- Real-time rewards
- Gamifications
- Enhance motivation
- Personalize medicine

The Healthcare Opportunity

Stroke

*800 annual cases

ParkInsons

*1000 annual cases

Cerebral Palsy

*10 annual cases

MultIple SclerosIs

*400 annual cases

BraIn & SpInal InjurIes

*270 annual cases

PaIn Management

*1700 annual cases
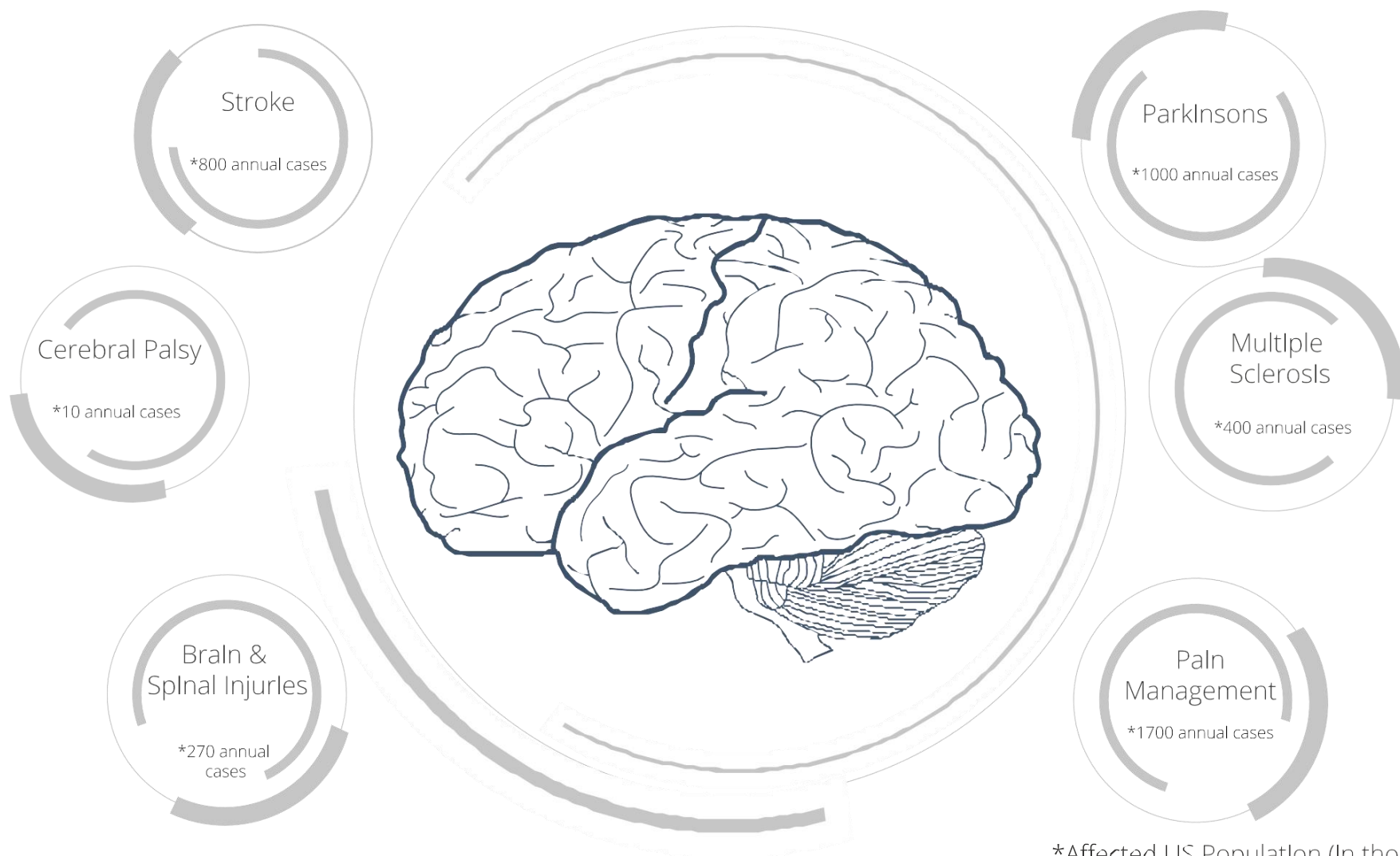
*Affected US PopulatIon (In thousands)

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The Healthcare industry is about to progress toward Health 5.0

Health 1.0
Production

Focus
Evidence based treatment

Strategic differentiator
Quality: patient survivability

Health 2.0
Industrialising

Focus
Value chain

Strategic differentiator
Responsiveness: end-to-end service coverage

Health 3.0
Automation

Focus
Operating model

Strategic differentiator
Access: cost to serve, efficiency

Health 4.0
Digitalisation

Focus
Business model

Strategic differentiator
Uniqueness: mass personalisation, proactive healthcare

Health 5.0
Personalisation

Focus
Customer model

Strategic differentiator
Lifelong partnership: customer wellbeing, quality of life

https://medium.com/qut-cde/health-5-0-the-emergence-of-digital-wellness-b21fdff635b9

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The Future of AI

The Future Of A.I.

Forecasted cumulative global artificial intelligence revenue 2016-2025, by use case (U.S. dollars)

Use case	Revenue
Static image recognition, classification, and tagging	$8,097.9m
Algorithmic trading strategy performance improvement	$7,540.5m
Efficient, scalable processing of patient data	$7,366.4m
Predictive maintenance	$4,680.3m
Object identification, detection, classification, tracking*	$4,201.0m
Text query of images	$3,714.1m
Automated geophysical feature detection	$3,655.5m
Content distribution on social media	$3,566.6m
Object detection and classification - avoidance, navigation	$3,169.8m
Prevention against cybersecurity threats	$2,472.6m

* From geospatial images

@StatistaCharts   Source: Tractica

statista

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LÉMAN: First Virtual Reality Neurorehabilitation Registry

LÉMAN

VR Neurorehabilitation Registry

Virtual Reality is an emerging treatment approach in stroke rehabilitation.

MindMotion™ systems use integrated, computer-based programs to simulate life-like objects and tasks for upper extremities. Interactive features and real-time feedback can help to motivate patients and may increase therapy time and intensity. The MindMotionPRO system in CE Marked and FDA approved as a medical device (510K) in the USA.

Although studies have shown VR to be effective in stroke rehabilitation, further supporting real-world data is required. MindMaze and its clinical partners aim to establish the first VR Neurorehabilitation web registry to benchmark the real-world clinical performance of MindMotion systems by capturing information on stroke patient characteristics, system usage, rehabilitation results and their interrelationship.

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MASK: "Emotional" embodiment via detection of facial expressions

Large smile

Tongue out

Angry

Wink left

Search for Partners for H2020 call and AI profiles

Partnership search:

- AI (healthcare specialists)

- Data mining

- Deep learning

- Public bodies (healthcare)

mindmaze

www.mindmaze.com
@MindMazeSA

mindmotion™

www.mindmotionweb.com
@TalkMindMotion

✉ daniel.perez@mindmaze.ch

The
Neurotechnology
Company

think. unlock. connect

Lausanne

Chemin de Roseneck 5
8th floor
1006 Lausanne
Switzerland

+41 (0)21 552 0801

San Francisco

MindMaze Inc
535 Mission St, 14th Floor
San Francisco, CA 94105
USA

+1 (323) 505 8461

Zurich

Technoparkstrasse 1
Transfer Nord 2023
8005 Zurich
Switzerland

+41 (0)78 621 8787