



**Creating a World of Bionic Vision
for Those Who Have Lost Their Sight**

Forward Looking Statements

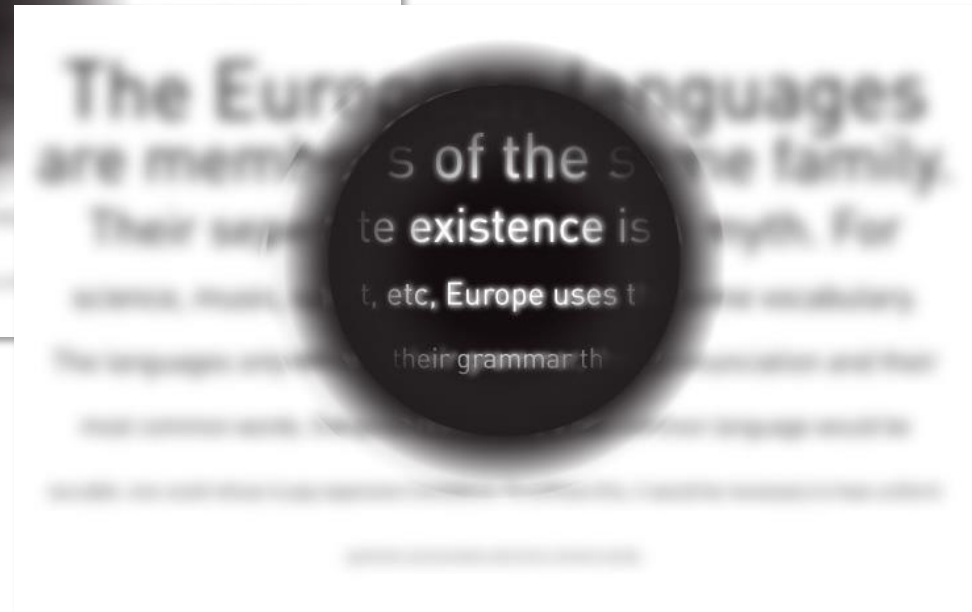
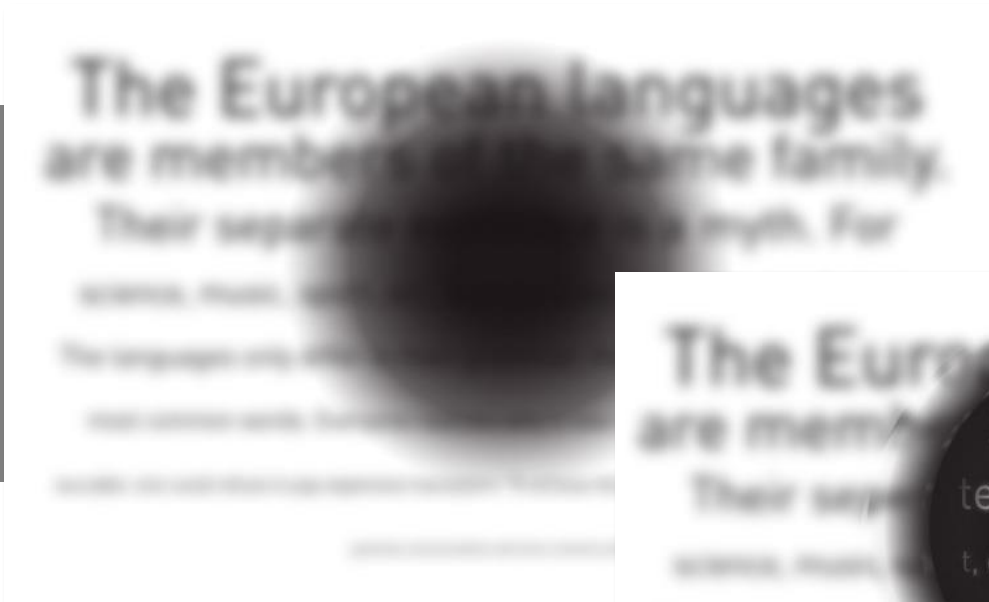


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Creating a World of Bionic Vision for Those Who Have Lost Their Sight



Dry
AMD patients
without foveal
vision



Future with
PIXIUM
VISION



Prof. Daniel Palanker

Director of the Hansen Experimental Physics
Laboratory Stanford University (Palo Alto, US)

"...Simultaneous use of the prosthetic central vision and the natural peripheral vision in both the implanted eye and the fellow eye is a very important feature of the Prima System for patients with geographic atrophy and is essential for improving their quality of life..."

Pixium creates a world of bionic vision for those who have lost their sight



What?

Pixium **invents** and **develops bionic vision systems** for visually impaired...

A tiny wireless neurostimulating retina implant and smartglasses capable of communicating with implant generating bionic vision for blind and partially blind patients



Why?

...to **create** meaningful **sight** and **regain independence**...

To give back meaningful vision and independence to patients suffering from Dry AMD and other retinal diseases that currently have no other solution



Who

...and lead by a **seasoned team** which combines **>100 years experience** in **Medtech**



SIEMENS



How?

...by **finalizing clinical trials** and **commercialization** of the **PRIMA system**...

Leveraging Pixium's cutting edge know-how created to finalize the pivotal PRIMAvra trial in the EU and lead the PRIMA system to market approvals in US, EU and other countries.



Key Success Factors



Breakthrough Technology

De-risked state of the art ophthalmic neuromodulation technology



Clinical Success

Pivotal trial in Europe (PRIMAvera) fully enrolled expecting data readout by Q12024,
Breakthrough Device Designation in US,
Results exceeding expectations with up to 36-month follow-up in Dry AMD demonstrating the ability for clinically blind patients to read letters and words
5 peer reviewed publications



Large Markets

245k visually impaired Dry AMD patients leading to a €19b market opportunity in the U.S. and EU5 combined



Clear Way to Market

Expected to be 1st to commercialize due to advanced clinical progress and to become the only treatment option



Reimbursement

Expect average €80,000 generated per patient



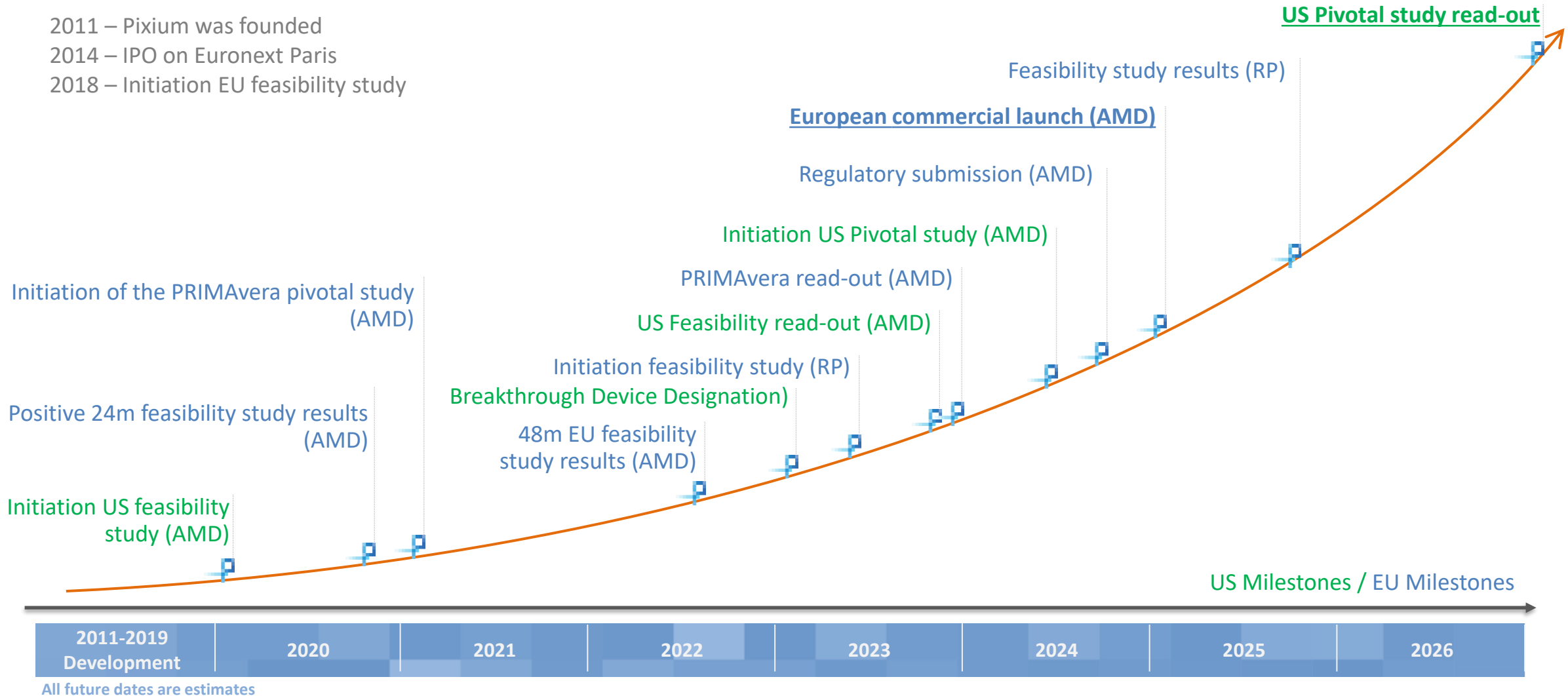
Top Tier Teams

Experienced management supported by top-tier KOL group

Delivering on our Journey and Approaching the Next Chapter of Pixium and the Prima System



2011 – Pixium was founded
2014 – IPO on Euronext Paris
2018 – Initiation EU feasibility study



Experienced Management Team with over 100 years in Medtech



Lloyd Diamond

Chief Executive
Officer



Offer Nonhoff

Chief Financial
Officer



**Brian Burg,
PhD**

Director of R&D



Alexandra Rocher

Director
Manufacturing



**Ralf Hornig,
PhD**

Director Clinical
Affairs



**Medical Implants
Intelligent**



**Karine Chevrie,
PhD**

Director Regulatory
Affairs and Quality



Prima System Delivering Encouraging Results for Patients



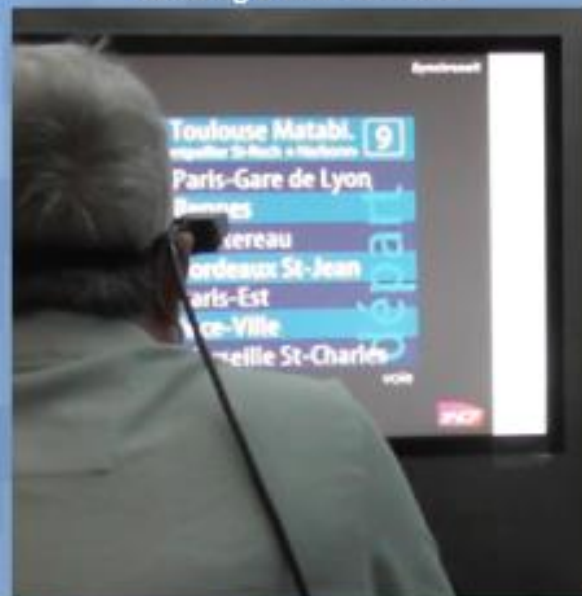
From Lab Reading to Functional Tasks & Activities

Lab reading



With Normal Glasses

Reading a train schedule



With **PIXIUM** VISION Smart Glasses

Outdoor reading



From training sessions with patient



Prof. Dr. med. Szurman
Augenlinik
(Sulzbach, Germany)

"...I consider the Prima System to bring true innovation to patients ..."

AMD

Age Related Macular Degeneration

Dry AMD is more common and can be as equally debilitating as well treated wet AMD



- **Chronic progressive** neurodegenerative eye disease leading to loss of central vision due to a **degeneration of photoreceptor cells** in the Retina
- Dry AMD may first develop in one or both eyes and **then affects both eyes**
- **Dry AMD 80% – 90% / Wet AMD 10% – 20%.** Dry AMD may progress to wet AMD, which can cause rapid vision loss if left untreated.
- Onset mostly **around 60 years** old
- **Significant impact on quality of life**, impeding ability to read, use transportation, social interactions, and other daily tasks
- Loss of quality of life for advanced AMD patients is **comparable to dialysis, advanced prostate cancer or severe stroke**¹
- There is currently **no** approved **treatment** for sight restoration for Dry-AMD
- We believe **Pixium's Prima System** can become **1st approved Dry-AMD treatment**

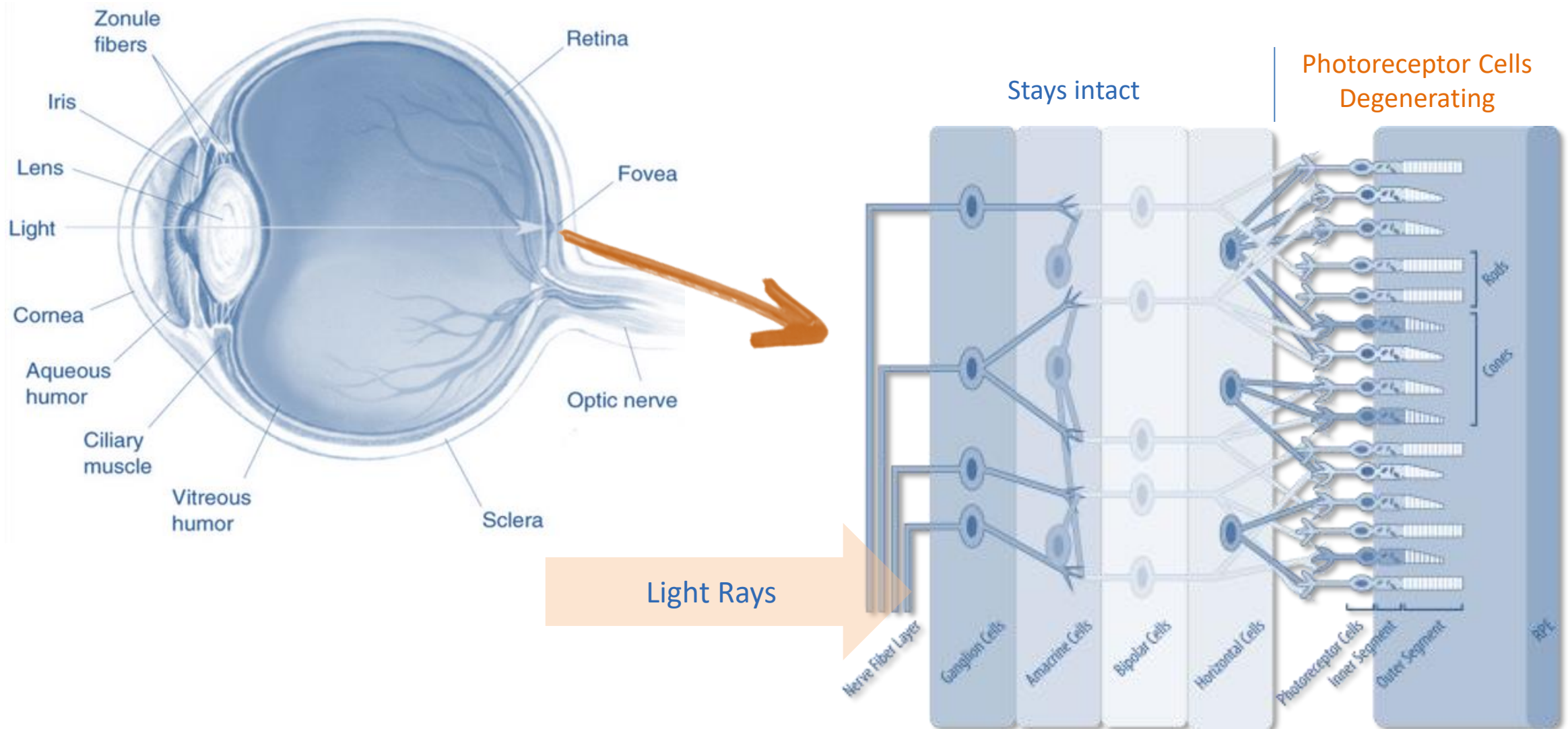
Total AMD population US and EU5 ²

63.9_m

(1) Trans Am Ophthalmol Soc. 2005 Dec; 103: 173–186

(2) GlobalData Age Related Macular Degeneration Epidemiology Forecast 21.Dec.2021

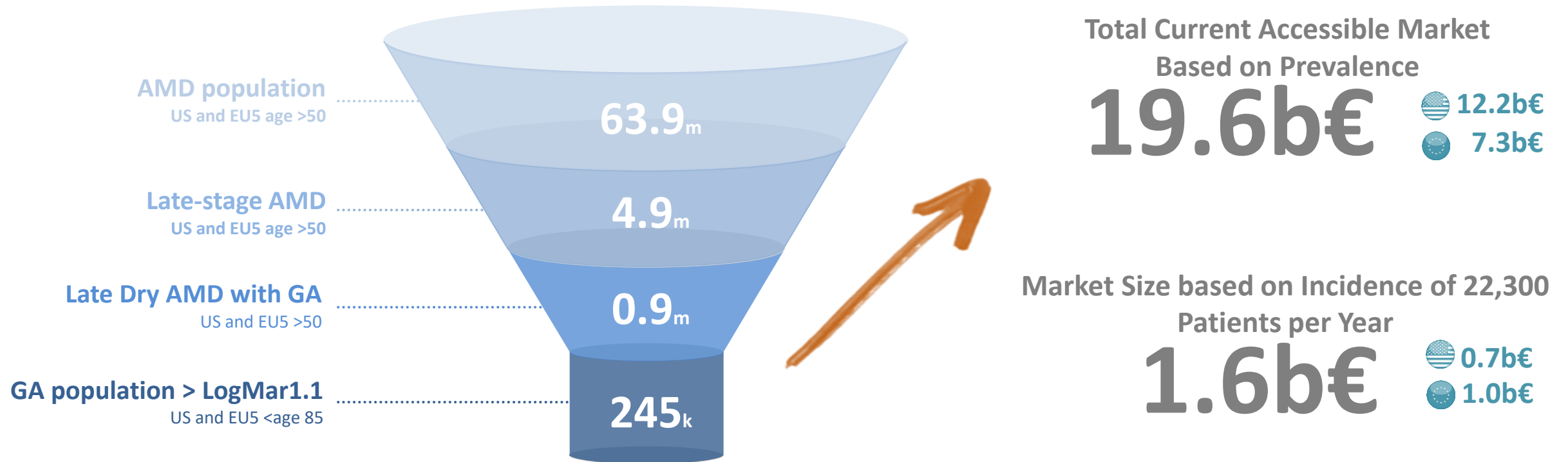
Degeneration of Photoreceptor Cells while Optic Nerve stays intact



An Extremely Large, Fast Growing and Untapped Dry AMD Market

Based on 2022 epidemiological data growing about 10% until 2028

(1) GlobalData Age Related Macular Degeneration Epidemiology Forecast 21.Dec.2021



Expanding indications to **Retinitis Pigmentosa** will increase market materially



Mr. Mahi Muqit
Consultant Ophthalmic Surgeon
Moorfield Eye Hospital (London, UK)

"...The Prima System has the potential to significantly improve vision and quality of life for patients with dry AMD and I am looking forward to bringing it to more patients in need..."

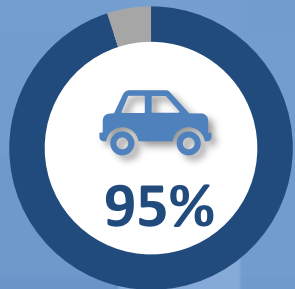
Significant Impact on Patients' and Their Surrounding



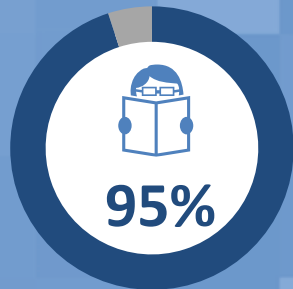
Dry AMD is amongst the most debilitating disease for patients leading to:

- Significant psychological impact
- Societal impact through high degree of dependency

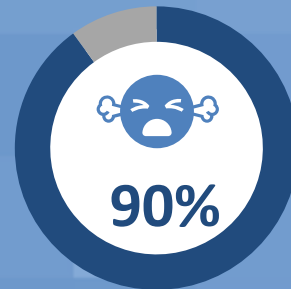
Difficulty driving



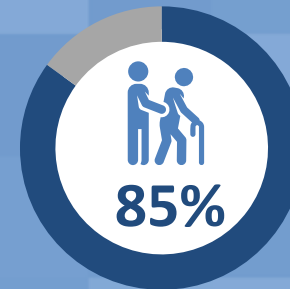
Difficulty reading



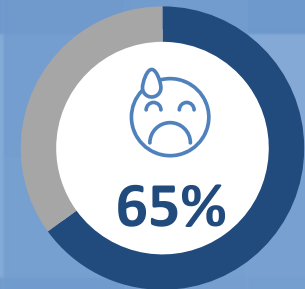
Frustration



Dependency on others



Stress and anxiety



.....

Main Targets of Prima System

The background of the slide is a repeating pattern of interlocking hexagons. Each hexagon contains a stylized, light-colored geometric design that resembles a molecular structure or a complex circuit. The pattern is rendered in a light blue and grey color scheme, creating a subtle, textured effect.

The Prima System



The Prima System

An Innovative Combination of an Implant and Smart Glasses

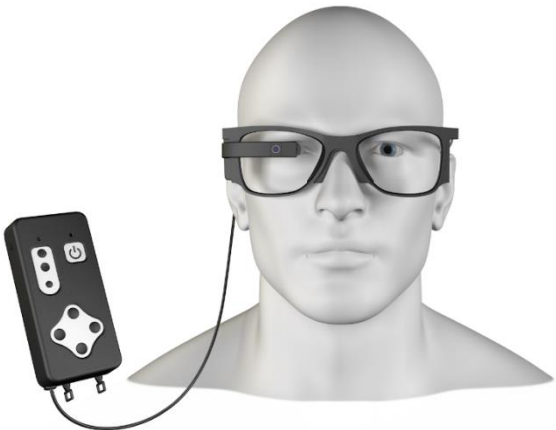
Implant

Interface to the Optic Nerve



Smart Glasses

Camera, Projector, Computer,
cutting edge Artificial Intelligence



Wireless Neurostimulation
Implant



Cutting-edge Image
Processing System



Minimally Invasive Implantation
and Optimized Patient Training

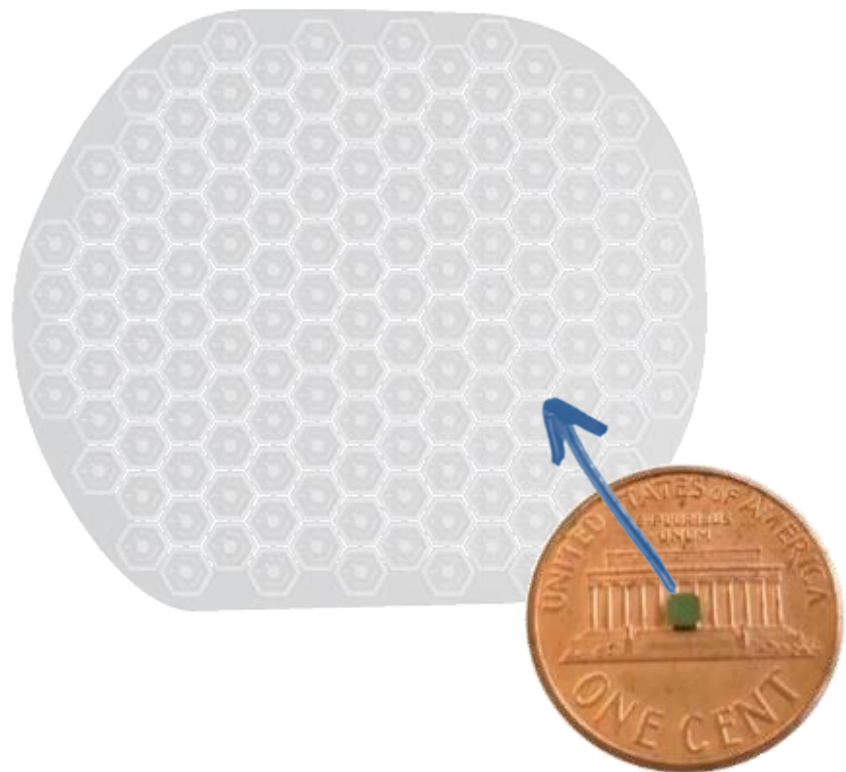










High Precision Optics and
Projection



Versatile and Upgradeable

State of the Art Implant



Exclusive collaboration with Stanford University	 Stanford University	Partially replaces function of central photoreceptor cells while leaving peripheral vision	
378 electrodes in a 2x2mm module thinner than a human hair		Fully wireless, activated using high-precision projection system	
No battery		Implant durability tested in-vitro for 10+ years	
Surgeon friendly high-precision implant delivery device		Patent protected design and manufacturing process	



Dr. Yannick Le Mer
Head of Vitreo-retinal Unit
Fondation Adolphe de Rothschild
(Paris, France)

"...the implant is shown to be reliable in patients for over 36 months post implantation. These encouraging results position Pixium's PRIMA implant, and the whole Prima System, as a realistic potential solution.."

Glasses and Pocket Computer



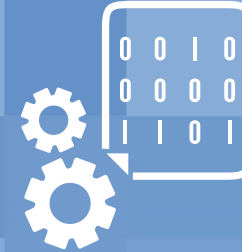
MINIATURIZED CAMERA

Captures the patient visual environment and transmits the data to the image processing stem



PROPRIETARY ALGORITHMS

Analyses the image stream, simplifies the contents to highlight a specific area and transforms the result into the signal to be projected on the implant



TRANSPARENT GLASSES

Regular-looking glasses with tunable projection module allowing to combine bionic vision and peripheral vision



SOPHISTICATED PROJECTION

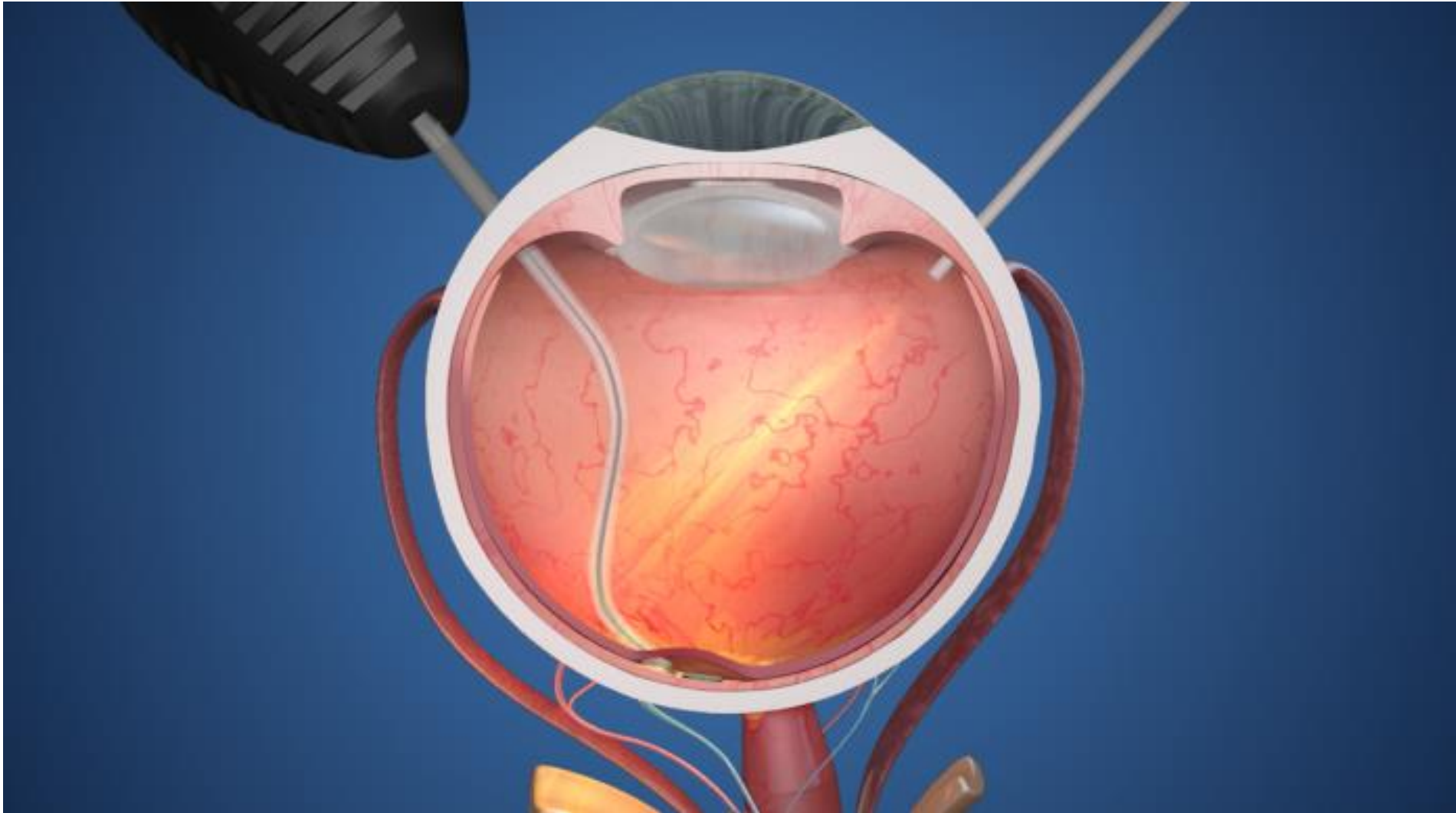
Transfers electronic signals of images to activate safely the implant electrodes with high precision



Prof. Dr. med. Frank G. Holz
Direktor der Universitäts-
Augenklinik (Bonn, Germany)

"...The bionic vision Prima System has demonstrated improved vision function and could potentially make a significant impact to patients' quality of life.."

A Potential Solution for Vision Restoration



Link to video [PRIMA System operating principle on Vimeo](#)

4 Stages of Surgery & Rehabilitation

Surgery

Implantation in a **1–2-hour surgery**, outpatient, similar to retinal detachment surgery

Training

Low vision specialists train **use of device, basic shapes, reading, orientation and other daily living tasks** for 3 months

Switch On

Switch on after healing
4-6 weeks after

Follow Up

Continuous follow up through **remote rehab**, roll out of apps, improvements, upgrades



Dr. Koen van Overdam
Consultant Ophthalmologist and
Vitreoretinal Surgeon at the
Rotterdam Eye Hospital

"...The potential of the technology and the relative ease with which the small wireless implant can be surgically placed under the macula offer a real chance for patients who lost vision due to dry AMD..."

Finding Solutions to the Activities of Daily Living for our Patients



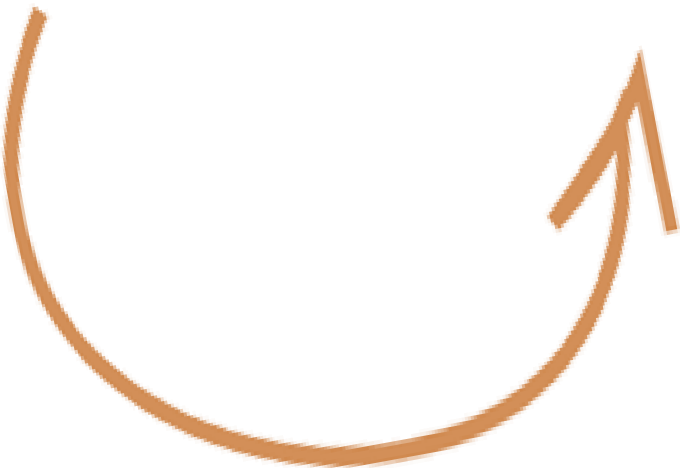
Text Reading

Cookbooks, phone, tablet, supermarkets, letters, financial & medical interactions, etc.



Recognition of Pictograms

Enabling the intuitive recognition of everyday images



Targeted Writing

Shopping lists, notes, typing on phone / tablet

Face Recognition

Being able to recognize family, friends and pets



Orientation

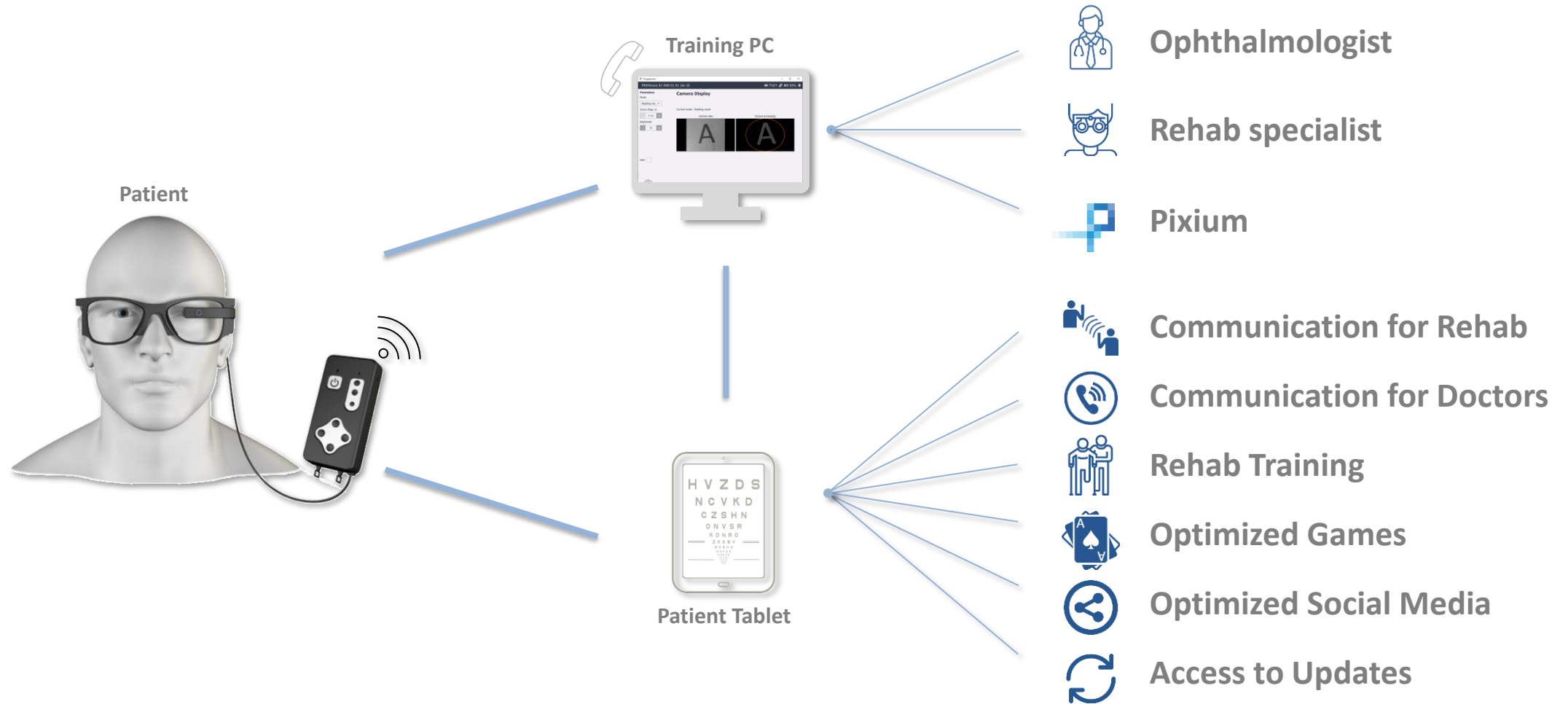
Going shopping, to medical appointments, visiting friends and family



Anonymous patient quote after first sessions

"...Reading letters, recognizing some pictograms, for now that's all. It's already good, at the beginning I didn't imagine that I would see letters. ..."

Remote Engagement Platform Targeted to Improve Rehab and QoL of our Patients



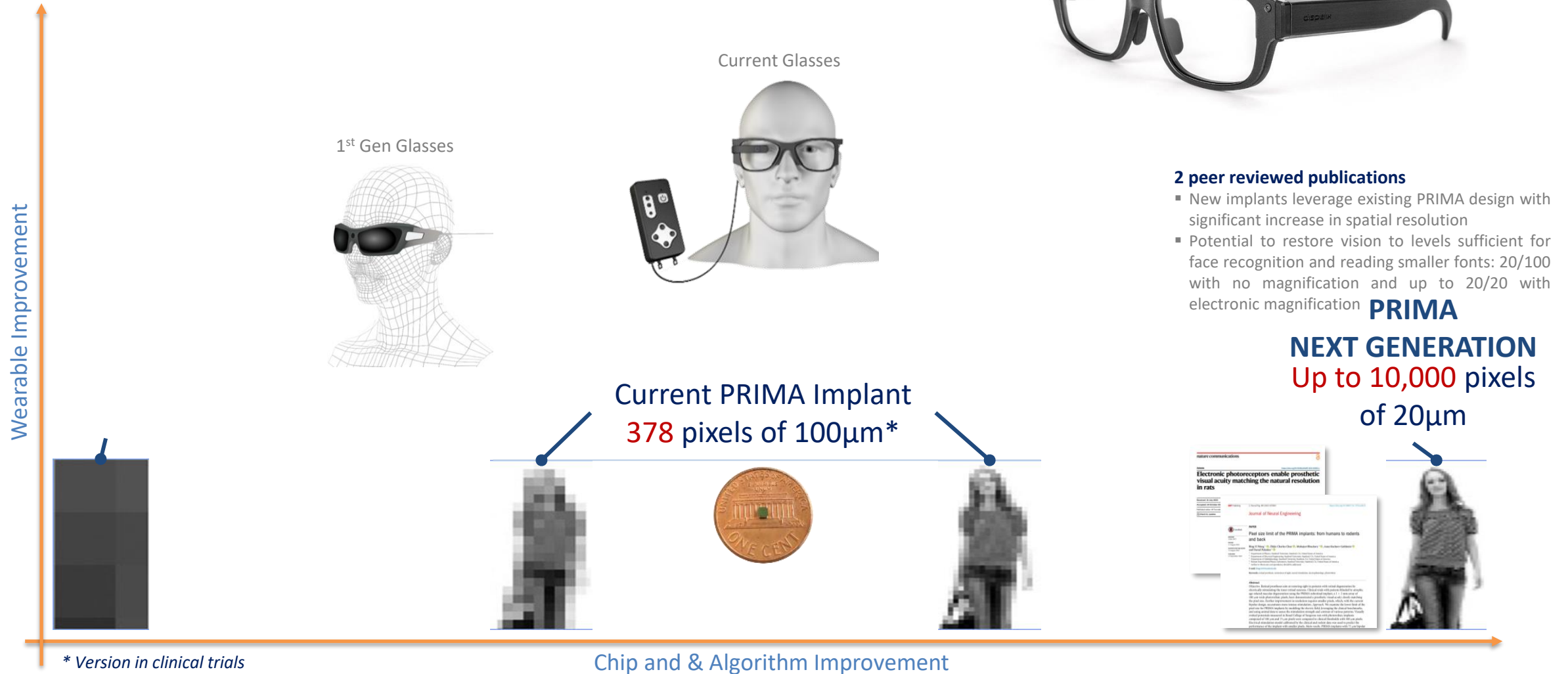
Dr. Villani

Director of the Low Vision and Microperimetry Center of Verona "C.R.I.M."

"...In order to achieve the best visual function following implantation, it is paramount for patients to adhere to a comprehensive rehabilitation process... The new remote rehabilitation module of the PRIMAvera trial allows patients to train daily at home...the gaming nature of some training exercises – as well as the ability to communicate easily with physicians, nurses, family members and other patients – will further motivate patients to engage..."

Scalable Platform and First Step Towards Face Recognition

The below pictures are for illustration purpose only



Prima Technology

Developed with Patients and Physicians in Mind



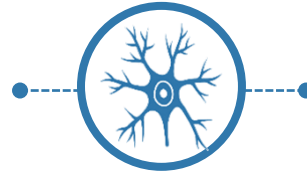
Wireless Neurostimulation Implant

**Cutting-edge Image
Processing System**

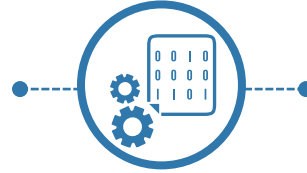
High Precision Optics and Projection

**Easily Implantable and
Optimized Patient Training**

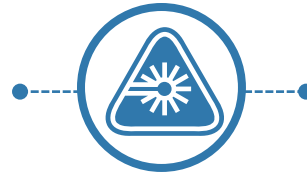
Versatile and Upgradeable



PRIMA is a tiny neurostimulation device implantable in the sub-retinal space



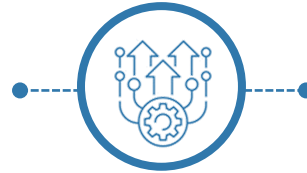
Dedicated imaging processor with proprietary algorithm optimized to characteristics of bionic vision, to limit latency and maximize reactivity



Allows to precisely activate implant and to transfer visual content with low latency and hyper-short on-off timing



Minimally invasive surgery through a patented implant delivery device – doable by most EU/US retinal surgeons; patient's training optimized to allow independence






Potential addition of life-easing technologies on external components side such as stimulation algorithmics improvement, 5G connectivity, road mapping and direction with VR capabilities

Clinical Data

Clinical Studies

Dry AMD



	Feasibility Study	Regulatory Pathway	Pivotal Study	Regulatory Submission
	Follow-up 6, 12, 18, 24 and 36 month showing meaningful reading <small>continuing until 72 month</small>	Approved	 Fully Enrolled Ongoing <small>Readout end 2023</small>	Expected early 2024
	Ongoing <small>Read out H2 2023</small>	Ongoing <small>Breakthrough Device Designation Status confirmed</small>	Expected Start 2024	Expected 2026

European Pivotal Trial Underway for 2023 Read-Out

Fully enrolled – Data readout Q1 2024



Objective: Restoration of Central Vision with the PRIMA System in patients with Atrophic Age-Related Macular Degeneration and evaluate the efficacy as well as safety of PRIMA. Eligible subjects will be implanted with the PRIMA Implant.

Design: Single Arm, Open Label, patient its own control



38 blind (logMAR > 1.1) Dry-AMD patients implanted



Primary endpoint – 12 months:

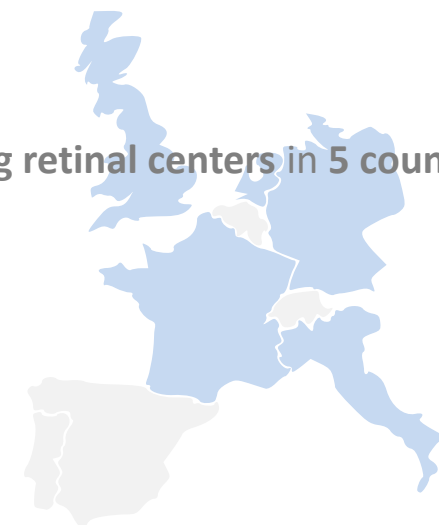
- Improvement of Visual Acuity (measured with ETDRS) of logMAR 0.2
- Number and severity of Serious Adverse Events



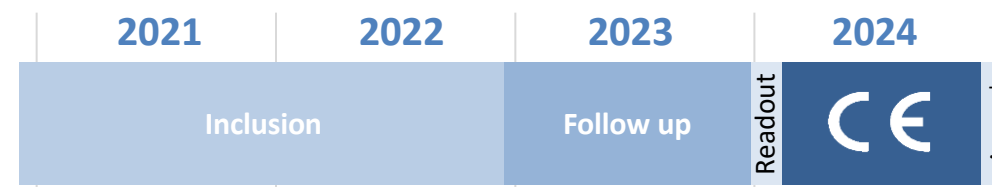
Secondary endpoint – up to 36 months:

- Improvement of Visual Acuity (measured with ETDRS) of logMAR 0.2
- Mean improvement of visual acuity compared to baseline
- Quality of life measured by IVI
- Central visual perception
- Adverse Events
- Change of natural visual acuity without the PRIMA glasses
- Proportion of compliant implantations

17 of the leading retinal centers in 5 countries participated



Next milestone – Data readout





Encouraging Results in European First-In-Human Study

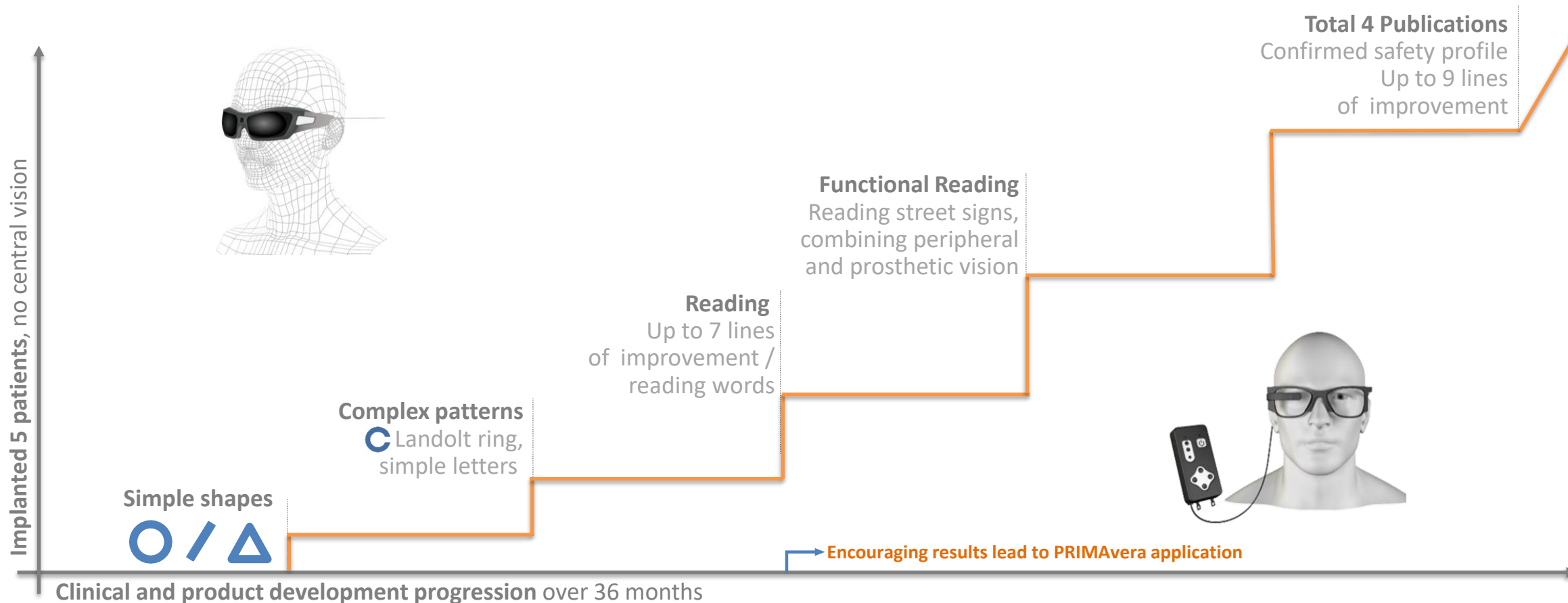
PRIMA has the potential to meaningfully restore central vision

Proof of Concept

With 1st generation Smart Glasses

Implementation

With 2nd generation Smart Glasses / same implant



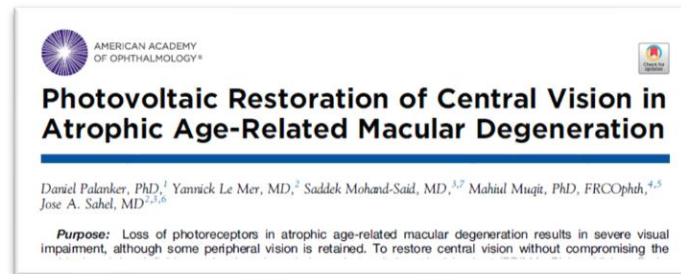
1 – France first-in-human study (PRIMA FS) recruited 5 patients. Primary endpoint is Elicitation of visual perception at 18 months with up to 36-month follow-up

5 Peer Reviewed Publications



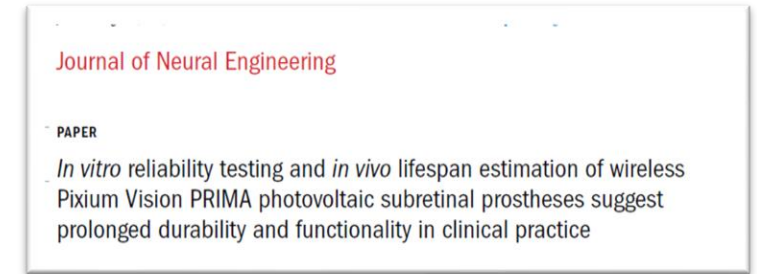
2019 – PRIMA creates localized phosphenes

Monkeys were able to to localize phosphenes, that have been stimulated by a PRIMA implant, similar to a natural light stimuli.



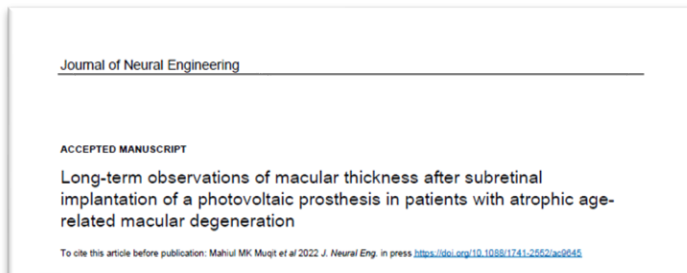
2020 – Positive results on efficacy and safety

Residual natural acuity did not decrease after implantation in any patient. Visual acuity up to a level close to the theoretical resolution of the implant could be measured.



2020 – Demonstration of longterm reliability of the PRIMA implant

The PRIMA implant was found to be robust, with in vitro reliability of at least 10 years



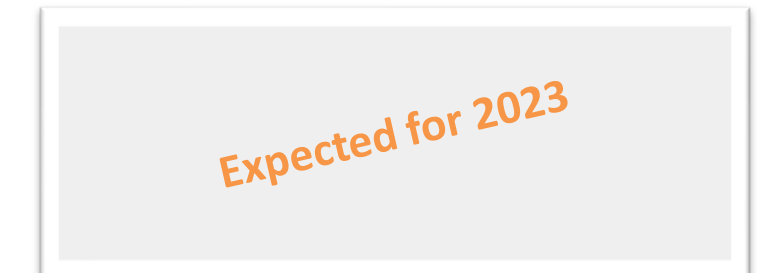
2022 – Positive results on safety

Distance between the implant and the target cells was stable over the long-term follow-up, No significant thickness changes of the retina after an initial phase of minor thinning.



2022 – Positive results on efficacy

Patients implanted with a PRIMA device are able to use artificial vision and their natural peripheral vision simultaneously. Acuity of up to 20/63 has been demonstrated.



2023 – Expect positive results on efficacy

48 months follow up of the French feasibility patients expected using the same testing methods as in the ongoing PRIMAvra pivotal study.

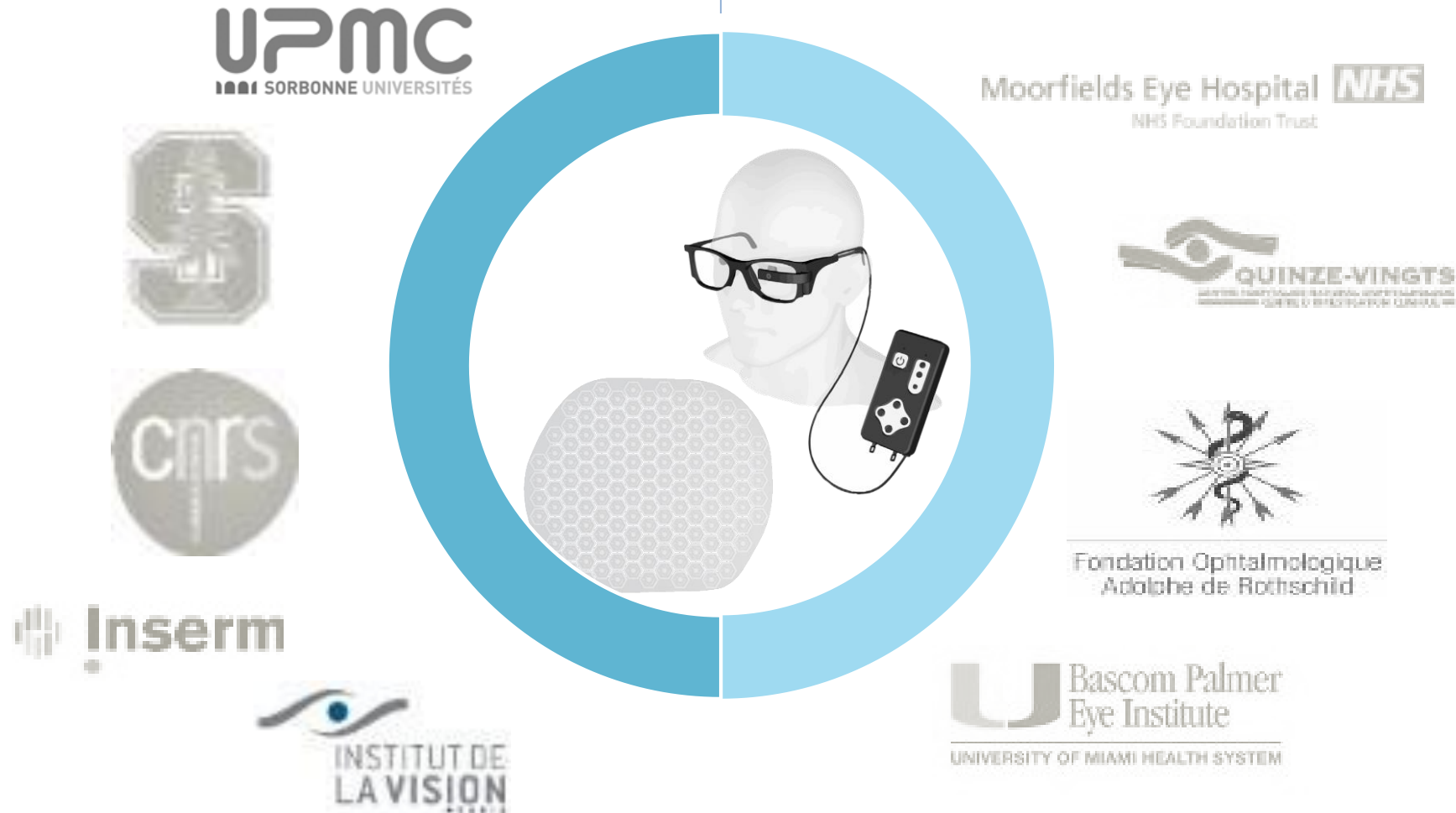
-> All publications after 2019 from in European First-In-Human Study

Conclusion

Prima System, a Cutting-Edge Technology Supported by Multi-disciplinary Partners

Universities and Research Institutes

Vision Clinics



Developments Supported and Advised by Knowledgeable Scientific and Medical Experts



Prof. Jose-Alain Sahel
Vision Institute
(FR) / UPMC
(Pittsburgh, US)



Lisa Olmos de Koo, MD
University
Washington
(US)
Chief Medical
Advisor Pixium



Prof. Frank G Holz
University
Hospital Bonn
(DE)



Prof. Daniel Palanker
Stanford
University (US)



Dr. Yannick Le Mer
Fondation
Adolphe de
Rothschild (FR)



Prof. Borja Corcostegui
IMO, Institute
of Ocular
Microsurgery
(ES)



Dr. Mahi Muqit
Moorfield Eye
Hospital (UK)



Prof. Andrea Cusumano
University of
Rome (IT)



Prof. Jan Van Meurs
Rotterdam Eye
Hospital (NL)



Conclusion



Leveraging Solid Foundations to Deliver on our Promises

-  State of the art technology platform to address most common and debilitating ophthalmic condition in 60+ year old patients
-  Ongoing PRIMAvera European Pivotal study with read-out expected end 2023, potential EU approval expected in late 2024 – Breakthrough Device Designation confirmed in the US
-  Initial target of \$1.6bn incidence market followed by progressive penetration of \$19bn prevalence market
Business model expandable through technological upgrades and additional services/maintenance
-  Wide and robust intellectual property and know-how to support long-term market leadership
-  Strengthening presence in key strategic U.S. market

=> Cash need of further ~€60m is expected to be raised to successfully commercialize PRIMA

Thank you

Lloyd Diamond, CEO | E: ldiamond@pixium-vision.com

