EDISON

Pixium Vision

Company outlook

Advancing towards sight restoration in dry-AMD

Healthcare equipment & services

Prima, a potentially breakthrough wireless bionic vision system (BVS) that generates electrical impulses at the retinal level, continues to advance through the PRIMAvera pivotal EU study. Prima aims to restore a form of central visual perception in patients with advanced dry age-related macular degeneration (dry-AMD) involving geographic atrophy (GA). While we have pushed back our potential launch forecast to H124 (from H223), after tweaking our market growth assumptions, we now obtain a higher equity valuation of €143.3m (versus €138.0m previously).

Year end	Revenue (€m)	PBT* (€m)	EPS* (€)	DPS (€)	P/E (x)	Yield (%)
12/19	1.8	(9.8)	(0.44)	0.0	N/A	N/A
12/20	2.1	(8.7)	(0.26)	0.0	N/A	N/A
12/21e	2.6	(10.8)	(0.22)	0.0	N/A	N/A
12/22e	1.6	(14.3)	(0.24)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

Prima provides bionic-like vision in dry-AMD patients

Prima seeks to address a largely unmet market indication, advanced dry-AMD involving GA. European feasibility study data suggest that Prima could potentially provide about seven lines of improvement on the Landolt visual acuity (VA) scale. This could make the difference in the ability to read a street sign or not, or to recognize shapes or symbols for the completion of certain tasks. VA improvements were maintained at 24–30 months follow-up, suggesting continued implant safety and stability. We believe Prima could potentially provide benefits in a target GA market subset of about 113,000 patients across the US and Europe.

PRIMAvera pivotal study well underway

The first patient was implanted in H121 as part of the open-label PRIMAvera study, which will implant and assess the Prima BVS in 38 patients. As additional European sites come on board, recruitment completion is targeted by year-end 2021 and top-line, 12-month data, expected in early 2023, could be sufficient for approval. We forecast that EU commercialisation may occur in H124 (from H223 previously, to allow for added flexibility in the CE mark process) and US market registration may follow in H225 as we assume a separate US study will be needed. However, US launch could occur sooner if the FDA accepts the PRIMAvera pivotal study protocol.

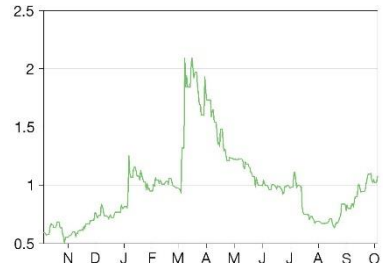
Valuation: Revised valuation of €143.3m

Pixium had €10.13m in cash and €9.48m debt at 30 June, and subsequently raised €7.376m (net) in equity through a capital increase and also converted c €1.1m of debt to equity. After adding €9.1m H121 pro forma net cash, we obtain an equity valuation of €143.3m (from €138.0m, previously), largely due to slight increases in our longer-term growth assumptions, or €2.45 per basic share (from €2.41 previously). We believe that Pixium's current funds on hand should last to end Q422, and assume it will need to raise €29.4m (from €25.4m, previously), modelled as illustrative long-term debt, to bring Prima to commercial launch.

5 October 2021

Price	**€1.07**
Market cap	**€63m**
	$1.17/€
Net cash (€m) at 30 June 2021 (excluding lease liabilities and July 2021 fund-raising)	0.65
Shares in issue	58.5m
Free float	60%
Code	ALPIX
Primary exchange	Euronext Growth Paris
Secondary exchange	N/A

Share price performance



%	1m	3m	12m
Abs	34.4	9.1	74.9
Rel (local)	38.7	10.3	31.7
52-week high/low		€2.1	€0.5

Business description

Pixium Vision develops bionic vision systems for patients with severe vision loss. Its lead product, Prima, is a wireless sub-retinal implant system designed for dry-AMD. The company started implantations as part of a European pivotal study in early 2021.

Next events

36-month data from European feasibility study	Q421/Q122

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Investment summary

Company description: Restoring sight to dry-AMD patients

Pixium Vision was founded in France in 2011 and in 2012 it purchased Iris epi-retinal implant assets from Intelligent Medical Implants for €11m. It has since shifted its focus to a more advanced sub-retinal implant, Prima, which was developed in conjunction with Stanford University for which the company has a worldwide licence for all markets and indications. The wireless Prima platform is theoretically capable of approaching facial recognition levels of visual acuity (VA) and, as such, is being advanced for the currently unmet market need of patients with severe vision loss from advanced dry-AMD involving GA. Positive 18-month data from an EU feasibility study showed up to seven lines of VA improvements and in Q121 the firm reported that these benefits were maintained at 24–30 months follow-up post-implantation, suggesting continued implant stability and safety. Initial implantations as part of the PRIMAvera pivotal study started in early 2021, with top-line data guided for early 2023, and we anticipate potential commercial launch in H124 (vs H223 previously).

Valuation: Equity valuation of €143.3m

We value Pixium using an rNPV approach, applying a 12.5% cost of capital. Our valuation is based on the Prima opportunity in advanced dry-AMD involving GA, in the EU and US. We apply a 25% probability of success estimate for Prima in Europe (which embeds both regulatory risk and the risk of obtaining satisfactory reimbursement coverage to meet our market penetration forecasts) and 20% probability in the US. After slightly increasing our market growth forecasts and forex assumptions, we now obtain a pipeline rNPV (enterprise value, excluding net cash) of €134.2m. After including €9.1m in H121 pro forma net cash (excluding lease liabilities), we obtain an equity valuation of €143.3m (versus €138.0m previously), or €2.45 per basic share (versus €2.41 previously), or €2.37 assuming full exercise of the July 2021 warrants.

Financials: Funded to end Q422

We estimate H121 pro forma net cash of c €9.1m (€17.5m gross cash following the Q321 capital increase, offset by €8.4m gross debt after taking into account recent conversions of €1.1m of debt to equity). We anticipate that Pixium's funds on hand should last to end Q422. Our model assumes Pixium will need to raise €29.4m in additional funds before year-end 2024, modelled as illustrative long-term debt, to complete the PRIMAvera pivotal study, all EU-related regulatory and preparatory commercial activities and bring Prima to commercial launch. Previously we had forecast a funding need of €24.4m by year-end 2023, but have revised our assumptions given that we pushed back our Prima launch timing forecast to H124 (from H223 previously).

Sensitivities: Regulatory, commercial and funding

Meaningful development risk remains with Prima as it has only been implanted in a small number of patients to date, and in vivo longevity will need to be confirmed over time in the larger pivotal study programme. Furthermore, the visual improvements offered must be sufficient to persuade patients to use and insurers to cover the implant and be competitive versus potential emerging alternatives. The EU feasibility study showed that the device can add up to seven lines of VA and enable recognition of shapes and symbols in patients who previously had no light perception in the treated eye; such functional benefit may support discussions for obtaining reimbursement coverage on approval. Pixium will also depend on maintaining access to additional capital to fund Prima development. While our model accounts for these financings as long-term debt, the firm may have difficulties raising funds or need to issue equity instead, and there is a potential risk that pricing is not favourable for current shareholders, which would lead to significant dilution.

Company description: Bionic vision system

Pixium Vision is a French medical device company, which is advancing a clinical-stage BVS that aims to provide a new form of vision to those with profound vision loss attributable to retinal diseases. These diseases permanently damage photoreceptor cells and impair their ability to translate visual stimuli into electrical signals transmittable into the optic nerve. The BVS consists of an implanted chip, external augmented reality (AR) glasses and a separate handheld pocket computer, and intends to replace the signal processing functions of damaged photoreceptors by electrically stimulating other healthy retinal cells.

Having brought its initial BVS, the Iris II epi-retinal[1] implant, to CE mark commercial stage in 2016, Pixium has been focusing its efforts on a more advanced sub-retinal system, Prima BVS. Prima's core component is a tiny wireless sub-retinal chip powered by near-infrared light, which delivers electrical impulses at a more upstream level in retinal signal processing than in epi-retinal devices, thus allowing for a more natural form of neural network mediation of the information. This could potentially provide superior VA, while involving a less invasive and time-consuming surgical technique. These attributes make it more suitable for the advanced dry-AMD market, a substantially larger opportunity than the retinitis pigmentosa (RP) market targeted by Iris II, and currently without a proven treatment.

Following positive six- and 12-month results from the five-patient European feasibility study (PRIMA-FS), Pixium refined the system's AR glasses and image processing analytics/pocket computer, and patients in the trial were transitioned to the second-generation components. 18-month data using the second-generation components showed measurable improvements in VA, and Pixium subsequently started the PRIMAvera pivotal study in late 2020, with initial patient implantations having occurred in early 2021. The company expects to complete the targeted recruitment of 38 patients by year-end 2021 (with implantations completed by early 2022) and deliver top-line, 12-month data in early 2023.

Prosthetic vision platform targeting the AMD market

The Prima platform is an integrated prosthetic visual system comprising an implant chip, AR glasses, and an external pocket computer that processes the image data captured by the glasses before it is transferred wirelessly (by the AR glasses) to the implanted chip. The core element is a miniaturised photovoltaic wireless sub-retinal implant that is implanted underneath the retina in a surgical procedure that may take less than 90 minutes under local anaesthesia. The current Prima chip iteration under human clinical development is a 2mm x 2mm wireless chip of 378 electrodes (pixels) in total. Each photovoltaic pixel is independently controlled and self-powered by near-infrared light projected from the AR glasses worn by the patient (the glasses consist of a camera, which emits a near-infrared light pattern through the patient's eye carrying the Prima implant, designed to be processed by the Prima pixels).

Located underneath the retina, the pixels embedded on the chip aim to stimulate the patient's bipolar cells, which are located mid-stream in physiological visual signal processing. In normal visual function, photoreceptor cells (located on the outer portion of the retina) send information to bipolar cells (located within the retina), which then relay information into retinal ganglion cells (RGCs, which are on the inner portion of the retina), and onto the brain through the optic nerve. The Prima system is designed to restore the function of individuals whose retinal photoreceptors have been damaged by retinal disease such as severe GA associated with dry-AMD.

1 Located at the surface of the retina.

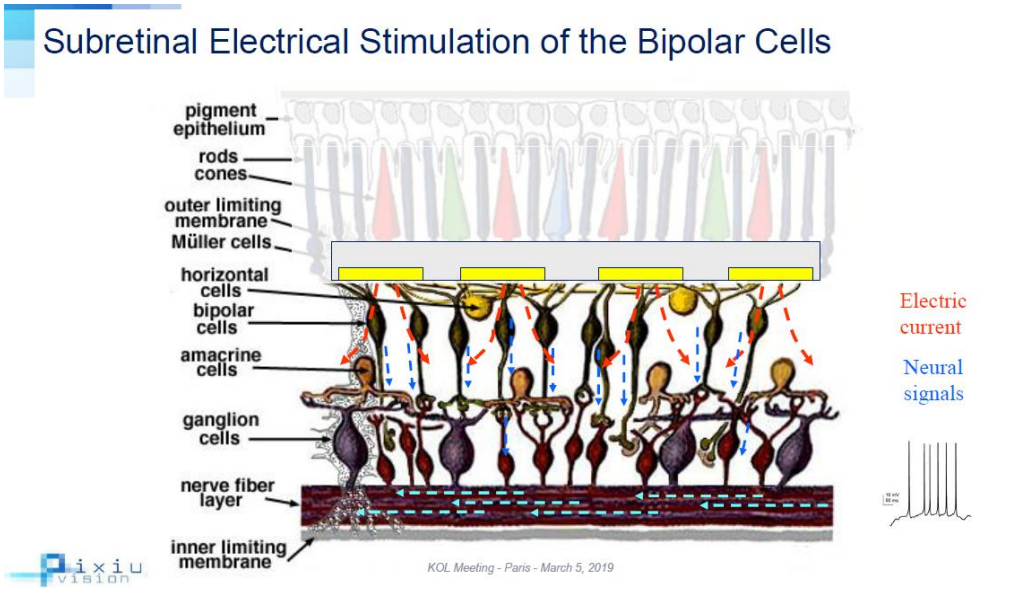
Exhibit 1: Diagram of Prima including camera integrated into specialised glasses

Source: Pixium Vision presentation

Fully wireless chip enables optimal sub-retinal placement

While the existing epi-retinal implants (Pixium's Iris II and Second Sight's Argus II, both designed for RP) stimulate RGCs, the more biomimetic sub-retinal approach applied by Prima enables a more upstream level of interfacing in vision processing (by aiming to stimulate bipolar cells in the visual pathway first, rather than RGCs).

Exhibit 2: Location of sub-retinal implant and intended communication with bipolar cell layer



Source: Pixium Vision

By intending to stimulate the bipolar cells first, the implanted chip leverages the retina's existing intrinsic physiological pathways, as bipolar cells require lower electric neural activation thresholds to elicit a perceptual response (compared to RGCs). As Prima is powered with near-infrared light, it does not require permanent trans-scleral wires or cables (as needed by the wired epi-retinal implant designs such as Iris II and Argus II). Prima's fully wireless approach ensures a less invasive surgical procedure, while also mitigating the risk of potential long-term complications that can result from permanent scleral openings (a potential risk with wired epi-retinal implant designs). Altogether, the surgical procedure to implant the Prima chip takes under two hours.

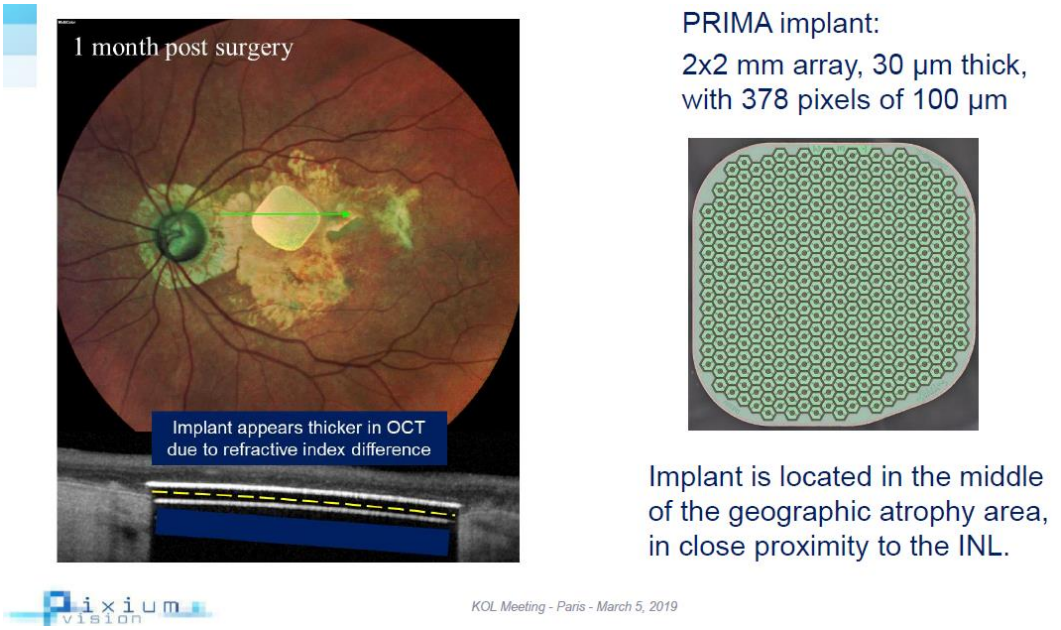
Improved resolution opens door to larger dry-AMD market

Prima is intended to deliver VA superior to what can be achieved with epi-retinal implants. This level is expected to be sufficient to provide meaningful improvements and justify implantations in patients in late stages of dry-AMD, such as those with retinal scarring or GA reducing best-corrected VA in each eye to below 20/400 (5% of normal vision[2]). For instance, the Prima system can enable the recognition of symbols, letters and objects in patients who have lost the capacity to recognise those forms due to the severity of their disease; this can provide quality-of-life improvements for such patients. This level of visual improvement, in our view, is superior to that offered by the epi-retinal devices cited above, which generally only provide very crude vision (such as recognition of basic movements and illumination).

EU feasibility data show safety and vision improvements

In late 2017, Pixium started the five-patient, single-site,[3] 36-month European feasibility study (PRIMA-FS) for the initial clinical-stage iteration of the Prima system in patients with advanced dry-AMD whereby none of the patients had remaining central visual activity at the time of enrolment in the study eye. In Q318, Pixium reported that all five implantations resulted in successful consecutive activations and light perception in areas where no central vision remained prior to implantation.

Exhibit 3: Schematic of 378-pixel Prima and implantation into retina, at one month post surgery



Source: Pixium Vision presentation

In January 2019, Pixium announced that Prima successfully met the endpoints of the EU feasibility study at interim six-month follow-up after implantation. The data showed that the Prima device can interface with retinal cells to restore some visual perception in an area where vision had been lost due to prolonged degenerative disease.

[2] Patients with such severe visual impairment would generally not be capable of working in their prior occupations at comparable levels of productivity. They generally cannot read or write easily, even with the use of specialised magnification devices. In many cases, patients with this level of central vision loss may also require living assistance for day-to-day tasks.

[3] All surgical implantations at the EU feasibility study took place at the Fondation Ophtalmologique Adolphe de Rothschild/Hôpital des Quinze-Vingts, based in Paris, France.

Second-generation improvements appear to be sustained

Following the first Prima implantations, Pixium had worked on refining the system to improve functionality/usability and enable it to allow patients to combine both prosthetic and natural residual (ie peripheral) vision, as the initial-generation glasses were opaque. The result was the development of second-generation Prima system external components to work alongside the same (current-generation) 378-electrode implant chip. The second-generation components include an enhanced and transparent version of the AR glasses, and a new pocket computer employing improved algorithms, designed to incorporate more advanced image processing, magnification and artificial intelligence (AI) features to enhance the functional visual experience of patients.

In mid-2019, Pixium amended the PRIMA-FS study to enable the patients (already enrolled and implanted with the 378-electrode chip) to transition towards use of the second-generation Prima 2 glasses and pocket computer instead of the initial-generation components. In Q120, the company reported 18-month data on four EU patients implanted in PRIMA-FS (one of the five patients had passed away due to health reasons unrelated to Prima), showing several promising aspects from this transition as well as no indications of any ocular health or tolerability issues. Importantly, use of the second-generation visual system components has led to some measurable improvements in VA, in part due to some of their features including improved magnification capabilities (up to 8x magnification/zoom).

The company reported between three and seven lines of improvement on the VA scale using the Landolt C optotype (the type of figures or symbols used to measure VA), compared to baseline. Effective device-assisted prosthetic VA for the four subjects was between logMAR 0.5 (approximately 20/60, or c 33% of normal VA expected in healthy subjects) and logMAR 0.69 (approximately 20/100, or c 20% of normal VA). Each 0.1 increment on the logMAR scale represents the next lower VA line of the VA chart (ie the higher the logMAR value, the lower the effective VA). Altogether, these measures are markedly superior to the baseline results, even given that they were assisted to a degree by the device's magnification features.

Exhibit 4: Landolt C optotype

Source: Wikimedia commons; attribution to Visuoloog/CC BY-SA

Baseline VA was measured on the implanted eye shortly after surgery but without activation of the Prima system's glasses or pocket computer; baseline VA is expected to be comparable to pre-implantation VA. We note that the study's inclusion criteria required entry VA in the implanted eye to be no better than logMAR 1.3 (20/400 on the Snellen scale, or 5% of normal VA). Baseline VA among the four subjects was between logMAR 1.3 and logMAR 1.4 (approximately 20/500, or c 4% of normal VA).

Longer-term (up to 24–30 months) data were provided in Q121 along with a research paper showing that the second-generation components fulfilled their promise of enabling Prima-implanted patients to integrate their natural peripheral vision with the 'prosthetic vision' supplied by the Prima BVS. Under room lighting conditions, these patients could simultaneously use prosthetic central

vision and their remaining peripheral vision in the implanted eye and the other eye. Further, VA improvements from the Prima chip were maintained at 24–30 month follow-up post-implantation, suggesting continued safety and stability of the implant over this period. Using electronic magnification, patients (n=4) reported VA in the range of 20/63 to 20/98 (reflecting 32% to 20%, respectively, of the normal VA), which is superior to the threshold of legal blindness (20/200).

The results to date (from PRIMA-FS) represent significant improvements in the ability of the patients to resolve visual details. Furthermore, we are reassured that there is no degradation in Prima prosthetic visual performance for up to 24–30 months at least, as there had been some speculation that advanced dry-AMD (which attacks and damages photoreceptor cells in the retina) could eventually provoke atrophic damage to the RGCs (on which the Prima system relies for providing the patient's prosthetic vision).

Pixium also started a five-patient US feasibility study (PRIMA-FS-US) in early 2020 using the Prima system in patients with advanced dry-AMD with geographic atrophy, conducted at the University of Pittsburgh Medical Center and at Bascom Palmer Eye Institute (Miami, Florida). To date, at least two US patients have been implanted in the study (there was a pause in recruitment in much of 2020 due to COVID-19).

PRIMAvera pivotal study underway

Pixium started the PRIMAvera pivotal study for Prima in Q420 and announced the first patient implantation in April 2021. PRIMAvera is an open-label, single-arm study that will implant and assess the Prima BVS in 38 patients. Top-line, 12-month data are expected to be sufficient for approval purposes, although patients will be followed for three years.

The primary efficacy endpoint is the proportion of subjects with an improvement of visual acuity of logMAR 0.2 or more from baseline to 12 months and the primary safety endpoint is the number and severity of device- and procedure-related serious adverse events at 12-month follow-up.

For the primary efficacy endpoint to be met, we believe that c 72% of the evaluable patients will need to demonstrate a logMAR 0.2 or above improvement. Given the robust 24- to 30-month PRIMA-FS data shown above, where on average we estimate the four evaluable patients had a c logMAR 0.7 change, we believe there is a high likelihood that the primary efficacy endpoint can be met if the trends shown in PRIMA-FS are replicated in PRIMAvera. We also believe the level of VA amelioration already shown in PRIMA-FS, if reproduced in the pivotal study, should provide functional benefits (such as recognizing shapes, letters and symbols) and potentially improve patient independence, supporting potential market adoption.

The PRIMAvera trial started in France, but in August 2021 the company announced study site expansion to include Moorfields Eye Hospital in London UK, along with plans to add sites in Germany, Spain, the Netherlands and Italy in H221. Pixium is guiding to complete recruitment by year-end 2021, implantations in early 2022 and to release top-line, 12-month data in early 2023, which we estimate could lead to potential CE mark and European launch in H124 (versus our prior estimate of H223). We have revised our EU launch timing estimate to allow for added flexibility in the CE mark and registration processes.

Pixium remains in discussions with US regulatory authorities to explore the possibility of conducting this study in parallel in Europe and the US which, if accepted by the FDA, could lead to a US launch earlier than our baseline estimate of H225. Our baseline forecast assumes that the FDA will require a separate pivotal study (forecast to start in H122) to support US Premarket Approval (PMA) registration for the Prima BVS.

Exhibit 5: Projected registration pathways for EU and US

	EU registration pathway	US registration pathway
Registration category	CE mark	PMA
Pivotal study size	38 patients	60–80 patients
Estimated initial enrolment	Q121 (already met)	H122
Projected minimum duration needed for approval	12 months of follow-up data	18–24 months of follow-up data
Estimated study completion	H123	H224 or H125
Projected market launch	Q124	H225

Source: Edison Investment Research

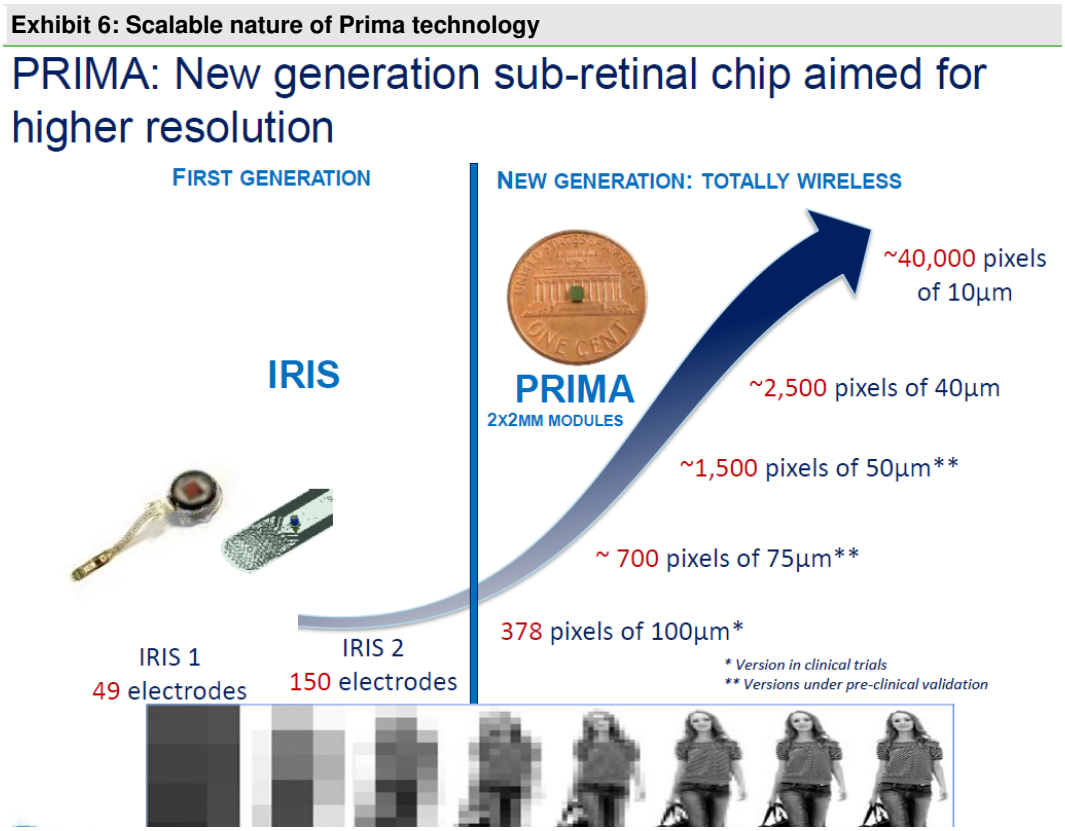
Follow-on implants could have higher pixel densities

The current Prima chip iteration in clinical development uses 378 electrodes (or pixels) that are each approximately 100 microns (0.1mm) long, but the company and its research partners at Stanford University have been researching higher-density chips that use smaller individual electrodes, and can theoretically provide higher visual resolution when implanted in patients. While the second-generation AR glasses and pocket computer analytics appear to provide functional improvements compared to their first-generation counterparts, more pronounced improvements in VA and functionality may require an implant chip with (much) higher electrode densities. Pixium's strategy remains to bring the current 378-pixel Prima chip iteration to market then work on a follow-on iteration carrying much higher pixel densities. A higher level of VA could potentially extend the market reach of Prima technology to patients with less severe forms of atrophic AMD.

In September 2021, Pixium announced that it had expanded the collaboration with its Stanford research partners to develop the next generation of Prima implants, which are intended to use a similar design to the current iteration while allowing for a substantially greater amount of neural stimulation through a potentially exponential increase in the number of pixels (electrodes) in the new implant. The company previously stated that by using a new manufacturing process with 20-micron 'honeycomb array' pixels, approximately 10,000 pixels can theoretically exist in a 2mm x 2mm chip array.

However, using higher-density Prima chips may entail some added risk, as the activation energy thresholds required for the device to function (as emitted through pulsed near-infrared light projected by the specialised AR glasses worn by the patient) will increase, given the need to stimulate a significantly increased amount of electrodes in the implant. Furthermore, even if a Prima device can theoretically emit signals corresponding to a higher level of resolution, the ability of the patient to resolve such fine details will depend on many factors, including the precision of the communication between the Prima chip and the external projection transmitted by the glasses worn by the patient; and the efficacy and precision of communication and interfacing between retinal cells and the electrical signals emitted by the Prima chip. Hence, it is not assured that a higher-density Prima chip would necessarily provide meaningfully improved vision to the patient and further clinical trials will be needed. At this point, our models and forecasts only consider the implications and market opportunities for the current (initial-generation) 378-electrode Prima device.

Exhibit 6: Scalable nature of Prima technology



Source: Pixium Vision presentation

Competitive analysis

There are several drug or biological treatments under investigation for dry-AMD or GA-AMD, but we do not believe such therapies, if approved, would affect Prima's market potential, as the device is aimed at restoring vision in patients who have already experienced severe vision loss from GA-AMD-related photoreceptor damage, whereas the biological/drug treatments under evaluation generally aim to prevent such damage (and even in the best scenarios, would not be expected to prevent all treated patients from reaching 20/400 or worse vision levels). Hence, Prima's primary competition will be with other implants or restorative devices on the market or in development.

Second Sight

Second Sight's Argus II is the only FDA-approved retinal implant, although it was approved only for the RP indication. Uptake has been limited, as despite having received US approval in 2013, only 28 implants were sold worldwide in 2019, resulting in the company discontinuing further commercial development. We believe the restricted level of vision provided by the 60-electrode epi-retinal implant device could help explain the limited uptake. Second Sight has shifted all its resources emphasis away from the Argus II and had since been prioritising its Orion Visual Cortical Prosthesis System (Orion), described below. In January 2021, Pixium and Second Sight announced a memorandum of understanding (MOU) to combine their businesses, but Second Sight unilaterally terminated the MOU in April, with Pixium seeking damages in addition to having received a $1m break fee. Second Sight raised c $78m in equity in H121, which signals potential interest in the visual restoration sector.

Nano Retina

Nano Retina is an Israel-based firm developing a wireless epi-retinal implant system, NR600, consisting of an implant chip along with wireless rechargeable eyeglasses and user-configurable processing controls. The implant chip is self-powered, as its energy needs are met by photovoltaic elements stimulated by infrared laser light delivered by the glasses worn by the patient. The company believes that its proprietary technology involving a dense array of hundreds of three-dimensional microelectrodes enables precise, low-threshold, local stimulation of the targeted retinal cells in part due to the unique shape and structure of the electrodes. The initially targeted indication is late-stage RP but the company's public communications suggest it may also target AMD. Nano Retina began a 20-patient clinical trial in Q120 across sites in Europe and Israel in patients with end-stage RP (or other hereditary outer retinal degenerations), and participants will be followed for 18 months. To date, at least five patients have been implanted and interim six-month results for two evaluable patients showed that they could perceive visual stimuli and regain some spatial vision, orientation and mobility capabilities. Altogether, given that precise VA measures have not been shown with NR600 to date, it is difficult to compare NR600 with Prima, although Nano Retina's initial focus on RP and related conditions in clinical trials suggests it could be several years behind Pixium's Prima in terms of potential timelines for obtaining an approvable product for GA-AMD.

Bionic Vision Technologies

Bionic Vision Technologies (BVT) is a private Australia-based firm developing a visual implant (the Bionic Eye System) and has prioritised its initial emphasis on RP. The Bionic Eye System consists of a wearable device and a visual implant that translates images from a camera mounted on an eyeglass frame into electrical signals designed to stimulate the optic nerve via electrodes. Rather than sit in the epi-retinal or sub-retinal space, this implant is positioned in the suprachoroidal space (between the choroid and the sclera), which the firm believes would reduce the risk of damage to the retina. Since 2012, seven RP patients have received the BVT Bionic Eye suprachoroidal implant, with four implanted with a second-generation fully implantable version of the device in a two-year pilot study. In early 2020, the firm reported interim 44-week results showing improvements in functional measures such as obstacle avoidance and object localisation. BVT is now developing a third-generation system designed to incorporate new software algorithms and use a more portable and lighter external wearable device and it intends to initiate a worldwide clinical trial for this third-generation system. In September 2021, BVT announced a strategic partnership with experienced US medtech firm Cirtec Medical, whereby Cirtec has taken a 'strategic stake' in BVT and will assist it in developing and manufacturing the third-generation system. BVT is planning a global pivotal study in 2022 in RP.

Other competing technologies

Alternate therapies (beyond electronic implants) are being developed to restore sight in patients with retinal diseases which, if successful, could compete with Prima. These include:

- **Retinal transplantation or cell therapy** (ie transplantation of retinal cells or of immature retinal stem cells). This line of development is very nascent with limited human data so far, but there have been reports of vision loss in some experimental treatments on AMD patients.[4] ReNeuron has undertaken rigorous preclinical work and standardization supportive of its internal stem cell technology and is now proceeding with US/UK/Spain Phase I/IIa trial of its proprietary human retinal progenitor cell (hRPC) therapy (delivered via subretinal injection) in advanced RP, with the aim of potentially preserving existing photoreceptors, potentially reversing earlier vision loss. Interim data from the one million cell dose cohort, discussed here, showed mean improvements in VA of 9.9 letters at 12 months (n=7 evaluable subjects), with a

[4] Kuriyan AE, Albini TA, Townsend JH, et al. *N Engl J Med*. 2017 Mar 16;376(11):1047–1053.

generally positive safety profile. The study is ongoing as the Phase IIa portion incorporates a doubling of the previous dose (to two million cells) with interim data guided for Q421. Subject to study data, the company plans to start a pivotal study in H222. If successful in RP, it could be possible for a form of this technology to be considered for treating AMD. Private company JCyte is also advancing hRPCs for RP; in July 2020 it reported positive data from a Phase IIb study whereby patients treated with 6m hRPCs had a mean gain of 7.43 letters vs baseline (n=23), and in a post-hoc targeted subgroup (n=11), the net gain was +16.27 letters. JCyte indicates that it plans to start a pivotal study in 2021.

- **Optic nerve implantation.** Moving further along the visual pathway, some research groups are developing electrode arrays designed to directly stimulate RGCs at the optic nerve level. The developments are still in the early/preclinical stages but, notably, researchers from Ecole Polytechnique Fédérale de Lausanne in Switzerland and Scuola Superiore Sant'Anna in Italy in 2019 developed an intraneural 12-electrode array (OpticSELINE), which was applied to deliver electrical current to the optic nerves of anaesthetised rabbits. The researchers were able to detect visual cortex responses in response to stimulation of the electrodes. The group estimates that a human electrode array could potentially consist of up to 60 electrodes, which would not appear to provide the same resolution potential as the current Prima system, but we believe potential use would be more directed towards optic nerve diseases and thus not a direct competitor to Prima.
- **Neurological visual cortex stimulation**. Second Sight is developing Orion, an implanted cortical stimulation device intended to provide useful artificial vision to blinded individuals. Orion stimulates the visual cortex of the brain rather than the retina and hence by bypassing the optic nerve, Orion could help patients with diseased optic nerves (eg glaucoma, optic neuropathy, etc). The firm began a six-subject Orion human feasibility study in January 2018 under the FDA's Breakthrough Devices Program and reported 12-month data on all subjects in 2019, which showed that for five of six subjects the device provided functional benefit using the firm's Functional Low-Vision Observer Rated Assessment (FLORA) measure.

  The company reported that four of the six patients completing the FLORA assessment at 36 months had positive results, indicating that the Orion system is providing benefit. The company has reached an agreement with the FDA to use a revised version of FLORA as a primary efficacy endpoint in a pivotal trial, pending successful instrument validation. In addition to Orion, the Monash Vision Group (based in Australia) is developing a cortical vision prosthesis (Gennaris) with up to 473 electrodes that is in preclinical development and has produced early results in sheep. Neurosurgery is more invasive than retinal surgery, so we estimate that unless these systems (eg Orion or Gennaris) can provide better VA than Prima for retinal diseases, its potential use would likely be concentrated towards optic nerve diseases and thus it may not directly compete with Prima.
- **Optogenetics.** Optogenetics involves the transfer of a gene (gene therapy) encoding for a light-sensitive protein to be applied to provoke neuronal cells to respond to light stimulation. GenSight Biologics' GS030 candidate uses this process to encode a photoactivatable channelrhodopsin protein, delivered via a modified AAV2 vector into the eye (through intravitreal injection). The intent is to confer a photoreceptive function to target functioning RGCs by enabling them to respond to light stimulation. A companion medical device is used (specialised biomimetic goggles) to deliver light at the proper intensity and wavelength to stimulate the transduced RGCs so they can transmit visual signals to the brain. In October 2018, the firm started a Phase I/II study (PIONEER) of GS030 in 12–18 patients with late-stage RP. In May 2021, the firm reported in Nature that one of the study participants was the subject of the first case report of partial visual function recovery in a blind patient with late-stage RP. Three cohorts with three subjects each have already been administered GS030 (at increasing doses per cohort) and the trial's DSMB recently found no safety issues with the highest dose

tested to date and recommended selecting this dose for the extension cohort. Additional interim results may be released in Q421, and the reporting of results of all treated patients with one year of follow-up data is planned in 2023. The company believes this technology could be applicable to RP and GA-AMD. We also note that Novartis recently purchased optogenetics firm, Arctos Medical, which has been working on a preclinical-stage optogenetic AAV gene therapy (potentially applicable to AMD), for undisclosed terms.

- **Implantable telescope**. Samsara Vision (previously VisionCare Ophthalmic Technologies) offers an FDA-approved implantable miniature telescope for AMD, providing 2.2–2.7 times magnification, but it does not improve the ability of the damaged retina to resolve details.
- **Alternate sensory reproduction**. Wicab's BrainPort Vision Pro is an oral electronic vision aid that provides electro-tactile stimulation by projecting an image recorded by a video camera mounted on a pair of sunglasses, on to a tongue array containing about 400 electrodes. White pixels from the camera provide a strong stimulatory sense of feeling on the tongue, whereas black pixels provide no stimulation and grey levels provide moderate levels of stimulation. This device can offer functionality in profoundly blind patients with severely damaged optic nerve transmission.

Market opportunity for dry-AMD

AMD is the leading cause of blindness in adults over the age of 55 in western countries and is characterised by damage to the macular[5] region of the retina, leading to central vision loss. Prevalence increases with age, as about 2% of the population have the condition at age 40, rising to c 25% by age 80.[6] AMD patients generally maintain their peripheral vision but the damage to central vision can be so severe in advanced cases that it restricts a patient's ability to work, read, recognise faces or independently perform other habitual tasks. A detailed overview of AMD and of the differences between the dry form (accounting for about 85–90% of cases[7]) and the wet form (also called neovascular AMD, or NVAMD) has been discussed here, and late-stage AMD is often defined as patients who develop NVAMD and/or GA. As a reminder, as the dry form of the condition advances, it can lead to GA, where there is irreversible degeneration of the retinal pigment epithelium (RPE) cells, damaging the overlying photoreceptors and resulting in a loss of visual function. Although some patients with GA may have near-normal VA levels, most will at minimum have reductions in contrast sensitivity and, in many cases, GA patients will have sharp reductions in VA. The 378-electrode Prima is intended for instances of dry-AMD where there is significant GA and VA below 5% acuity (20/400).

Globally, the prevalence of all stages of AMD in adults above age 45 is estimated at 8.7%.[8] Individuals with Caucasian or European ancestry are believed to be more prone to developing AMD. The prevalence of Caucasians in the US with NVAMD, GA and late-stage AMD was estimated in 2015 at 1.1 million, 1.0 million and 2.0 million,[9] respectively. Based on US National

[5] The macula is the central region of the retina, containing the highest density of photoreceptors compared to other regions, thus accounting for the high level of resolution and colour perception associated with the central vision. Photoreceptor cells in the retina absorb light photons, resulting in a biochemical reaction that leads to the generation of an electrical signal that stimulates downstream neurons (retinal ganglion cells), which then travel through the optic nerve and into the brain.

[6] Friedman DS, O'Colmain BJ, Muñoz B, Tomany SC, McCarty C, de Jong PT, Nemesure B, Mitchell P, Kempen J, Eye Diseases Prevalence Research Group. *Arch Ophthalmol*. 2004 Apr; 122(4):564–72

[7] Bright Focus Foundation, accessed on 18 September 2021

[8] Wong WL, Su X, Li X et al. *Lancet Glob Health*. 2014 Feb;2(2): e106–16.

[9] Rudnicka AR, Kapetanakis VV, Jarrar Z et al. *Am J Ophthalmol*. 2015 Jul;160(1):85–93. e3. doi: 10.1016/j.ajo.2015.04.003. Epub 2015 Apr 6.

Institutes of Health (NIH) data[10] estimating that Caucasians account for 89% of all US AMD cases, we estimate the 2015 US prevalence of NVAMD, GA and late-stage AMD would be approximately 1.2 million, 1.1 million and 2.2 million, respectively. In Europe, it has been estimated that the number of people with late-stage AMD was 2.7 million in 2013, which will rise to 3.9 million by 2040 (1.4% CAGR).[11] Given this, we estimate the 2013 prevalence of GA in Europe was c 1.35 million.

Prima financial forecasts

We estimate the 2021 prevalence of GA associated with dry-AMD is approximately 1.2 million people in the US and 1.5 million in Europe. We have increased our AMD prevalence growth forecasts (from 1.0% pa previously) to 1.4% pa in Europe (consistent with Colijn et al 2017) and 2.0% in the US (remaining slightly more conservative than the NIH estimate of 2.4% CAGR through 2050).

We estimate that 15% of patients with GA would have sufficiently poor central vision (VA of 20/400 or worse) to warrant potential consideration for Prima. Of these, we estimate that 30% would meet all remaining inclusion criteria and/or be suitable as potential responders. Given the above, we estimate the target eligible GA-AMD treatment population for the current Prima system (with 378-electrode chip) to be currently about 67,500 in Europe and 55,500 in the US. Our peak market share forecasts (of the eligible treatment population) remain unchanged at 7% (peak share forecast in 2028 in Europe and 2029 in US). We continue to assume initial net per-implant EU Prima pricing of €80,000, and initial US net pricing of c $112,000.

Exhibit 7: Financial forecasts for Prima in Dry-AMD

	2024e	2025e	2026e	2027e	2028e	2029e
Europe						
EU patients with Dry AMD with GA (000)	1,573	1,595	1,617	1,640	1,663	1,686
Percentage with 20/400 or worse visual acuity	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Percentage meeting all Prima eligibility criteria	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
GA-AMD patients meeting all Prima eligibility criteria (000)	70.8	71.8	72.8	73.8	74.8	75.9
Prima unit sales in EU	553	1,308	2,648	3,993	5,077	5,272
Average revenue per treatment (€)	81,099	82,725	84,341	85,997	87,688	89,430
Total EU revenue (€000) for PRIMA-AMD	44,868	108,182	223,362	343,426	445,171	471,432
United States						
US patients with Dry AMD with GA (000)	1,314	1,341	1,367	1,395	1,423	1,451
Percentage with 20/400 or worse visual acuity	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Percentage meeting all Prima eligibility criteria	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
GA-AMD patients meeting all Prima eligibility criteria (000)	59.1	60.3	61.5	62.8	64.0	65.3
Prima unit sales in US	-	211	872	1,971	3,278	4,387
Average revenue per treatment ($)	N/A	112,000	113,558	115,784	118,048	120,361
Total US revenue ($000) for PRIMA-AMD	-	23,608	99,005	228,180	386,941	528,025
Assumed $/€ rate	1.17	1.17	1.17	1.17	1.17	1.17
Worldwide total revenue (€000)	44,868	128,359	307,982	538,452	775,890	922,735

Source: Edison Investment Research

Financials

Pixium had a H121 net cash position of €0.65m (€10.13m in gross cash and €9.48m gross debt), excluding €1.1m in lease liabilities. After 30 June, the company raised €8m (€7.376m net) through a capital increase in July 2021 resulting in the issuance of 8.097m shares and 4.0486m warrants, and it also converted c €1.1m of its European Select Growth Opportunities Fund (ESGO) convertible

[10] US National Institutes of Health. https://nei.nih.gov/eyedata/amd Accessed 18 September 2021.

[11] Colijn JM, Buitendijk GHS, Prokofyeva E, et al. *Ophthalmology*. 2017 Dec;124(12):1753–1763. doi: 10.1016/j.ophtha.2017.05.035. Epub 2017 Jul 14.

financing debt into equity (thus only c €0.05m of outstanding ESGO debt remains on its balance sheet). After factoring in these transactions, we calculate pro forma (mid-2021) net cash of €9.1m (gross cash of €17.5m).

Pixium reported an H121 operating loss of €4.8m, up from €3.3m in H120, due to a 29% increase in R&D costs (to €3.7m) as a result of ramping up PRIMAvera and spending on manufacturing, together with a 77% increase in G&A costs (including depreciation) to €2.9m, with that increase largely due to costs borne as part of the unsuccessful Second Sight transaction. The H121 net operating cash burn rate was €6.1m. We have increased our SG&A forecasts (as we also expect Pixium to look into US listing options), but have lowered our H221 R&D projections as we have reduced our expectations on H221 US clinical trial costs. We now estimate 2021 and 2022 operating cash burn rates of €11.7m and €11.2m, versus our prior estimates of €10.3m and €10.7m, respectively.

We anticipate that Pixium's funds on hand should last to end Q422. Our model assumes that Pixium will need to raise €29.4m in additional funds before year-end 2024, modelled as illustrative long-term debt, to complete the PRIMAvera pivotal study, all EU-related regulatory and preparatory commercial activities and bring Prima to commercial launch. Previously, we had forecast a funding need of €24.4m by year-end 2023, but have increased our assumptions as we pushed back our forecast for Prima launch to H124 (from H223 previously).

Valuation

Our valuation for Pixium Vision is based on an rNPV approach, employing a 12.5% cost of capital, based on the Prima opportunity in dry-AMD. We continue to apply a 25% probability of success estimate for Prima in Europe and a 20% probability in the US market. After adjusting for our new sales forecasts, the change in shares outstanding (following partial ESGO debt conversion) and a slight change in our FX rate for US sales to $1.17/€ (from $1.18/€ previously), we now obtain a pipeline rNPV (enterprise value, excluding net cash) of €134.2m versus €129.7m previously.

After including €9.1m in H121 pro forma net cash (excluding lease liabilities), we obtain an equity valuation of €143.3m (versus €138.0m previously), or €2.45 per basic share (versus €2.41 previously). Assuming full exercise of the July 2021 warrants, our fully diluted equity valuation would be €2.37 per share (versus €2.33 previously).

Exhibit 8: Pixium Vision rNPV assumptions

Product contribution	Indication	Status	NPV (€m)	Probability of success	rNPV (€m)	rNPV/ share (€)	Launch year	Peak sales (€m) in 2029
Prima (net of R&D and SG&A costs) in EU market	Age-related macular degeneration with geographic atrophy	Pivotal study	627.3	25%	147.0	2.51	H124	471
Prima (net of R&D and SG&A costs) in US market	Age-related macular degeneration with geographic atrophy	Human feasibility trials	432.5	20%	87.2	1.49	H225	451
Net capex, NWC & taxes (global)			(404.4)		(100.0)	(1.71)		
Total			655.4		134.2	2.29		
Net cash (H121) pro forma including Q321 capital increase and ESGO financings			9.1		9.1	0.16		
Total equity value			664.5		143.3	2.45		
Basic shares outstanding (000)			58,470					

Source: Edison Investment Research

Below we provide a sensitivity analysis demonstrating how our per-basic share valuation would be affected by using different Prima pricing and probability of success assumptions (for Europe).

Exhibit 9: Pixium Vision per-share equity value (€) analysis based on European net Prima pricing versus probability of success in Europe

	70,000	75,000	80,000	85,000	90,000
15.0%	1.22	1.32	1.43	1.54	1.64
20.0%	1.67	1.81	1.95	2.09	2.23
25.0%	2.12	2.29	2.47	2.64	2.82
30.0%	2.57	2.78	2.99	3.20	3.41
35.0%	3.02	3.27	3.51	3.76	4.01

Source: Edison Investment Research. Note: Left-hand column represents European probability of success and top row represents European net Prima pricing at launch (€).

Sensitivities

Development and regulatory risk: much development risk remains with Prima as it has only been implanted in a small number of patients. Although there are favourable EU feasibility study data up to 24–30 months, it is unknown whether Prima can consistently provide superior central vision to epi-retinal implants and/or do so without additional safety risks. Furthermore, degradation of the inner retinal cells can reduce the VA offered by a retinal implant.

Commercial and competition risk: the visual improvements offered by Prima must be sufficient to persuade patients to use and insurers to cover the implant and be competitive versus alternative treatment options. Particular risk lies in the need for patients to properly undergo vision rehabilitation training to make full use of the Prima; if patients do not fully engage in this process, the level of possible vision improvement could be limited, affecting the commercial value proposition and adoption level of the device. This risk is offset somewhat by the EU feasibility study data showing meaningful ameliorations in VA (aided by the device's magnification features); prior data show that the device can enable recognition of shapes and symbols in patients who previously had no light perception in the treated eye. Further evidence of functional benefit may support discussions for obtaining reimbursement coverage on approval.

Financing risk: Pixium's gross cash should support its runway to end Q422. We model that Pixium will raise an additional €29.4m through to end 2024 to sustain its operations and maintain its commercial development strategy for Prima, as we do not expect Pixium to be cash flow positive until H224. While our model accounts for these financings as long-term debt, the firm may need to issue equity instead and there is a risk that pricing may not be favourable for current shareholders, leading to significant dilution.

Exhibit 10: Financial summary

€'000s	2018	2019	2020	2021e	2022e	2023e
31-December	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS						
Revenue	1,598	1,782	2,092	2,601	1,600	800
Cost of Sales	(41)	0	0	0	0	0
General & Administrative	(2,019)	(3,572)	(4,017)	(4,785)	(4,000)	(7,000)
Research & Development	(5,297)	(6,563)	(5,711)	(7,092)	(10,400)	(9,800)
EBITDA	(5,758)	(8,352)	(7,636)	(9,276)	(12,800)	(16,000)
Depreciation	(677)	(448)	(366)	(443)	(447)	(338)
Amortization	0	0	0	0	0	0
Operating Profit (before exceptionals)	(6,435)	(8,801)	(8,003)	(9,719)	(13,247)	(16,338)
Exceptionals	(5,859)	(69)	(448)	(624)	0	0
Other	0	0	0	0	0	0
Operating Profit	(12,294)	(8,870)	(8,450)	(10,343)	(13,247)	(16,338)
Net Interest	(1,277)	(1,006)	(700)	(1,043)	(1,005)	(2,065)
Profit Before Tax (norm)	(7,712)	(9,806)	(8,703)	(10,762)	(14,252)	(18,403)
Profit Before Tax (FRS 3)	(13,571)	(9,876)	(9,150)	(11,386)	(14,252)	(18,403)
Tax	0	0	0	0	0	0
Profit After Tax and minority interests (norm)	(7,712)	(9,806)	(8,703)	(10,762)	(14,252)	(18,403)
Profit After Tax and minority interests (FRS 3)	(13,571)	(9,876)	(9,150)	(11,386)	(14,252)	(18,403)
Average Number of Shares Outstanding (m)	18.5	22.3	34.0	48.1	58.5	59.0
EPS - normalised (€)	(0.42)	(0.44)	(0.26)	(0.22)	(0.24)	(0.31)
EPS - normalised and fully diluted (€)	(0.42)	(0.44)	(0.26)	(0.22)	(0.24)	(0.31)
EPS - (IFRS) (€)	(0.73)	(0.44)	(0.27)	(0.24)	(0.24)	(0.31)
Dividend per share (€)	0.0	0.0	0.0	0.0	0.0	0.0
BALANCE SHEET						
Fixed Assets	3,666	4,507	3,411	2,898	2,495	2,176
Intangible Assets	2,623	2,361	1,727	1,534	1,534	1,534
Tangible Assets	1,042	2,145	1,684	1,364	961	643
Current Assets	17,756	9,107	12,721	15,260	16,536	7,472
Short-term investments	0	0	0	0	0	0
Cash	15,629	6,792	10,566	11,929	13,205	4,228
Other	2,126	2,316	2,155	3,332	3,332	3,244
Current Liabilities	(2,044)	(2,880)	(3,795)	(4,946)	(7,246)	(4,061)
Creditors	(2,044)	(2,880)	(3,260)	(2,553)	(4,853)	(1,668)
Short term borrowings	0	0	(536)	(2,394)	(2,394)	(2,394)
Long Term Liabilities	(8,023)	(7,033)	(7,851)	(7,008)	(19,508)	(31,382)
Long term borrowings	(7,870)	(5,787)	(6,695)	(5,989)	(18,489)	(30,363)
Other long-term liabilities	(153)	(1,246)	(1,157)	(1,019)	(1,019)	(1,019)
Net Assets	11,355	3,700	4,485	6,204	(7,724)	(25,796)
CASH FLOW						
Operating Cash Flow	(6,174)	(7,282)	(6,206)	(10,627)	(10,175)	(18,766)
Net Interest	(1,277)	(1,006)	(700)	(1,043)	(1,005)	(2,065)
Tax	0	0	0	0	0	0
Net Operating Cash Flow	(7,450)	(8,288)	(6,906)	(11,670)	(11,180)	(20,831)
Capex	(31)	(34)	(82)	(57)	(44)	(20)
Acquisitions/disposals	0	0	0	0	0	0
Financing	14,068	2,034	9,055	14,324	0	0
Net Cash Flow	6,587	(6,288)	2,068	2,597	(11,224)	(20,851)
Opening net debt/(cash)	(1,401)	(7,760)	(1,004)	(3,336)	(3,546)	7,678
HP finance leases initiated	0	0	0	0	0	0
Other	(228)	(468)	264	(2,387)	0	0
Closing net debt/(cash)	(7,760)	(1,004)	(3,336)	(3,546)	7,678	28,529
Lease debt	N/A	1,346	1,258	1,141	1,141	1,141
Closing net debt/(cash) inclusive of IFRS 16 lease debt	(7,760)	342	(2,078)	(2,405)	8,819	29,670

Source: Company reports; Edison Investment Research

Contact details	Revenue by geography
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Management team

Chairman: Bernard Gilly

Bernard Gilly has over 20 years' experience in the financial and pharmaceutical sectors and as an entrepreneur. He was VP of R&D for five years at Pasteur Mérieux Connaught (now Sanofi Pasteur). He subsequently served as CEO of Transgene from 1992 to 2000. He later joined Sofinnova Partners in Paris (2000–05). In 2005, he founded and became the CEO of Fovea Pharmaceuticals. After Fovea was acquired by Sanofi in 2009, he became executive VP of the ophthalmology division of Sanofi. He founded Pixium Vision in 2011.

Chief executive officer: Lloyd Diamond

Lloyd Diamond is an experienced medtech executive and CEO, with 25 years of disruptive technology commercialisation experience in the life science industry. He most recently served as the CEO of Precise Light Surgical, a commercially ready medical device company in Silicon Valley. Prior to that, he was the CEO of BoneSupport, a European orthobiologic company that underwent rapid market penetration in Europe and the US during his tenure, leading to a successful IPO on the NASDAQ OMX in Stockholm. Lloyd has experience in the ophthalmology segment as he was responsible for managing Lumenis's global surgical and vision franchises. He has commercialised many other disruptive technology platforms including at Kyphon and Laserscope. Lloyd received a dual degree in Biochemistry and Marketing from Florida Atlantic University and an MBA from the Thunderbird School of Global Management at Arizona State University.

Chief financial officer: Offer Nonhoff

Offer Nonhoff has more than 20 years' experience in senior finance functions across various industries in emerging companies as well as large corporate enterprises. Before joining Pixium, he spent two years as CFO of Trigo Vision, a start-up in the retail tech space based in Israel, helping the founders achieve commercial readiness while raising material capital. Prior to Trigo, he worked for three years as CFO of Fresenius Medical Care, integrating a large Israeli dialysis clinic chain into corporate structures. During his five years as CFO of BoneSupport, he oversaw the early stages of commercialisation and sales ramp until IPO. Prior to that, Offer was the CFO of the EMEA headquarters of Lumenis. He started his career working for more than 15 years at Siemens, including becoming the co-founder of the company in Israel and spending 12 years overseeing the building of a multi-million-dollar franchise. Offer studied in Germany and the USA, receiving his BA of industrial Business Administration from the IHK in Munich.

Chief technology officer: Guillaume Buc

Guillaume Buc has over 25 years' experience in technology development. Before joining Pixium Vision, he held several management positions at GE Healthcare Europe. His latest role was CTO of GE Healthcare's interventional cardiology department. He received an engineering degree in applied mathematics from the French Ecole Polytechnique and a degree from the Ecole Nationale Supérieure des Télécommunications/National Telecommunications School in Paris, in image processing and computer sciences.

Principal shareholders	(%)
Bpifrance	10.5
Sofinnova Partners	9.5
Abingworth	3.6
Omnes Capital	2.5

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