EDISON

Pixium Vision

Initiation of coverage

A clear vision

Medical technology

Pixium Vision is developing two different retinal implant systems that recreate artificial physiological vision by electrically stimulating the retina. The devices have been developed for profoundly blind patients suffering from retinitis pigmentation or macular degeneration. The epi-retinal version (Iris) of the implant should be filed for CE Mark in H215 and the sub-retinal implant (Prima) starts feasibility studies in 2016. Using a risk-adjusted NPV model, we value the company at €10.51 per share.

Year end	Revenue (€m)	PBT* (€m)	EPS* (€)	DPS (€)	P/E (x)	Yield (%)
12/13	1.5	(6.1)	(0.23)	0.00	N/A	N/A
12/14	2.4	(11.6)	(1.18)	0.00	N/A	N/A
12/15e	5.3	(16.1)	(1.27)	0.00	N/A	N/A
12/16e	7.4	(21.4)	(1.68)	0.00	N/A	N/A

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

Iris epi-retinal implant poised for CE Mark

The Iris epi-retinal implant is designed to partially restore vision in profoundly blind RP patients by electrically stimulating the retina. The company expects to submit an application for CE Mark in Q415.Pixium has now implanted the first generation Iris in seven patients with good tolerability and patients are able to see large objects. The second generation Iris implant will be implanted in Q415 and may give higher visual quality than the leading competition, Second Sight's Argus II. Following CE Mark and commercialisation, Pixium aims for FDA IDE filing in 2016.

Prima sub-retinal implant to begin human trials

The wireless Prima device is implanted into the sub-retinal space, the area of natural degradation in RP and AMD, delivering the electrical stimulus to the region of native stimulation of the inner retina. The wireless configuration simplifies the implantation procedure and the increased number of electrodes potentially gives better vision than the epi-retinal implants, to the level of crude facial recognition. First in human feasibility trials are scheduled for 2016.

Biomimetic camera offers potential advantages

Pixium incorporates a proprietary asynchronous, event-based camera offering potential advantages over conventional cameras. The camera attempts to mimic the two major pathways of vision in the retina – the magnocellular and parvocellular. By providing a more natural viewing stimulus, Pixium hopes to achieve higher quality of vision when compared to Argus II.

Valuation: €10.51 per share

We use a risk-adjusted NPV model with a 12.5% discount factor to achieve a value of €133.42m or €10.51/share. We assume Iris and Prima pricing is consistent with the current reimbursement of Second Sight's Argus II retinal implant. Pixium is capitalised with €31m in cash, with a burn rate of approximately €20m per year.

21 September 2015

Price	**€5.78**
Market cap	**€73m**
Net cash (€m) at 31 July 2015	31
Shares in issue	12.7m
Free float	26%
Code	PIX
Primary exchange	Euronext Paris
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(7.1)	(4.5)	(23.4)
Rel (local)	1.8	1.5	(25.3)
52-week high/low	€7.45		€5.31

Business description

Pixium Vision is a French medical device company developing retinal implants for patients with retinitis pigmentosa and macular degeneration. Its lead product is an epi-retinal implant scheduled for CE Mark application in 2015. A sub-retinal implant is being developed simultaneously.

Next events

Iris CE Mark application	Q415
Prima human trials	Q116
Iris FDA approval	2017

Analysts

George Magrath	+1 646 653 7027
Maxim Jacobs	+1 646 653 7027
Christian Glennie	+44 (0)20 3077 5727

healthcare@edisongroup.com

Edison profile page

Investment summary

Company description: Restoring vision with retinal implants

Pixium Vision was founded in France in 2011. The company initially raised €24.3m in venture funding. Subsequently, the company raised €39.5m in its IPO in June 2014. Pixium purchased the Iris epi-retinal assets from Intelligent Medical Implant in 2012 for €11m and has been developing Iris for the treatment of profoundly blind patients with retinal degenerations, initially for retinitis pigmentosa (RP). The Prima sub-retinal implant was developed in conjunction with Stanford University and is currently in preclinical trials. Iris is capable of allowing the patient to see shapes and light; Prima is theoretically capable of facial recognition visual acuity.

Valuation: €10.51 per share

Using a risk-adjusted NPV model with a 12.5% discount rate, assuming 40% likelihood of EU and US success of Iris, and 10% likelihood of EU and US success of Prima we value the company at €133.42m or €10.51 per share. Peak sales of Iris and Prima are modelled at €109m and €113m for RP, respectively. Prima will likely cannibalise Iris sales if it reaches approval. Peak AMD sales for Prima are modelled at €370m in 2022. Following the €40m IPO in 2014 we expect Pixium to be capitalised into 2017, but our model suggests a €40m minimum funding requirement in 2017 to reach profitability in 2019. Upcoming company inflection points include Iris CE Mark submission in H215, first-in-human Prima trials in 2016, EU commercialisation of Iris in 2016, and Iris FDA submission in 2018.

Financials: Capitalised for both Iris and Prima

Pixium's current burn rate is approximately €20m per year, which we expect grow based on Iris commercialization in 2016. There will be greater R&D expenditure as Prima begins human trials in 2016, but this will be partially offset as the EU commercialisation of Iris progresses in 2016. US sales of Iris should occur in 2018, after Pixium after FDA submission in 2017. We do not expect Prima sales prior to 2018 at the earliest. If Prima is successful, we anticipate cannibalisation of Iris sales beginning in 2019.

Sensitivities: Efficacy, regulatory, and indications

Pending CE Mark application this year, Pixium will be the second retinal implant to begin commercialisation. There is an advantage of Iris over the leading competitor in the number of electrodes, biomimetic camera algorithm, and surgical ease, and explantability. The consolidated market allows for less expensive commercialisation (expected two to three salespersons per EU country). To expand the market size Pixium will target the AMD indication for Prima. Retinal implants are not proven in AMD and there remains a risk that retinal implants will not be as efficacious for these patients.

The visual rehabilitation field appears to be progressing also towards cortical brain stimulation. Competitor Second Sight is developing a cortical brain stimulation device for blindness and Pixium is likely considering a conceptual programme. Monash University in Australia is working on a preclinical device and expects to trial in humans in 2016. It is unknown how efficacious this approach will be, and if Pixium will be able to rapidly develop its cortical stimulation programme to match Second Sight. Pixium's management has expertise in deep brain stimulation in other indications and is likely to be able to develop the cortical stimulation project if it appears to be the most efficacious method to restore vision. Cortical stimulation allows treatment of certain pathology not amenable to retinal implants, but is a more invasive treatment typically requiring a neurosurgical approach to electrode implant.

Pixium Vision: A clearer vision

Pixium Vision is a French medical device company that aims to provide vision to the profoundly blind with a retinal implant, Iris. Iris is an epi-retinal implant that transforms light into electrical pulses to stimulate the retinal nerve ganglion cell layer, thereby giving the patient crude vision. Iris is expected to be the second product to market behind Argus II, by Second Sight. We believe that improved cameras, software, increased number of electrodes, an easier surgical implantation, and the proposed ability to explant and upgrade the device will give Iris a competitive advantage when compared with Argus II. Pixium is simultaneously developing a sub-retinal implant, Prima, which delivers the electrical impulses to a more natural location within the retina. By exciting the retina at the location of damaged photoreceptors there is potential for higher-quality vision than the epi-retinal implants because there is natural propagation and regulation of the signal through the inner retinal network.

Even giving back limited vision to profoundly blind patients can be transformational (Video 1).

Iris and Prima retinal implants

Pixium is developing two independent retinal implants to treat profound visual impairment from RP or AMD (Exhibit 1). Both systems rely on a camera to perceive the images, a pocket-sized computer to transform the images into electrical signals, and a retinal implant to deliver the electrical signals.

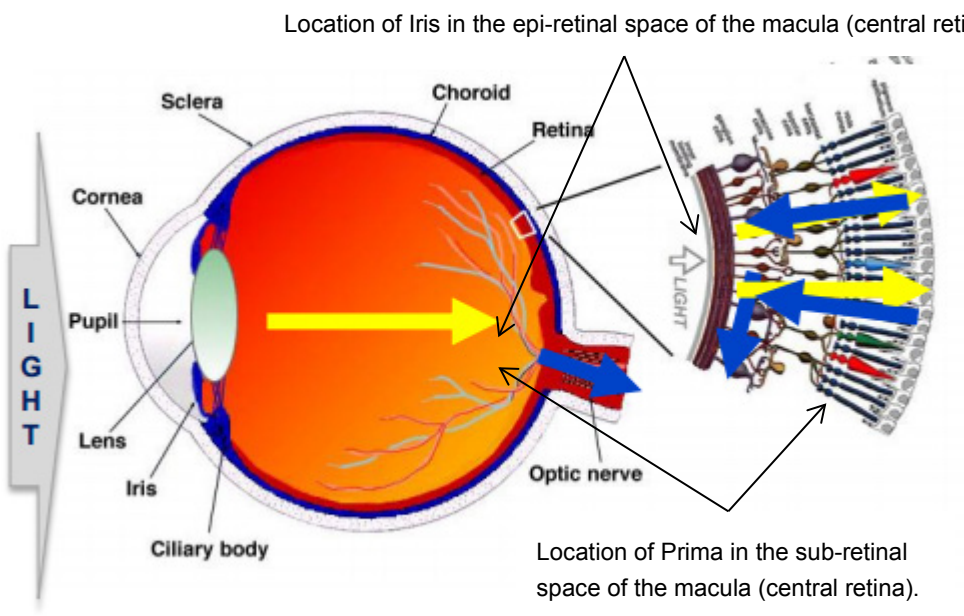
Exhibit 1: Product pipeline

Product	Indication	Clinical status	Product highlights
Iris epi-retinal implant	End-stage retinitis pigmentosa	Expected CE Mar k application H215	Provides crude visual recovery. Patients are able to see lights and shapes. Well tolerated and implant is upgradable.
Prima sub-retinal implant	End-stage retinitis pigmentosa	Human trials to start in H116	May offer improved visual acuity compared with epi-retinal implants, possibly to the level of crude facial recognition.
Prima sub-retinal implant	End-stage age-related macular degeneration	Human trials to start in H116	Will be the first sub-retinal implant trial in AMD. Much larger market than RP.
Cortical brain stimulation	Optic neuropathies	Conceptual	Eliminates the need for a functioning optic nerve, increasing possible indications to glaucoma and other optic neuropathies.

Source: Edison Investment Research, company data

The biggest difference between the Iris and the Prima implants is the location of the implant. Iris is an epi-retinal implant meaning it lies on the retinal nerve ganglion layer and delivers the electrical signal directly to the retinal nerve ganglion cell layer (Exhibits 2, 3). This is a comparable location to the Argus II implant marketed by Second Sight. The Iris implant contains 150 electrodes that stimulate the retina. The surgical procedure allows the implant to be explanted and upgraded should newer technology become available (Video 2).

Exhibit 2: Schematic of eye displaying location of Iris and Prima implants

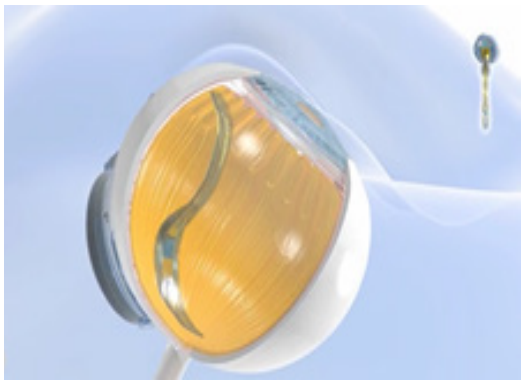


Source: Edison Investment Research, company presentation

In contrast to the epi-retinal Iris, Prima is a sub-retinal implant (Exhibits 2, 4). The natural anatomy of the retina involves the photoreceptors in the outer retinal layers transforming light stimuli into electrical signals. RP and AMD both culminate with photoreceptor disruption in the outer retina leading to vision loss. The Prima implant is situated under the retina in the more natural position to create the stimuli. This enables bipolar cells of the inner retina to be stimulated and propagate the stimulation to the retinal nerve ganglion layer in a more natural mechanism. The sub-retinal placement also allows for an easier surgical fixation of the implant (Video 3). Prima is a modular design carrying several thousand electrodes and uses an optical delivery of information to the implant. It is powered by a wireless photovoltaic approach, which eliminates the need for trans-scleral wires and allows the eye to remain intact, compared with the permanent wires required by Iris and competitors. In a recent report in Nature[1] the Prima implant showed good safety, tolerance, and highly localised responses in the retinal degeneration rat model. The corresponding visual acuity may be improved over the epi-retinal models and may even reach 20/250 in humans, or crude facial recognition. First-in-human (feasibility) trials are planned for 2016.

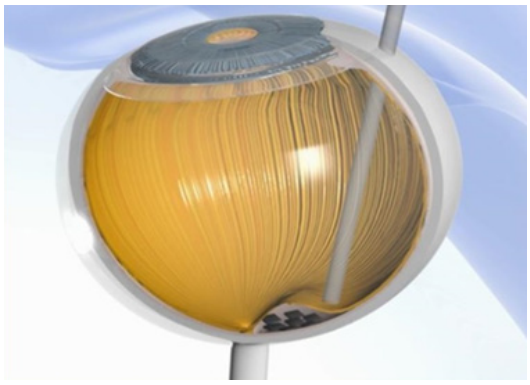
1 Lorach H, Goetz G, Smith R, Lei X, Mandel Y, Kamins T, Mathieson K, Huie P, Harris J, Sher A, Palanker D. Photovoltaic restoration of sight with high visual acuity Nat Med. 2015 May;21(5):476-82. doi: 10.1038/nm.3851. Epub 2015 Apr 27. PubMed PMID: 25915832.

Exhibit 3: Iris epi-retinal implant is placed on the inner surface of the retina



Source: Company presentation

Exhibit 4: Prima sub-retinal implant is placed under the retina



Source: Company presentation

ATIS video capturing algorithm

The camera used in the Iris and Prima devices is an event-based, biomimetic image sensor utilising an asynchronous time-based image sensor (ATIS) technology (Video 4). ATIS allows real-time delivery of visual information at a relatively low bandwidth. This type of retinal stimulation is differentiated by the stimulation of retina in response to movement and changes in contrast and luminance, not to actual images. This represents a more natural method of stimulating the retina. In the ATIS system visual data are transformed into asynchronous impulses and delivered optically to the implant. This does require clear optical media, which typically is not an issue in patients with RP or AMD.

Iris and Prima experience

Iris has now been implanted in seven patients with several more evaluated and scheduled in H215. Thus far the implant has been well tolerated and provided shape recognition for the patients. Video 1 shows the typical patient experience and description of visual acuity. The implant provides the patient with crude shape recognition. Most patients are able to see objects, but are unable to differentiate colour. They are able to see the objects move, but only on a crude level. They still need assistive devices or assistants to ambulate well. We anticipate the company will need to implant 10 patients prior to CE Mark application and 30 patients prior to FDA submission. The company should reach the 10-patient mark in Q415 and we anticipate reaching 30 implants by 2017.

Prima has reported encouraging preclinical results in rat models of retinal degeneration, which was published recently in Nature.[1] The implant seemed to give half normal visual acuity back to the rat after implantation. This equates to about 20/250 vision, or crude facial recognition, and represents a significant improvement over Iris and Argus II. Importantly, the implant was well tolerated in the sub-retinal space without degradation of the inner retina in this short trial. Clinical trials are expected to begin in 2016.

Coming to commercialisation

Pixium expects a CE Mark submission for the Iris implant by the end of 2015 and commercialisation in the EU should begin in 2016. Approximately 30 ophthalmic centres have been identified in the EU, which provide care for 80% of the profoundly blind RP patients in the EU. Pixium will initially target these centres in waves. The first wave will target five European countries that encompass the current clinical trial sites. Wave 2 is a broader European rollout and will be followed by wave 3, the US rollout. Wave 1 is expected in 2016, wave 2 will begin in 2017, and wave 3 in 2018. We anticipate SG&A costs of ~€6m in Wave 1, increasing to €7-10m for Waves 2 and 3. Given the need

for patient and surgeon training with the implant, a technical support staff will be required in addition to the sales staff; however, the small number of target centres creates a favourable environment for creating the ancillary staff.

The clinical studies of the device will continue and additional patient experience will be gained in the European rollout. This experience and data are expected to be submitted to the US FDA in late 2016 or 2017. A similar-sized sales and ancillary staff will be required for commercialisation in the US. Second Sight previously received approval of Argus II in the US and has had success in achieving reimbursement from the Centres for Medicare & Medicaid Services, and private insurers in the US. Pixium will likely receive similar treatment from payers once approved.

The initial focus of Iris 150 will be profoundly blind RP patients in the EU, followed by the US. Simultaneously, Pixium will be completing preclinical studies and initiating the non-pivotal first-in-man trials of the Prima sub-retinal implant, in 2016. The degree of success of the Prima sub-retinal approach will guide further development of the epi-retinal or sub-retinal platform into the AMD market.

RP and AMD markets

The Iris and Prima implants will target patients with profound blindness, essentially the 10% of most advanced cases for each disease.

Retinitis pigmentosa

RP is a progressive inherited retinal degeneration causing loss of peripheral vision and culminating in loss of central vision. Estimated prevalence of the disease is 1:4000, making RP the most common inherited retinal degeneration[2] with 78,000 US patients and 125,000 EU patients.

The criterion for implantation of a retinal prosthesis is near end-stage RP in both eyes. The patient needs to have light perceptions or worse vision with a remaining functional retinal nerve ganglion layer and optic nerve pathway. We are modelling that 10% of RP patients would meet the profoundly blind criteria and 33% of these patients would meet inclusion criteria for a retinal implant. We estimate 7,000 RP patients would meet inclusion criteria for Iris or Prima worldwide.

Age-related macular degeneration

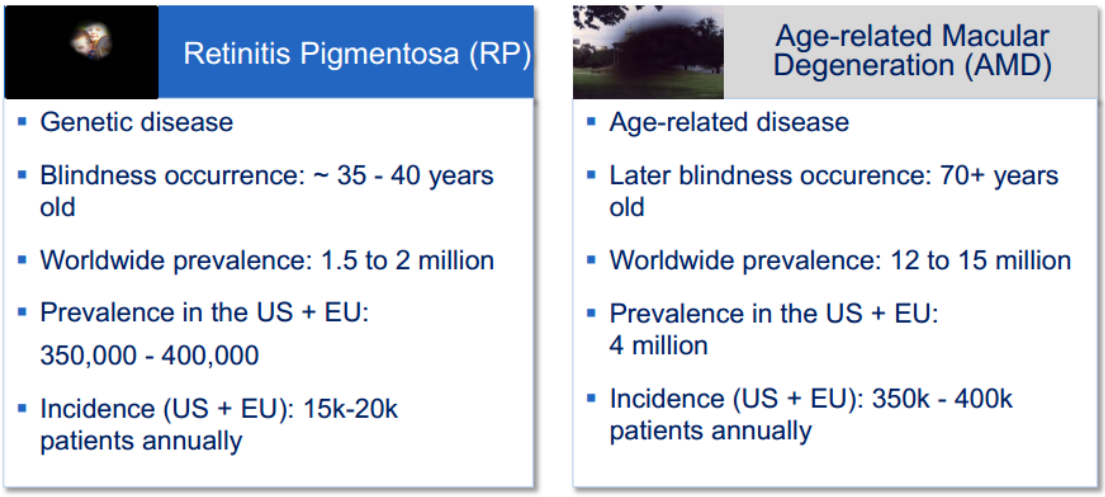
AMD is a much more common disease than RP and thus represents a larger potential market for Pixium. In contrast to RP, AMD patients lose central vision first (central scotoma), with a progressively enlarging scotoma. The prevalence of AMD is estimated at 2.1% of the population.[3]

The criterion for implantation of a retinal prosthesis is similar in AMD to RP. It is appropriate in patients with end-stage AMD in both eyes without active exudation. The retinal nerve ganglion cells and optic nerve pathway are required to be functional. We anticipate 2% of AMD patients meet the visual acuity requirements and of these 20% will meet the full inclusion criteria. The patient population meeting the inclusion criteria in our models is 69,000 patients in the US and EU.

2 http://emedicine.medscape.com/article/1227488-overview#a0199.

3 https://nei.nih.gov/eyedata/amd#2.

Exhibit 5: RP and AMD demographics



Source: Company presentation, Edison Investment Research

Competitive landscape

There are several companies in varying stages of development in the retinal implant market (Exhibit 6). Pixium appears to be well positioned among the competition and offers a differentiated product, which will hopefully result in better vision. There are many implants in preclinical trials, with the most promising listed below.

Pixium's competitive advantages

Pixium holds several key advantages over the competition in the retinal implant market.

- Its ATIS capture system relies on contrast, luminance and intensity, and may provide a more realistic input to the retina nerve ganglion cells than traditional movie camera-style capture.
- The Iris implant is relatively easier to explant and exchange than competitors. This allows for the hardware to be upgraded in addition to the software as the technology advances. The option to upgrade may help alleviate the backlog of patients tempted to wait on better technology.
- Prima will be charged with photovoltaic cells and receive signals optically, which eliminates the need for extraocular hardware implants.
- It has a strong IP position with 250 patents filed across 28 patent families.

Second Sight

The most important near-term competitor is Second Sight (EYES), which received CE Mark in 2011 and FDA approval in 2013 for its epi-retinal implant in the treatment of profoundly blind RP patients. Second Sight has a market capitalisation of $324m and has expanded to 25 implant centres in the US, Europe, and Saudi Arabia. Argus II sales are growing – year-on-year Q215 sales increased 335% to $2.6m. In Q215 Second Sight implanted 20 devices: 13 in EMEA and seven in North America. The device is reimbursed at €80k in Europe and €145k in the US. We expect similar reimbursement for the Iris implant.

The Argus II implant is a bulkier configuration than Iris and has 60 electrodes. The device is not easily explanted. Argus II is well-tolerated in most patients and allows the perception of light and rudimentary shapes. Recently, Second Sight published positive long-term data on 30 patients with

Argus II implants.[4] The implants are well tolerated and provide visual acuity to see shapes and lights, similar to the Iris implant. We anticipate Prima will be an improvement over the Argus II implant, while Iris is more comparable to Argus II.

Recently, Second Sight began clinical trials of Argus II in AMD and is in preclinical studies of a direct cortical stimulation device, expected to reach first-in-man trials by early 2017. This implant would be seated in the visual cortex of the occipital lobe and provide direct stimulation. Direct stimulation bypasses the optic nerve and allows implantation into patients with optic neuropathies, increasing the target market substantially.

Retina Implant AG

Retina Implant is a German company developing a sub-retinal implant, Alpha IMS. Alpha IMS is implanted in the sub-retinal space, analogous to the Prima implant, but Alpha IMS requires an extraocular power supply implanted in the subcutaneous space near the ear. This surgical procedure reportedly takes approximately eight hours, compared with two hours for Iris and shorter for Prima. In reported trials the implant appears to safely restore visual acuity to the light perceptions and hand movements level.[5] Alpha IMS earned CE Mark in 2013, but sales have not been disclosed by the company. The Alpha IMS reported visual results are reassuring as Pixium develops its sub-retinal implant, Prima. Prima offers the advantage of a much simplified surgical procedure without the extraocular power supply needed by Alpha IMS.

Nano Retina

Nano Retina is an Israeli company developing Bio-Retina for implantation into AMD patients. Bio-Retina is an epi-retinal implant that stimulates damaged retina in the macula. Similar to Prima, it is powered by photovoltaic cells, which eliminates the need for an extraocular power supply. Bio-Retina is still in preclinical trials.

Exhibit 6: Competitive environment

Company	Number of electrodes	Position of device	Features and benefits	Drawbacks	Clinical results	Regulatory status
Pixium Vision	Iris: 50-150	Iris: Epi-retinal	Two-hour surgery	Not yet approved in EU or US	Short-term study on seven patients	CE Mark filing end of 2015
	Prima: up to 5,000	Prima: Sub-retinal	Explantable		Clinical trials to begin in 2016	
			Neuromorphic camera			
			Tunable software			
Second Sight	Argus II: 60	Epi-retinal	CMOS camera	Not easily explantable	Positive long-term results on 30 patients	CE Mark Feb 2011
				Intraocular hardware not upgradable		FDA approval Feb 2013
Retina Implant	Alpha IMS: 16 electrodes/1,500 diodes	Sub-retinal	12 degree visual field	Requires intraorbital wire, which broke in three trial patients	30 patients to CE Mark	CE Mark July 2013
Nano Retina	500 electrodes	Epi-retinal	Extremely high potential visual acuity	Not yet tested in man	Preclinical	Preclinical

Source: Company presentation, Edison Investment Research

Sensitivities

Pixium is subject to a broad array of risks inherent to early medical device companies. We believe the most significant risk lies in the developmental, competitive and regulatory arenas.

4 Ho AC, Humayun MS, Dorn JD, da Cruz L, Dagnelie G, Handa J, Barale PO, Sahel JA, Stanga PE, Hafezi F, et al. Long-Term Results from an Epiretinal Prosthesis to Restore Sight to the Blind. Ophthalmology. 2015 Aug;122(8):1547-54. doi: 10.1016/j.ophtha.2015.04.032. Epub 2015 Jul 8. PubMed PMID: 26162233; PubMed Central PMCID: PMC4516690.

5 Stingl K, Bartz-Schmidt KU, Besch D, Chee CK, Cottriall CL, Gekeler F, Groppe M, Jackson TL, MacLaren RE, Koitschev A, et al. Subretinal Visual Implant Alpha IMS--Clinical trial interim report. Vision Res. 2015 Jun;111(Pt B):149-60. doi: 10.1016/j.visres.2015.03.001. Epub 2015 Mar 23. PubMed PMID: 25812924.

Developmental sensitivities

Most developmental risk lies in the Prima implant. While there is encouraging preclinical data and proof of concept with the similar Alpha IMS sub-retinal implant, it is unknown how well the inner retina will tolerate the sub-retinal device in humans. Degradation of the inner retina over time may lead to decrease in visual acuity with the device. The magnitude of this risk is unknown and will be evaluated by the company in the future.

The success of the Iris implant somewhat depends on the success of the Prima implant. If Prima is able to achieve its theoretical level of visual acuity, it will cannibalise sales of Iris. The earliest we would expect this to occur would be 2018/2019, pending results from the Prima human trials.

There is inherent risk in the trials of Iris and Prima in AMD. Vision loss in AMD is very different than vision loss in RP and it is unknown if AMD patients would be amenable to retinal implants. In AMD patients with intact peripheral vision it is not known how well natural peripheral vision would affect the artificial vision of the implant.

Competitive sensitivities

Pixium will likely be the second device to market in the retinal implant field. It has a strong network of key opinion leaders (KOLs) in the European market and a small sales requirement (20-30 centres total). Given the advantage of the increased number of electrodes and biomimetic imaging capturing, we expect Iris to be able to compete with Argus II.

Pixium's largest competitor is transitioning to a cortical stimulation device expected to be in trials in the next few years. It is completely unknown how well this device works but it has the potential to deliver equivalent or superior vision when compared to Pixium's products. This is offset by the increased complexity of neurosurgery on the visual cortex.

Regulatory sensitivities

The first regulatory hurdle for Pixium will be at the end of 2015 with submission of Iris for CE Mark. The current status of the Iris trials is encouraging for CE Mark approval. The company will require more patients prior to FDA IND filing, but will likely be able to capture these patients and data post CE Mark approval. We anticipate FDA IND filing in 2018. Prima requires a longer road to approval and we do not anticipate FDA or CE Mark approval until 2019, pending results from the studies beginning in 2016.

Stock sensitivities

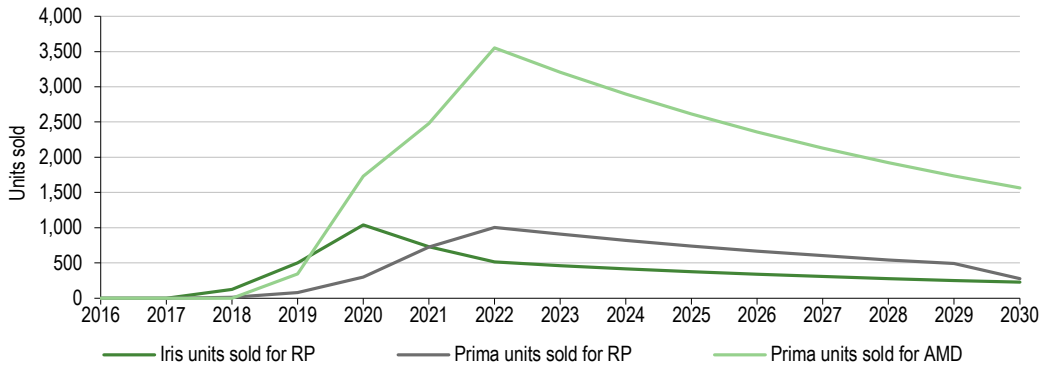
There are intrinsic sensitivities related to Pixium. The first is a free float of 26%, which creates potential for liquidity problems for bigger investments. The majority of the shares are held by the initial venture funds. Additionally, there is a real possibility that Pixium is required to raise additional funds to reach profitability. In our model Pixium will be required to raise additional capital in 2017. If it is able to achieve greater market penetration, there is a reasonable possibility that it has sufficient capital to reach profitability.

Valuation

Using a risk-adjusted NPV model with a 12.5% discount rate we value the company at €133.42m or €10.51 per fully diluted share. We see a high probability of gaining EU/US regulatory approvals, but given the success of the early experience with Iris in comparison with the competition, we have assigned Iris a 40% likelihood of achieving projected peak sales in the EU and US markets. We anticipate first EU sales in 2016 and first US sales in 2018. Peak sales are modelled to occur in

2019 (EU) and 2020 (US) (Exhibit 7). The cannibalisation effect of Iris following adoption of Prima has been modelled and is shown in Exhibit 7. Slow deterioration of sales is expected in the distant future as new technology may become available.

Exhibit 7: Forecast Iris and Prima worldwide sales



Source: Edison Investment Research

Prima is modelled for both RP and AMD indications as it seems to be more amenable to AMD than the Iris implant. With the product still in preclinical trials for both indications, we assigned a 10% likelihood of success in each indication. Given the large market for Prima in AMD, if feasibility studies are positive and the risk adjustment increased, there is significant upside potential in our model if the risk is adjusted lower. If Prima fails, we would expect the company to trial Iris in the AMD population and possibly mitigate risk of complete failure in that market.

Pixium does have a conceptual programme for cortical brain stimulation, which we will learn more about in the future. At this point we will not include this in our valuation of the company given the very early stage of development; however; in the future this could add significant value to the company.

Exhibit 8: Valuation summary

Product	Setting	Status	Launch	NPV (€m)	Peak sales (€m)	Probability of success	rNPV (€m)	rNPV per share (€)
Iris	Retinitis Pigmentosa	Pivotal trial ongoing	2016	96	118	40%	32	2.55
Prima	Retinitis Pigmentosa	Preclinical	2018	122	120	10%	9	0.71
Prima	AMD	Preclinical	2018	610	416	10%	61	4.80
Cortical brain stimulation	Optic neuropathies (glaucoma)	Preclinical	2021	1148	1,996	0%	0	0.00
Portfolio total				1975			102.34	8.06
Cash (as of 31 July 2015)							31.08	2.45
Overall valuation							133.42	10.51

Source: Edison Investment Research

Financials

Pixium had €31m in cash at the end of Q215. The company does receive the French Research Tax Credit, which is a cash payment of 30% of eligible research spending each year. In addition, in Q115 the company was awarded a grant from Sight Again, worth up to €6.9m. With a burn rate of approximately €20m per year, it is capitalised through the next set of inflection points. We anticipate those inflection points at CE Mark approval in H116, commercialisation of Iris in the EU in 2016, Prima first-in-man trials in 2016, and FDA approval of Iris in 2017. We do not anticipate Pixium at cash flow positive until at least 2019, most likely 2020. R&D expenses may increase as Prima begins development, and we model overall R&D expenses at €22m for 2016 and increasing to

€28m in 2017. SG&A is modelled at €5.9m for 2016 and €8.9m for 2017. Our model anticipates the need for a minimum €40m funding requirement in 2017 to reach profitability in 2019. For illustrative purposes only we have added this requirement to long-term debt. Note that our financial and valuation models do not include the potential dilution impact of future equity offerings.

Exhibit 9: Financial summary

€'000s	2012	2013	2014	2015e	2016e	2017e	2018e
Year end 31 December	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS							
Revenue	699	1,478	2,427	5,303	7,366	9,808	25,809
Cost of Sales	0	0	0	0	(850)	(1,132)	(2,978)
Gross Profit	699	1,478	2,427	5,303	6,516	8,676	22,831
R&D expenses	(3,013)	(6,590)	(10,963)	(17,677)	(22,096)	(27,620)	(28,173)
SG&A expenses	(908)	(1,035)	(3,111)	(3,991)	(5,987)	(8,980)	(13,470)
EBITDA	(3,222)	(6,147)	(10,834)	(16,136)	(21,325)	(27,845)	(18,698)
Operating Profit (before GW and except)	(3,222)	(6,147)	(11,647)	(16,180)	(21,386)	(27,924)	(18,812)
Intangible Amortisation	0	0	0	(185)	(181)	0	0
Exceptionals	0	0	0	0	0	0	0
Operating Profit	(3,222)	(6,147)	(11,647)	(16,365)	(21,567)	(27,924)	(18,812)
Other	0	0	0	82	0	0	0
Net Interest	(6)	1	36	(46)	(6)	0	2
Profit Before Tax (norm)	(3,228)	(6,146)	(11,611)	(16,144)	(21,392)	(27,924)	(18,811)
Profit Before Tax (FRS 3)	(3,228)	(6,146)	(11,611)	(16,329)	(21,573)	(27,924)	(18,811)
Tax	0	0	0	0	0	9,215	6,207
Profit After Tax (norm)	(3,228)	(6,146)	(11,611)	(16,144)	(21,392)	(18,709)	(12,603)
Profit After Tax (FRS 3)	(3,228)	(6,146)	(11,611)	(16,329)	(21,573)	(18,709)	(12,603)
Average Number of Shares Outstanding (m)	16.5	27.3	9.8	12.7	12.7	12.7	12.7
EPS - normalised (€)	(0.20)	(0.23)	(1.18)	(1.27)	(1.68)	(1.47)	(0.99)
EPS - FRS 3 (€)	(0.20)	(0.23)	(1.18)	(1.28)	(1.69)	(1.47)	(0.99)
Dividend per share (€)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BALANCE SHEET							
Fixed Assets	9,367	8,965	9,932	11,413	12,932	14,666	16,420
Intangible Assets	8,700	8,277	9,259	9,080	8,905	8,912	8,918
Tangible Assets	620	641	627	2,287	3,980	5,708	7,456
Other	47	47	46	46	46	46	46
Current Assets	4,282	11,327	44,867	24,515	4,747	12,950	10,443
Stocks	0	0	0	0	500	1,000	1,500
Debtors	0	0	0	0	0	0	0
Cash	3,088	9,420	42,132	21,780	1,512	0	0
Other	1,194	1,907	2,735	2,735	2,735	11,950	8,942
Current Liabilities	(1,093)	(2,038)	(4,050)	(4,076)	(4,076)	(4,076)	(4,076)
Creditors	(578)	(1,379)	(1,729)	(1,729)	(1,729)	(1,729)	(1,729)
Short term borrowings	0	0	0	(26)	(26)	(26)	(26)
Short term leases	0	0	0	0	0	0	0
Other	(515)	(659)	(2,321)	(2,321)	(2,321)	(2,321)	(2,321)
Long Term Liabilities	(9)	(30)	(245)	(245)	(245)	(28,891)	(40,741)
Long term borrowings	0	0	0	0	0	(28,646)	(40,496)
Long term leases	0	0	0	0	0	0	0
Other long term liabilities	(9)	(30)	(245)	(245)	(245)	(245)	(245)
Net Assets	12,547	18,224	50,504	31,607	13,358	(5,351)	(17,954)
CASH FLOW							
Operating Cash Flow	(2,888)	(5,188)	(8,389)	(18,667)	(18,546)	(28,391)	(19,245)
Net Interest	0	0	0	0	0	0	0
Tax	0	0	0	0	0	0	9,215
Capex	(9,751)	(303)	(1,773)	(1,710)	(1,761)	(1,814)	(1,868)
Acquisitions/disposals	0	0	0	0	0	0	0
Financing	15,775	11,822	42,705	0	0	0	0
Dividends	0	0	0	0	0	0	0
Other	(48)	1	169	(1)	40	47	48
Net Cash Flow	3,088	6,332	32,712	(20,378)	(20,268)	(30,158)	(11,850)
Opening net debt/(cash)	0	(3,088)	(9,420)	(42,132)	(21,754)	(1,486)	28,672
HP finance leases initiated	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Closing net debt/(cash)	(3,088)	(9,420)	(42,132)	(21,754)	(1,486)	28,672	40,522

Source: Edison Investment Research, company accounts

Contact details	Revenue by geography
74 rue du Faubourg Saint-Antoine 75012 Paris, France Tel: +33 1 76 21 47 30 Fax: +33 1 43 42 05 26 www.pixium-vision.com	N/A

Management team

Chairman: Bernard Gilly	CEO: Khalid Ishaque
Bernard Gilly has over 20 years' experience in the financial and pharmaceutical sectors, and as an entrepreneur. He was vice-president R&D for five years at Pasteur Mérieux Connaught (now Sanofi Pasteur). Afterwards, he became the CEO of Transgene from 1992 to 2000, heading the company's listing and raising over $120m. 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 vice president of the Ophthalmology Division of Sanofi. Lastly, he founded Pixium Vision in 2011.	Khalid Ishaque has over 20 years' experience in the medical technology sector. He joined Pixium Vision in 2014 after having spent 17 years with Boston Scientific in various commercial and business development roles, and most recently as general manager of the International Neuromodulation division commercialising Spinal Cord and Deep Brain Stimulation systems for chronic pain and movement disorders. Before joining Boston Scientific in 1997, he worked for Becton Dickinson. He received his masters in engineering from Cranfield Institute of Technology in the UK and his Master in international Economics and Management from SDA Bocconi University in Italy.
COO: Robert Hill	**CFO: Pierre Kemula**
Robert Hill is a specialist in industrial production and quality assurance systems. He has been leading the development and manufacturing of retinal implants for four years, in particular with IMI. Previously, he spent 14 years with InterVascular/Datascope where he was R&D director, and quality and regulatory affairs director. During his experience with Intervascular, Mr Hill helped the company obtain ISO/EN9001/13485 certification, CE mark, FDA approval and was responsible for two fault-free FDA inspections. He has also occupied several positions in which he was in charge of clinical affairs, OEM and major projects of the company. He also brings over 10 years' experience working with pharmaceutical and chemical companies.	Pierre Kemula has over 14 years' experience in corporate finance strategy consulting and joined Pixium in 2014. Previously, he was vice president of corporate finance, treasury and financial markets, and director of investor relations for Ipsen since 2008. Before this, he worked with major strategy consulting firms (Roland Berger, Bossard Consultants, and Gemini Consulting) for more than eight years. He received his degree in management sciences from the London School of Economics (LSE) in the UK.

Principal shareholders	(%)
Sofinnova Partners	23.31
Abingworth	16.39
Innobio	12.56
Omnes Capital	11.52
Groupe BPI	8.09

Companies named in this report

Second Sight (EYES); Retina Implant; Nano Retina