



# Optiscan Imaging Ltd

Investor Presentation - September 2017

# Disclaimer

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# Background



- Based in Melbourne, Australia, Optiscan are a global leader in live micro imaging through its unique patented clinical confocal laser endomicroscopy technology, providing surgeons with real time visualisation of a human cell during a surgical procedure.
- Optiscan is focused on commercialising its world leading endomicroscope technology, which has the ability to provide surgeons and pathologists with a real time “Digital Biopsy” image at the individual cellular level.
- Founded in 1994, Optiscan first listed on the ASX in 1997 with its 1st generation device which was licensed to Pentax in 2002 and launched globally in 2006. In 2007/8, Pentax was acquired and merged into Hoya. The take over did not include Optiscan’s 2nd generation system which has since been developed by Optiscan.
- Through a collaboration with global medical imaging company Carl Zeiss Meditec (“**CZM**”), Optiscan have spent the last 10 years developing its 2<sup>nd</sup> generation system and are now focused on a global roll out and commercialisation. The roll out strategy will be supported and managed by CZM’s global sales force.
- Optiscan also build and sell their *ViewnVivo* system, a Preclinical Research Product – this is a world leading device used in preclinical research which is distributed through specialist partners in USA, China and Europe. Optiscan have recently announced distribution agreements for North America and China where *ViewnVivo systems* have been delivered.

# Investment Highlights



**Proven Technology** - 1<sup>st</sup> generation technology was licensed to Pentax for a licencing fee of Approx. USD20m and achieved reimbursement status in USA.

**2nd Generation Device** - 70% smaller and yields full HD (2.1 Megapixels) across a variable field with interactive depth control.

**Large Capital Investment** – over 20 years AUD\$100m invested in the “Digital Biopsy” technology, with pre-clinical and clinical investigations published.

**Carl Zeiss Meditec JV** – In 2007 signed a collaboration agreement with major German optics company CZM (market cap of €3.9bb, revenue €1.09bn and EBIT of €154m). The agreement provides CZM exclusive use of Optician’s technology for clinical rigid endo-microscope applications in CZM’s core segments.

**Pre-Production Devices** - Recently delivered several pilot systems to CZM, now being used by some of the world’s leading neurosurgeons.

**FDA Approval** - All regulatory approvals managed by CZM regulatory team and are on schedule – expected FDA Approval early 2018.

## **Revenue Model –**

- The CZM “Digital Biopsy” system to be sold and distributed by CZM globally with introduction into Neurosurgical markets 3rd October 2017.
- Optiscan preclinical product ViewnVivo system is sold direct by Optiscan and through appointed distributors in USA, China and Europe.

**Large Market Opportunities** - Other applications for “Digital Biopsy” include gastrointestinal, oesophagus, breast cancer and other major surgery markets.

**Global Launch** – CZM “Digital Biopsy” endomicroscope launch in October 2017 at two major neurosurgical events EANS in Venice October 3 2017 and CNS in Boston on October 8<sup>th</sup> 2017. (these two global Neurosurgery events are attended by approx. 4000 clinicians from around the world)

# Corporate Structure



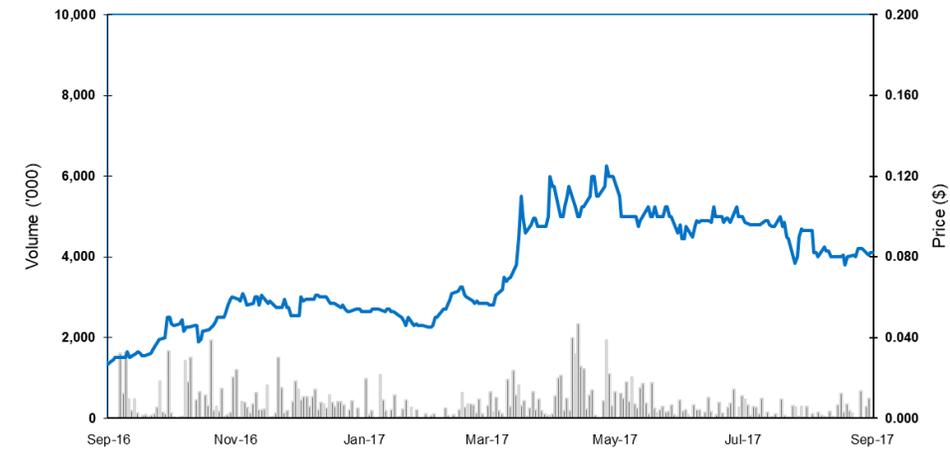
Capital Structure	Number of Units (m)	% of fully diluted
Ordinary Shares, ASX Code OIL	377.1	93.9%
Unlisted Options	24.5	6.3%
<b>Fully Diluted Shares*</b>	<b>401.6</b>	<b>100%</b>

## Market Cap and Liquidity

Current Market Cap (as at 26 Sept 2017)	A\$31.3 million
Current Share Price	\$0.083
Twelve Month Range	\$0.027 - \$0.13
Average Turnover per day (last three months)	0.17 million

\*prior to completion of SPP and Placement

## 12 Month Share Price Performance and Volume



## Major Shareholders

Major Shareholders	% Held
Ian Mann	11.1%
Robert Peters	6.7%

# Board and Management



**Alan Hoffman**  
Chairman

- 20 years' experience in executive management roles in organisations such as Shell Australia, the Wesfarmers Group and the Coventry Group.
- Commercially astute and strategically focused, Alan's leadership will drive performance improvement of Optiscan as it moves into delivering on its potential.
- Alan is Chairman of Rision Ltd (ASX:RNL)

**Archie Fraser**  
CEO

- 25 years senior executive, experienced turnaround executive, significant consulting projects, acquisitions and effective strategy implementation.
- Asian and global experience across multiple industry sectors, has held CEO and leadership roles at Inchcape, Adecco, Fuji Xerox, Cendant and St Kilda Football Club.

**Dr Ian Griffiths**  
Non-Executive  
Director

- CEO of Wound Management Innovation CRC and has previously held the following positions; CEO of AorTech Biomaterials Pty Ltd, COO of AorTech International plc, CEO of PolyNovo Pty Ltd and CEO of Novoskin Pty Ltd.
- More than 19 years experience in commercialising innovative medical devices. In addition, Ian has served on a number of public and private company boards.

**Ian Mann**  
Non-Executive  
Director

- 20 years experience as a private company director in industries including textiles, garments, investments, foodstuffs & construction materials.
- Ian joined the board in December 2015 bringing financial support and vision for the path towards profitability.
- Ian has been pivotal in ensuring governance and commercial focus since joining in December and remains an invaluable member of the new look board

**Peter Francis**  
Non-Executive  
Director

- Partner of FAL Lawyers, a firm of commercial and technology lawyers with offices in Melbourne, Australia.
- One of Australia's pre-eminent lawyers on technology commercialisation and is considered to be a 'true expert with years of experience', 'particularly esteemed in non-contentious circles for his dexterous handling of commercialisation work for research organisations and technology developers' (IAM Licensing 250, 2011/2012, IAM Patent 1000, 2012).
- Peter is Chairman of Benitec Biopharma Ltd (ASX:BLT) and holds a number of other non-executive director roles

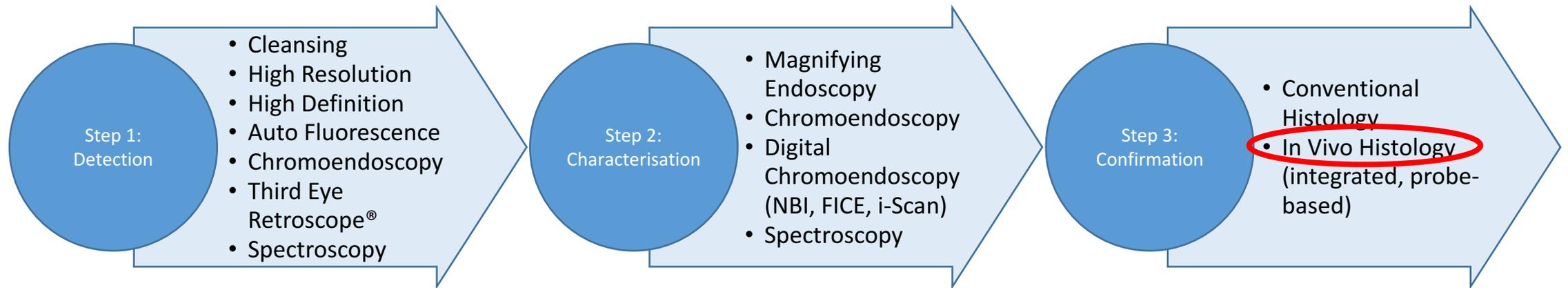
**Dr Philip Currie**  
Non-Executive  
Director

- Cardiologist with more than 30 years in cardiology both in the United States and in Australia with extensive experience in medical research, clinical cardiology and business.

- Having invented the confocal laser microscope (CLE), Optiscan then set about miniaturising this technology so it can be practically used for in vivo clinical use, inside the human body.
- A tiny scanner attached to a single optical fibre can be placed directly on human tissue during surgical procedures.
- Images previously only generated in a laboratory from a traditional biopsy can now be observed as a real time “Digital Biopsy” while the surgeon investigates areas of interest.
- Decisions can be made in real time at the margin edge of the tumor.
- Greater accuracy, quicker results and less traditional biopsies all lead to better outcomes for patients, surgeons and the health system.
- Optiscan eliminates the need to remove physical tissue via a traditional biopsy in order to analyse individual cells and instead provides surgeons and pathologists with real time “Digital Biopsy” microscopic imaging of cellular makeup of particular sites of interest during surgery before choosing sites or finalising an assessment of tumour margins.

# Endoscopic Process and Medical Need

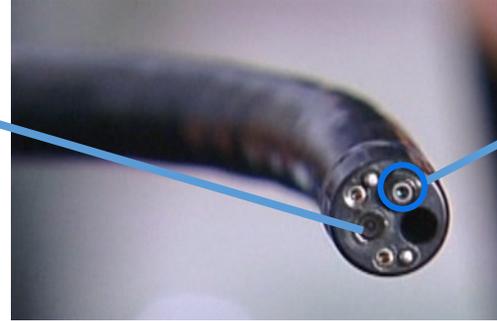
- Common endoscopic procedures involve 3 key steps:
  1. Detection of an area of interest
  2. Characterisation (i.e. a closer look)
  3. Confirmation – a firm cellular diagnosis



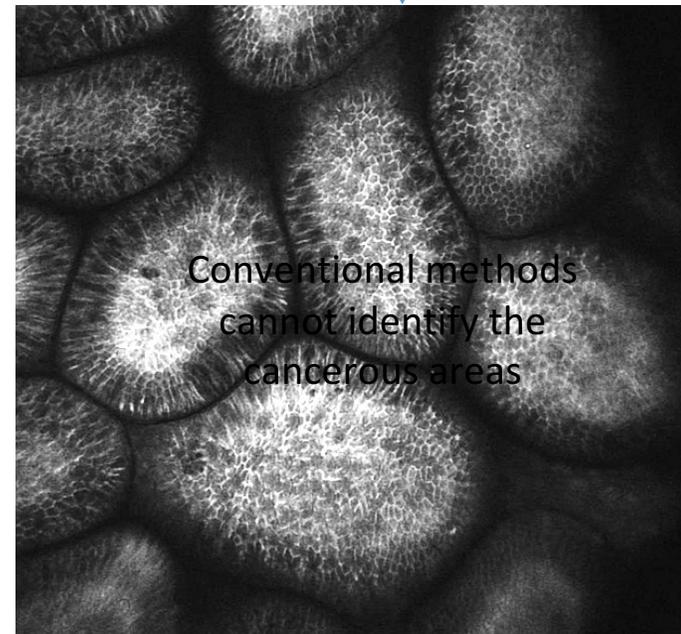
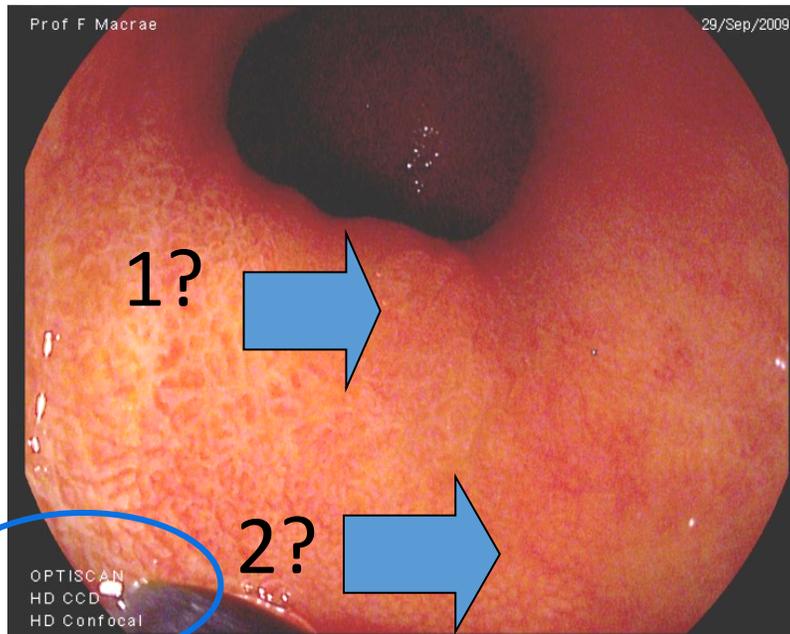
- Multiple techniques have crowded into the first two steps, but only endomicroscopy offers a cellular view comparable to conventional biopsy and histology

# Endomicroscopy Workflow

Conventional endoscopic view provides detection of areas of interest and initial characterisation



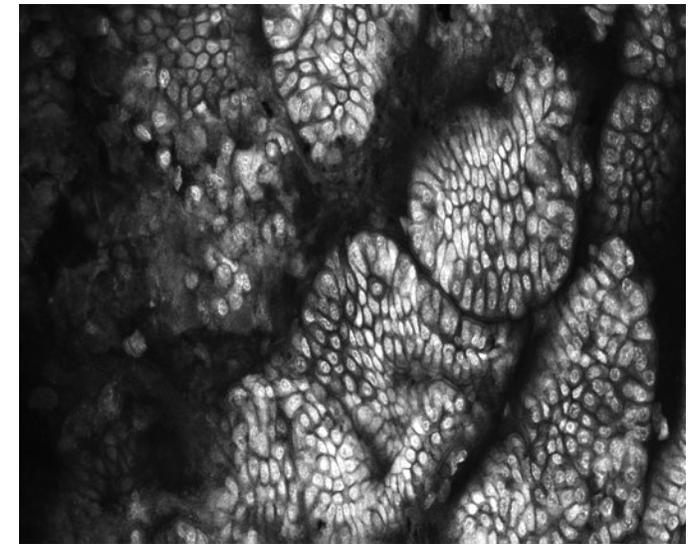
Optiscan's endomicroscope scanner provides fast scanning and ultra-high definition "digital biopsy"



# Competitive Advantage

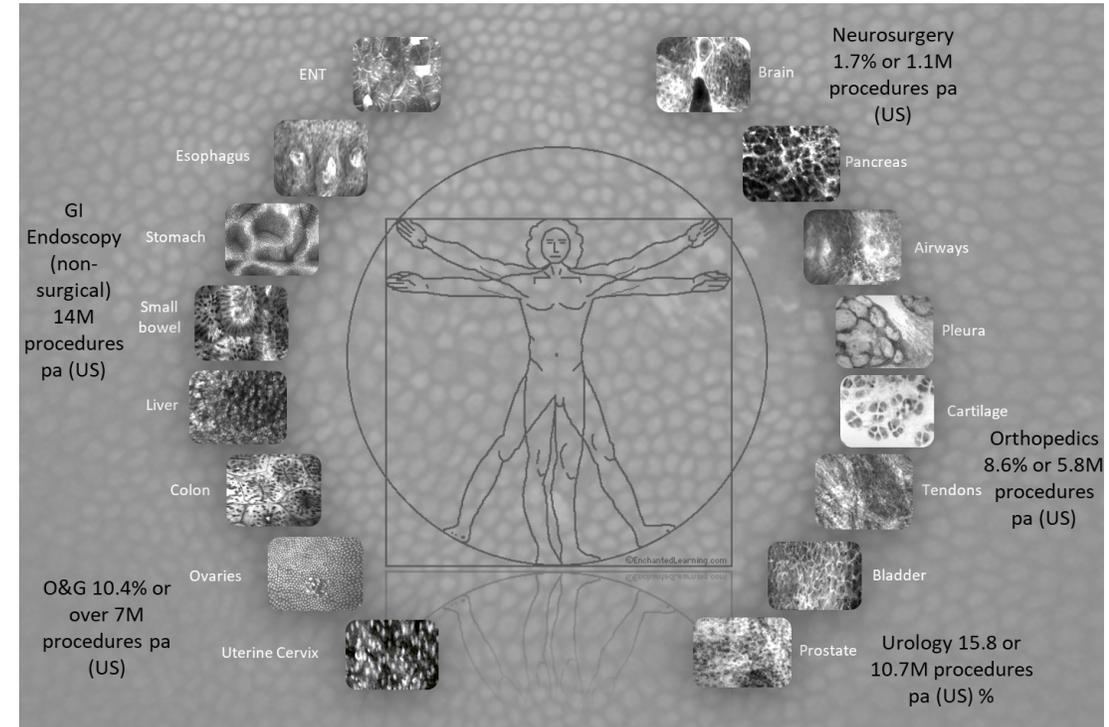
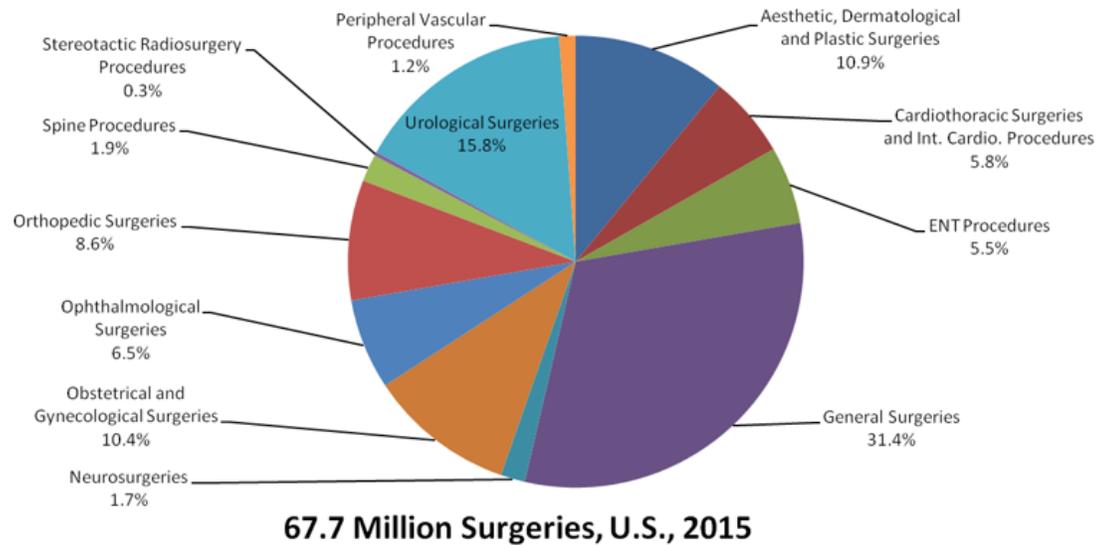
Compared to Optiscan's technology, existing technologies have the following disadvantages:

- 60 fold lower image information content.
- Lower resolution.
- Maximum 30,000 optical pixels (0.03 Megapixels), only a few thousand pixels for smaller probes.
- There are gaps between fibres – which is hidden by software smoothing.
- Separate probes must be used to spread this limited information over different magnifications and field of view.
- No variable imaging depth capability – therefore no 3D stacking.
- Equivalent bundled fibre probe would be >15mm in diameter, and still would not replace “missing” data between pixels.



# Market Opportunities

- Optiscan's platform technology is applicable in any field of endoscopy/surgery with strong clinical evidence already proving its effectiveness in several fields



- Gastrointestinal Endoscopy in particular poses as a large opportunity for Optiscan with up to 14m procedures in the US per year.
  - Multiple clinical indications for use
  - 3 Category 1 CPT codes in place
  - Optiscan offers compelling technical leadership
  - Highest level clinical results support Optiscan's technology

# Neurosurgery – Initial Commercialisation Focus



CZM are initially targeting the neurosurgery market due to the immense precision required when conducting this type of surgery. Unlike cutting out cancer in other places (bowel, breast or skin), cutting a millimetre into normal brain tissue can leave the patient with a devastating stroke (blindness, loss of speech, dense paralysis of one side of the body), so for patient safety some cancer is left behind.

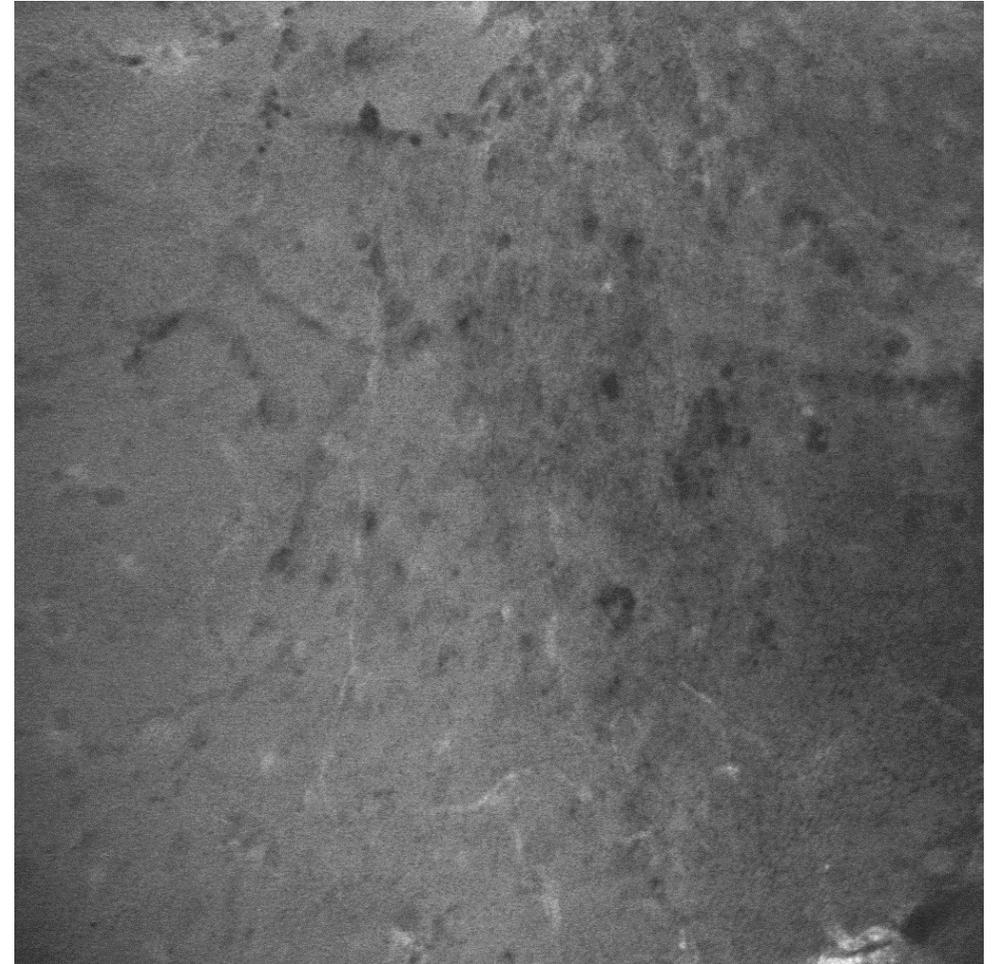
- Brain cancer is extremely complex and difficult with a minimal margin of error.
- You cannot see the edge of the cancer and beginning of normal brain (the margin) with the human eye or normal operating microscopes.
- Current methodology of a frozen section biopsy to “find the cancer edge” is very time consuming during the operation, fraught with sampling error and artefact.
- Expected to be ~27,119 new brain cancer cases per annum in the US and 80,000 new tumour cases overall.
- Overall prevalence of 700,000 brain tumour cases in 2017, we estimate approximately 240,000\* surgical procedures per annum are eligible to benefit from Optiscan’s technology.
- Total Procedure Volumes USA Neurosurgery of 1,150,900 per annum - 1.7% of all surgical procedures carried out in the USA per annum.
- In the USA there are 1,276 dedicated Neurosurgery Centers and 30 dedicated Neurosurgery Super Centers.

Optiscan estimates that the “Digital Biopsy” neurosurgery market potential between 4,000 and 8,000 systems globally.

# Neurosurgery – Optiscan Solution

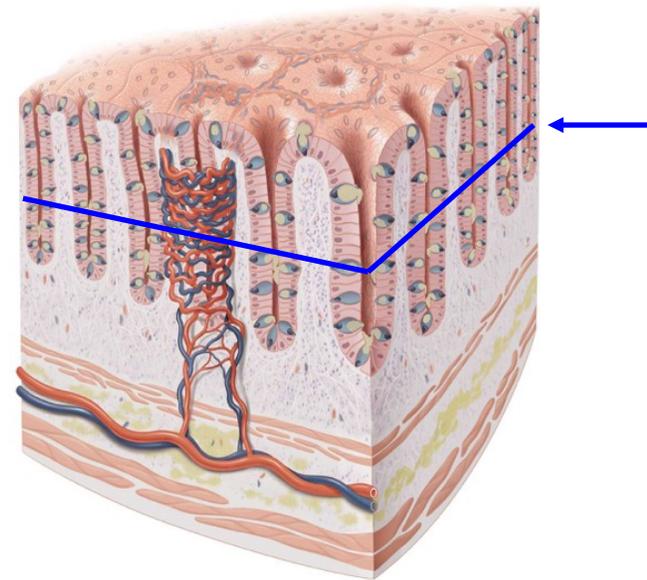
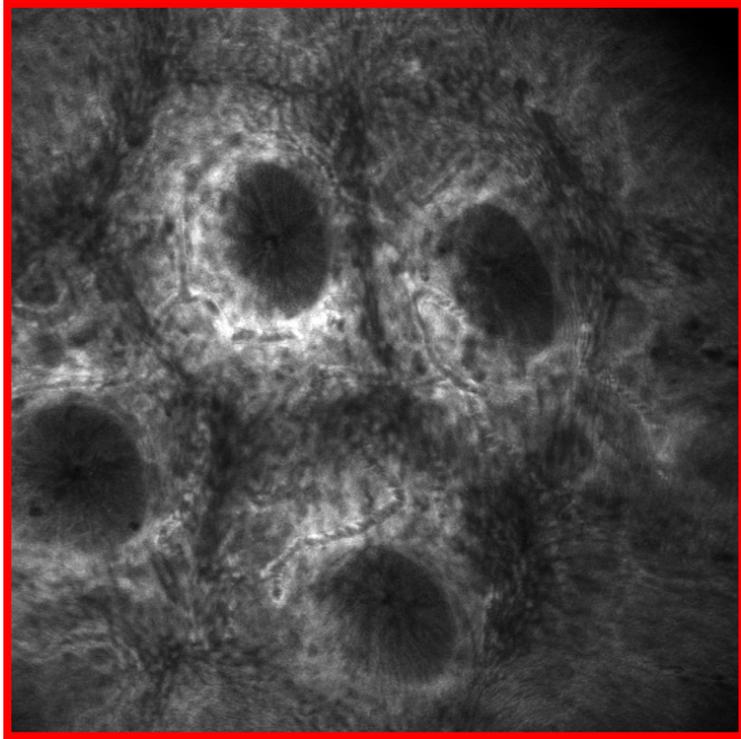


- The microscope magnification can come down to subcellular level with the images beamed directly to the pathologist screen, monitor or tablet.
- The surgeon uses the Optiscan “Digital Biopsy” probe technology to move across the tissue which allows them to clearly identify areas of interest.
- Together the neurosurgeon and the pathologist can move between the two areas and identify the infiltrating margin of the tumour.
- The Optiscan “Digital Biopsy” technology allows surgeons to view the edge of the cancer in real time and cut precisely around its perimeter, increasing the chance of a successful outcome.
- “Digital Biopsy” has the potential to provide a better patient outcome, shorter operations, improved accuracy and functionality and Optiscan believe that this product can become the new gold standard within the industry.



# Optical Sectioning Feature

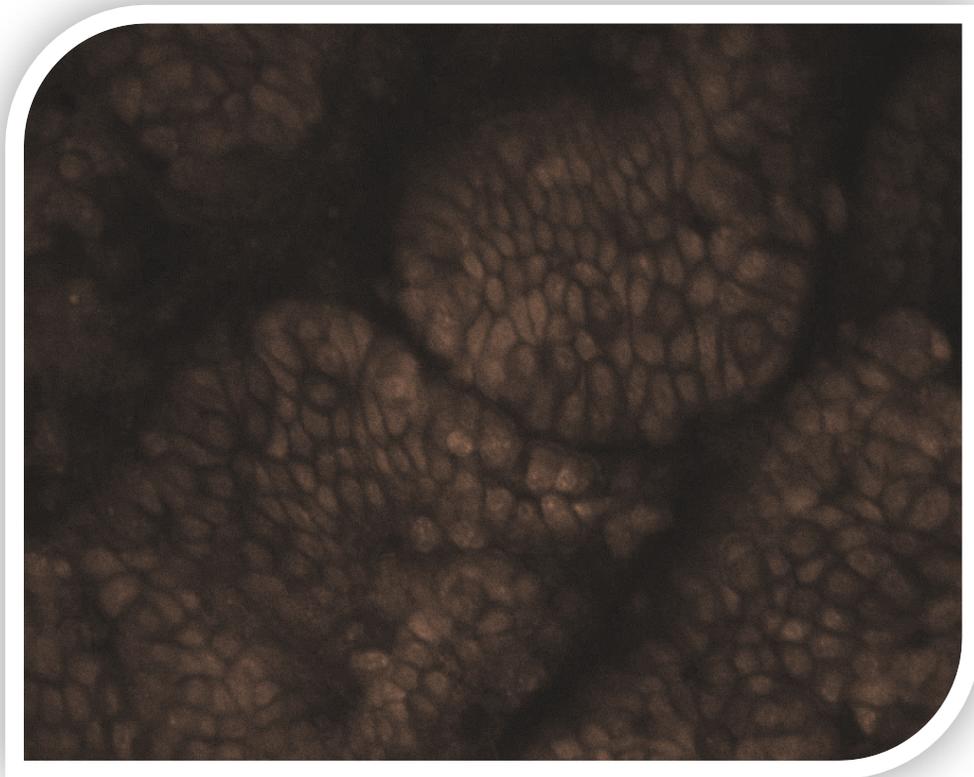
Optiscan technology delivers interactive optical sectioning



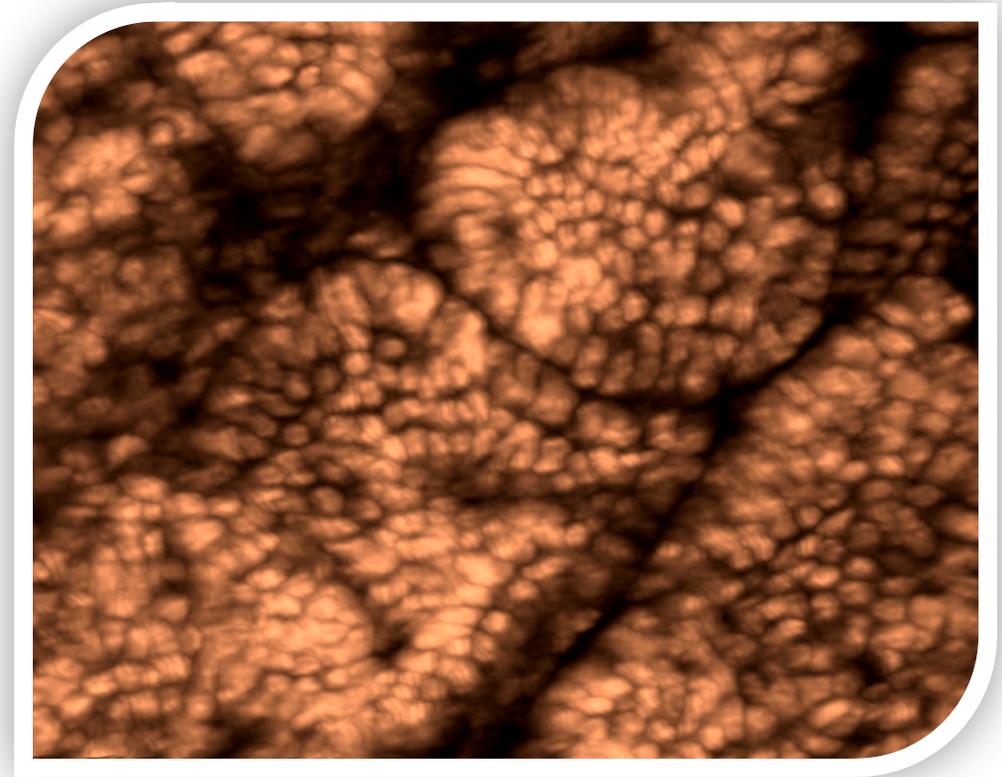
# Surface to Subsurface Cellular Imaging

## Automated Z-Stack and 3D Visualisation

Z-Stack Sequence

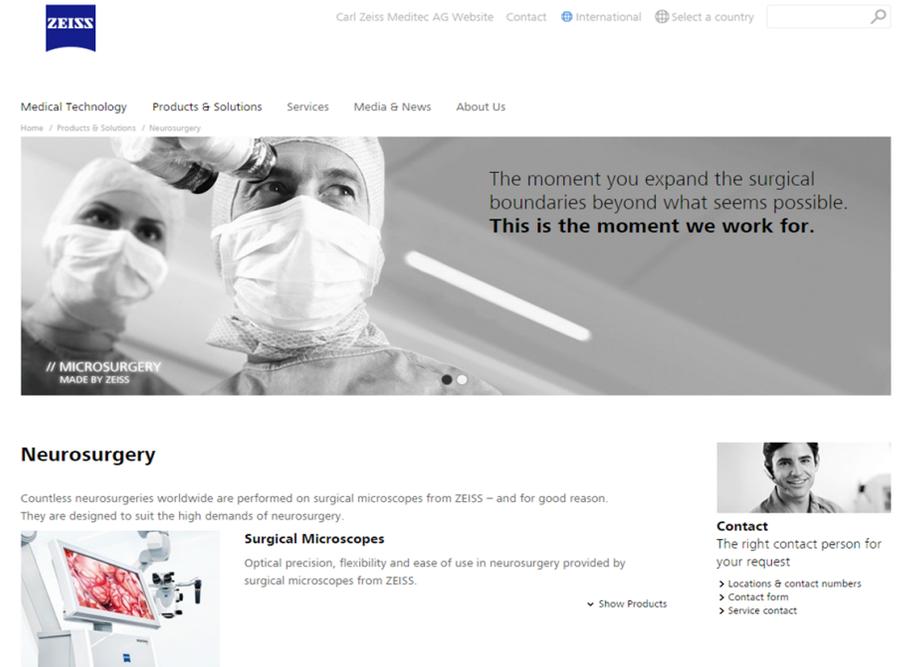


3D animation



In 2007, Optiscan signed a collaboration deal with major German optics CZM. The agreement gives CZM exclusive use of Optiscan's technology for clinical rigid endo-microscope applications in the (CZM) core segments.

- CZM FY16 revenue €1.09bn, EBIT €154m
- Major German optics company (Xetra: AFX), market cap €3.9bn
- No. 1 global player in surgical microscopes through Pentero and other brands (Estimated CZM market share >60%)
- CZM chose Optiscan's technology over any other technology available
- Have collaborated on 2<sup>nd</sup> generation device for neurosurgical use since mid-2007
- Over AUD\$100m spent to date by Optiscan developing generation 1 & 2 technology
- Pre-production and Pilot systems have now been shipped to CZM for FDA approval and early customer engagement



The screenshot shows the Carl Zeiss Meditec AG website. At the top, there is a navigation bar with the ZEISS logo, a search bar, and links for 'Carl Zeiss Meditec AG Website', 'Contact', 'International', and 'Select a country'. Below the navigation bar, there is a main banner image of two surgeons in an operating room. The banner text reads: 'The moment you expand the surgical boundaries beyond what seems possible. This is the moment we work for.' Below the banner, there is a section titled 'Neurosurgery' with a sub-section 'Surgical Microscopes'. The text in this section states: 'Countless neurosurgeries worldwide are performed on surgical microscopes from ZEISS – and for good reason. They are designed to suit the high demands of neurosurgery.' Below this text is a small image of a surgical microscope. To the right of the text, there is a 'Contact' section with the text: 'The right contact person for your request' and three links: 'Locations & contact numbers', 'Contact form', and 'Service contact'. A 'Show Products' link is also visible.

# Carl Zeiss Meditec - Partnership

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Optiscan have recently shipped pilot devices to CZM that have been placed in the hands of some of the worlds leading surgeons throughout Europe and the USA.

- CZM are a multinational dominant company with significant resources, credibility with all stakeholders, extensive marketing organisation and highly experienced regulatory team.
- CZM will lead the Optiscan FDA and CE Mark approvals and the sales, support and marketing processes.
- Product development for “Digital Biopsy” applications and early clinical work is now completed.
- 130 clinical cases performed and data published.
- CZM expects early uptake from key opinion leaders following official launch and approvals.
- Optiscan will manufacture the confocal microscope components and processor and sell these direct to CZM.
- CZM have 60% global market share in the top end surgical microscope market and worldwide sales, manufacturing, service and support coverage already in place.
- The Optiscan “Digital Biopsy” is an additional and complementary product to the CZM range of surgical microscopes.

ViewnVivo is a miniaturised fluorescence endomicroscope platform that brings the next generation of Optiscan's incredible imaging capability and flexibility for Preclinical Research.

- Launched in late 2016, ViewnVivo provides the same underlying imaging technology as that used in CZM collaboration
- Current product is being well received by Researchers globally with distribution agreements signed in North America (USA & Canada) and China and distribution partners being targeted in Europe
- Multiple Publications have been produced utilising Optiscan technology providing Optiscan with global exposure
- Optiscan started its life in Preclinical Research, and remains committed to the Preclinical Research market
- Broad range of biological applications enabled by numerous fluorescent dyes and only limited by Researchers imagination
- Benchtop optical systems estimated to be a US\$1.5B global market
- Latest Generation Imaging Platform with low laser power and high sensitivity
- Precise Optical Sectioning and Stunning Image Quality

