

ABOUT US

DISA Limited is a Singapore-based investment holding company.

Our business:

1. [Disa Digital Safety Pte. Ltd. \(“DISA”\)](#)

Provision of digital security, anti-theft and return fraud prevention solutions

2. [Digital Life Line Pte. Ltd. \(“DLL”\)](#)

Provides digital, AI-powered diagnostic ophthalmology solutions

BUSINESS UPDATES

Key developments post Annual General Meeting held on 25 October 2024:

- **2 December 2024:**
 - Additional investment in DLL through rights issue exercise carried out by DLL, maintaining a 55.41% stake.
- **8 January 2025:**
 - DLL signed licensing agreement with NUH and NUS to commercialise cataract screening device known as Mobile Imaging Device for Anterior Segment (“**MIDAS**”)
- **13 January 2025:**
 - Announced proposed acquisition of a rheumatism and arthritis medical clinic (“**Target**”).
- **20 January 2025:**
 - Announced FIRST CLINICAL DEPLOYMENT of Automated Visual Acuity Test (“**AVAT**”) Device at a major Singapore public hospital’s ophthalmology clinic.

DISA'S THREE ENGINES OF GROWTH

Retail Anti-Theft and Return Fraud Prevention Solutions

Single Scan Serialization
("3S") Smart Barcode



Healthcare & Medical Devices

Optometry and ophthalmology for visual acuity and cataract screening



Proposed Acquisition

Healthcare and medical center for rheumatism and arthritis treatment



DISA
Growth

DISA'S PRODUCT TIMELINE

2009

- Launched end-to-end digital anti-theft solution
- Received two certificates for innovative features on Asset Protection System Plus X Award Technology, Cologne

2011

- Joint agreement to utilize LPRC's StorLab program to conduct proof-of-technology pilot program with leading US retailers

2014

DiSa entered the USA retail market launching PoSA Smart Lock with one of the largest retailers for a limited-store test

2016

- Rolled out PoSA Smart Lock to all stores
- Won LPRC Leadership Achievement Award for retail vision and success

2017

- Launched 3S solution to prevent returns fraud within the same retailer
- Won first place in the (R)Tech Asset Protection Innovation Awards for its PoSA technology

2020

- Winner of Peak Tech Laureates 2020 for Digital Transformation SME/Startups category (Singapore)

2021

- DiSa's 3S Smart Barcode incorporated into Appriss Retail's analytics engine for return authorization

2024

- Partnership with B&G International, Inc. ("B&G") to create DISA 3S RFID tag to enable inventory tracking and return fraud prevention in a combined solution. B&G clients include Walmart, Gap, Target, Macy's, Kohl's and Home Depot
- Partnered with AATAC to combat in-store theft via DiSa Smart Case.

2025

- Negotiating with clients for RFID and 3S

PoSA denotes Point-of-Sale Activation
LPRC denotes Loss Prevention Research Council
AATAC denotes Asian American Trade Associations Council

CONSUMER RETURNS AND SERIALIZATION

WHAT HAS CHANGED?





RFID – Julie Barber

<https://vimeo.com/790226803/1c78063f5a>

EMPOWERING RETAILERS WITH DISA'S TECHNOLOGY



Serialized RFID



Smart Single Scan Serialization (3S) technology

**generating revenue for
Serialization business**

Point of Sale Activation uses benefit denial
technology

Product ID live item tracking

Smart Case

FreshCounts smart barcode grocery tracking

OUR SOLUTION

PRODUCT OVERVIEW



Smart Secure Barcodes utilize
Single Scan Serialization
technology

US Patent 10,700,868 Issued on 30 June 2020
US Patent 11,288,662 Issued on 29 March 2022

WHAT'S NEXT

Serialized RFID



CONVERGENCE OF TECHNOLOGY



Serialized RFID



Combines:

- RFID inventory improved
- Reduced fraudulent returns
- A simple application

CONVERGENCE OF TECHNOLOGY (CONT'D)



Barcode is scanned



Retailer sends transaction to DiSa

DiSa approves or denies transaction



DiSa Serialization

- Helped a **top 10 retailer** reduce losses caused by fraudulent returns

Serialized RFID



TOTAL ADDRESSABLE MARKET

2024 CONSUMER RETURNS IN THE RETAIL INDUSTRY

MERCHANDISE SALES, RETURNS, AND FRAUD AND ABUSE

\$5.19 Trillion Sales
United States Census Bureau
Total US Retail Sales

\$685 Billion Returns
Amount of merchandise returned
as a % of total sales. (avg. 13.21%)

Fraud & Abuse

\$103 Billion

Amount of fraudulent returns
and claims as a % of total returns.
(avg. 15.14%)

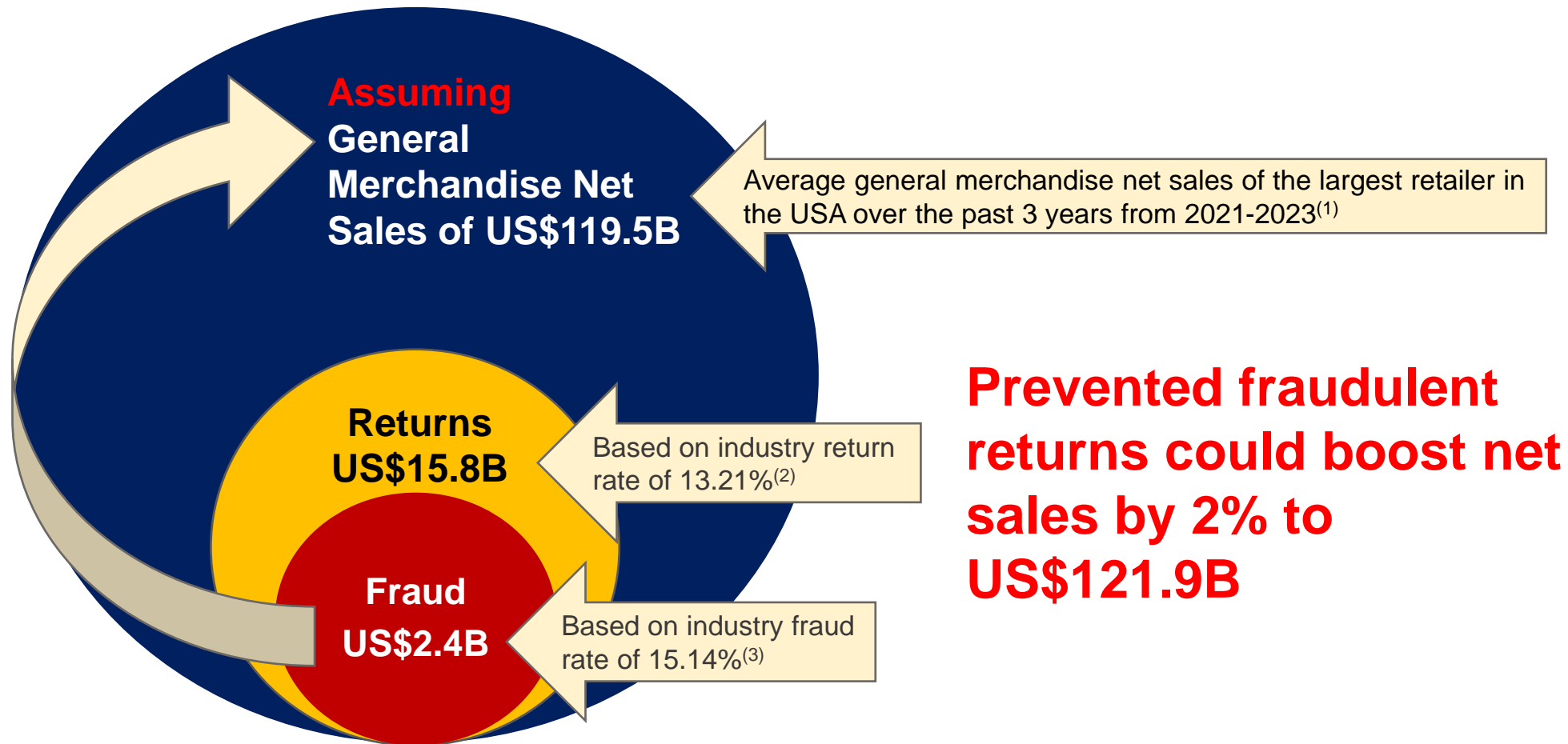
Consists:

- 60% wardrobing
- 55% payment fraud
- 48% stolen goods

Source: Appriss Retail and United States Census Bureau

Source: Appriss Retail and United States Census Bureau

Retailer Savings with DiSA Serialization Solution: How Much Can The Retailer Save?



⁽¹⁾ <https://www.hometextilestoday.com/retailers/walmarts-shrinking-general-merchandise-segment/>

⁽²⁾ ⁽³⁾ Appriss Retail and United States Census Bureau

CURRENT AND POTENTIAL ADOPTERS OF SERIALIZATION

NATIONAL RETAIL FEDERATION TOP 50 GLOBAL RETAILERS LIST

Compiled by KANTAR

April 4, 2024

Source: <https://nrf.com/blog/look-2024-top-50-global-retailers>

2024 Top 50 Global Retailers 1-10				
Ranking	Retailer	Home country	Business foundations	Total company revenues (billions)
1	Walmart	USA	Mass/Hyper	\$628.6
2	Amazon.com	USA	Ecommerce	\$355.1
3	Schwarz Group	Germany	Discount Grocery	\$176.4
4	Aldi	Germany	Discount Grocery	\$145.4
5	Costco	USA	Club	\$234
6	Ahold Delhaize	Netherlands	Grocery	\$97.1
7	Carrefour	France	Mass/Hyper	\$89.7
8	Seven & I	Japan	Convenience	\$84.9
9	The Home Depot	USA	DIY	\$151.6
10	IKEA	Netherlands	Furniture	\$45.6

NEW BUSINESS MODEL

SHARED SAVINGS PROGRAM





This new business model is introduced in addition to our existing model of selling smart barcodes.



DISA may from time to time introduce new business models in response to customer feedback and the evolving competitive landscape to ensure continued market relevance.

OUR SOLUTION

DISA SHARED SAVINGS PROGRAM

	Implementation	Upfront Cost	Backend Cost	Result
 RFID vendor	Adds DiSa Barcode to RFID label for <u>FREE</u>	None	None	No change in the processes
 Supplier	No Change	RFID cost	None	Higher sales Reduced returns
 Retailer	No Change	None	Percentage of stopped returns to DiSa	Higher sales Reduced returns
 DISA DISA DIGITAL SAFETY PTE LTD	Provides DiSa Barcode at no cost to RFID vendor	IT and infrastructure costs	Auditing and accounting	Increased serialization coverage

RFID MANDATE BY THE TOP 10 RETAILER

Market

Expanding RFID mandate to include more product categories⁽¹⁾

Mandate Product Categories

Apparel, automotive, sporting goods, lawn and garden, toys, home goods, electronics and hardware ⁽¹⁾

RFID Players

Partner with B&G, whose major clients include Walmart, Gap, Target, Macy's, Kohl's and Home Depot.

⁽¹⁾ <https://www.impinj.com/library/blog/walmart-makes-big-rfid-commitment-with-sweeping-tag-mandate>

Cautionary Statement

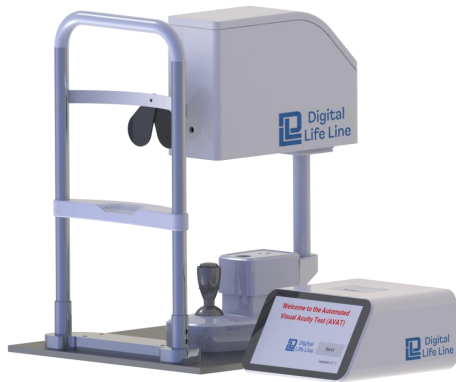
We are cautiously optimistic that the new Single Scan Serialization business model may offer potential growth opportunities while mitigating retailer losses from fraudulent returns.

Shareholders are encouraged to carefully evaluate all relevant factors before making any investment decisions.

Healthcare & Medical Opportunities

Optometry and Ophthalmology Sector

Uses preventive visual devices with smart adaptive testing models and AI-powered diagnostics



Automated Visual Acuity Test (AVAT)



Mobile Imaging Device for Anterior Segment (MIDAS)





Our Clinical Innovation Partner

Associate Professor Victor Koh MBBS (S'pore),
MMed (Ophth), MRCSEd, MSc, FAMS

Head of Department of Ophthalmology, National University
Hospital & NUS Yong Loo Lin School of Medicine



Automated Visual
Acuity Test (AVAT)

1



Mobile Imaging
Device for
Anterior Segment
(MIDAS)

2

AVAT AND MIDAS TIMELINE

Year 2023

June

- Signed licensing agreement with NUH and NUS to commercialize AVAT/SUPRA

August

- Completed the notification to Health Science Authority of Singapore as Class A Medical Device for AVAT

December

- Received ISO 13485:2016 and EN ISO 13485:2016 certification for the manufacturing of AVAT

Year 2024

April

- Trial deployment at major public hospitals in Singapore
- Signed MOU with Alina Vision for trial deployment of AVAT and AI-Based Retina Imaging Solution in Vietnam

June

- Signed MOU with Medical Saigon Group for trial deployment of AVAT and AI-Based Retina Imaging Solution in Vietnam.

Year 2025

January

- Signed licensing agreement with NUH & NUS to commercialise MIDAS
- Received CE mark under Article 27, 29 2017/745 Medical Device Regulation for AVAT
- First commercial clinical deployment of AVAT at hospital ophthalmology clinic

February to March

- Expect another clinical deployment at a hospital ophthalmology clinic in Hong Kong

July to September

- Expect completion of MIDAS development

Demand for **Specialist Eyecare**

TOTAL ADDRESSABLE MARKET

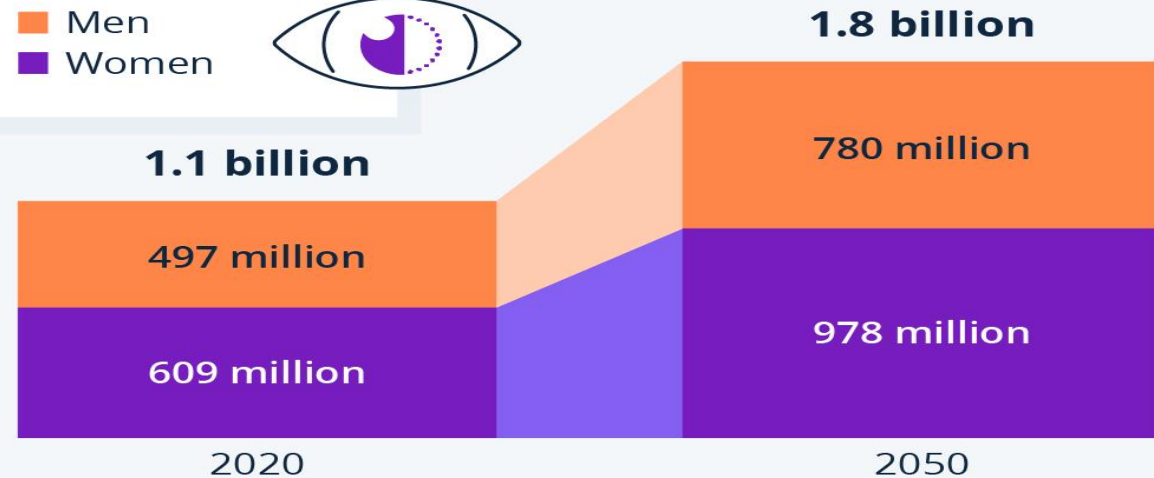
Demand for Specialist Eyecare is Growing

**AGE-RELATED
VISION CHANGES
-RAPIDLY AGEING
POPULATION**

Vision Loss Predicted to Surge 55% by 2050

Expected number of people with vision loss globally in 2020 and 2050*

Men
Women



* Includes people suffering from blindness, moderate to severe, mild and near vision loss

Source: IAPB Vision Atlas



statista

Demand for Specialist Eyecare is Growing

Underdiagnosis Eye Diseases in the Community

40.3%¹

attended eye screening
only after turning 40



among those with visually
significant cataract,

68.8%²

unaware of cataract status

¹ <https://pmc.ncbi.nlm.nih.gov/articles/PMC10335639/>

² <https://medicine.nus.edu.sg/medoph/invision/files/research-and-innovation/AI-CATARACT.pdf>

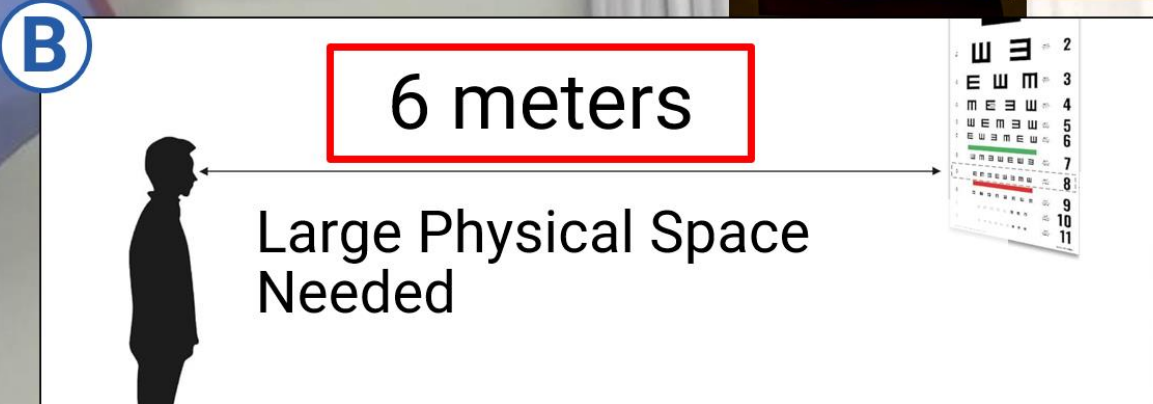
Current VA Testing is Inefficient



C Chart accuracy subject to varying lighting effects



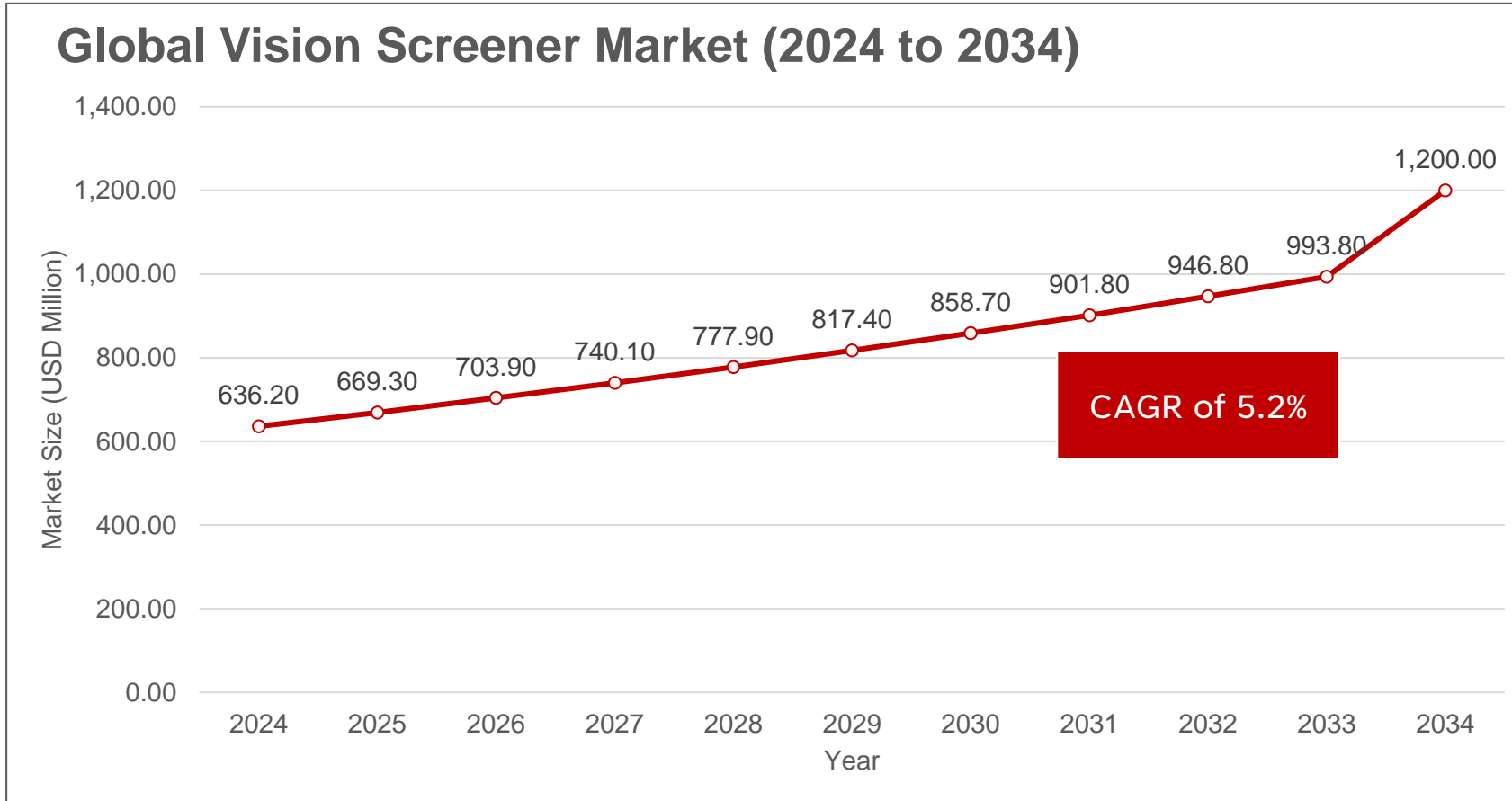
A Trained Manpower Required





Long Waiting Times for VA - Clinic Bottleneck

KEY TAKEAWAYS



Leveraging on this growing trend, Digital Life Line is investing in R&D to advance **AI-powered** diagnostic and vision screeners

Source: <https://www.futuremarketinsights.com/reports/vision-screeners-market>



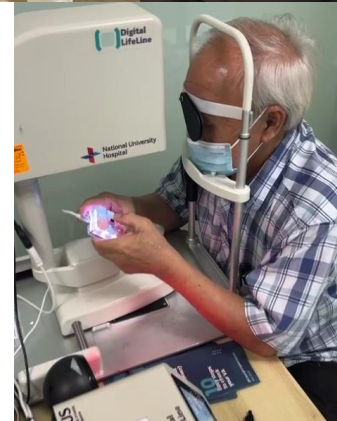
Video demo of AVAT at:

https://digitallifeline-my.sharepoint.com/:v/g/person/weijie_poh_digital-lifeline_com/EaNXi6fIBStMINooyFFTnH4BPNeYEkbj8VB_XoKMCfwdSQ?e=lejYh

AVAT Piloted in Major Singapore Public Eye Hospitals



Contract
awarded in
January 2025



AVAT BUSINESS MODEL



LEASING



FEE PER TEST



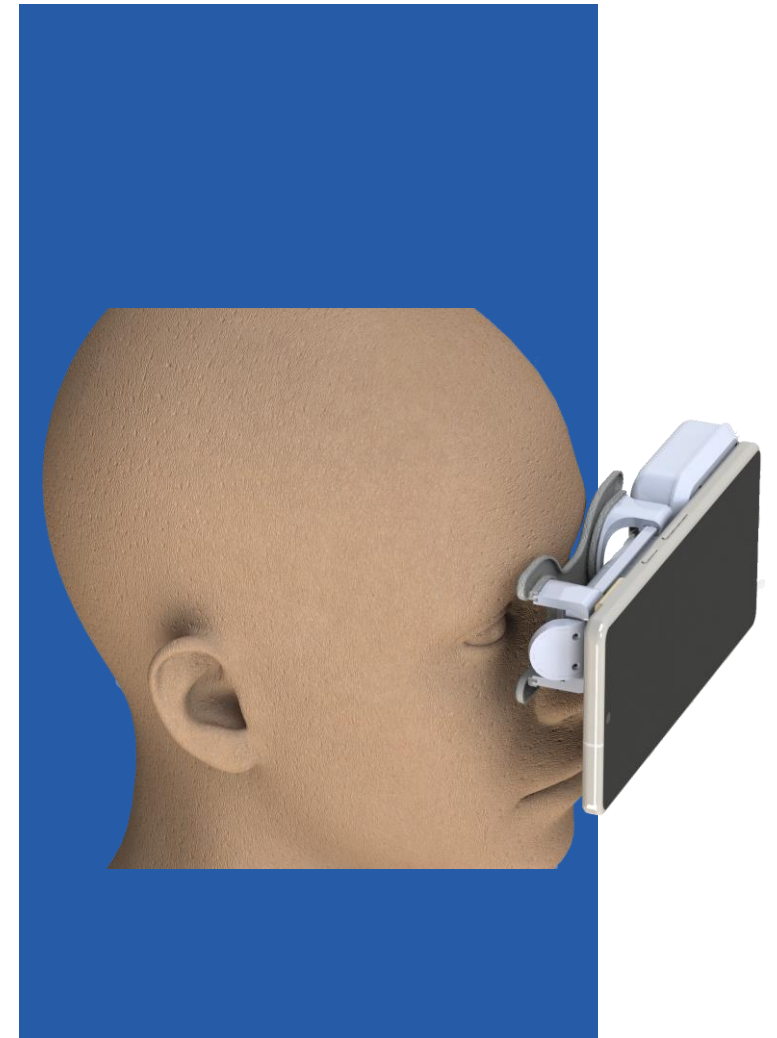
OUTRIGHT SALES



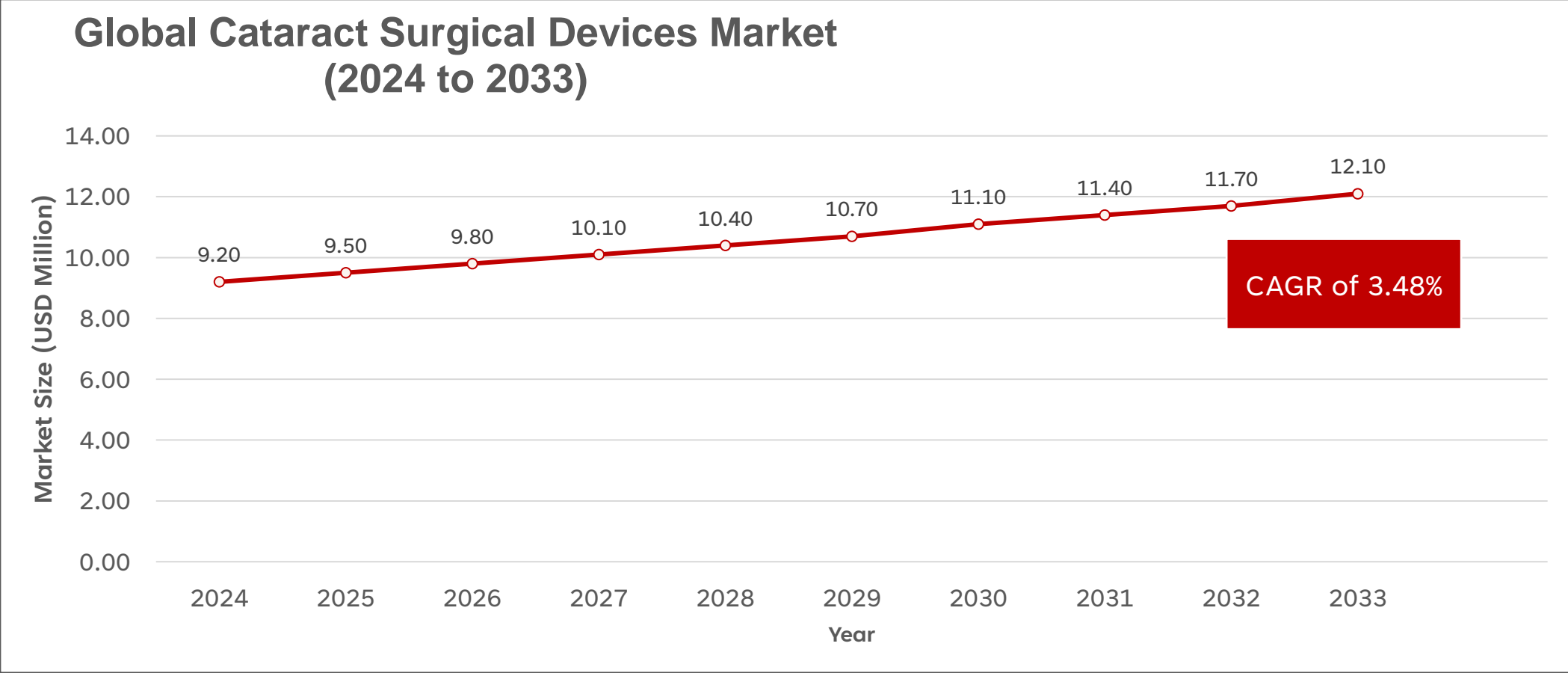
MIDAS

(Mobile Imaging Device for Anterior Segment)

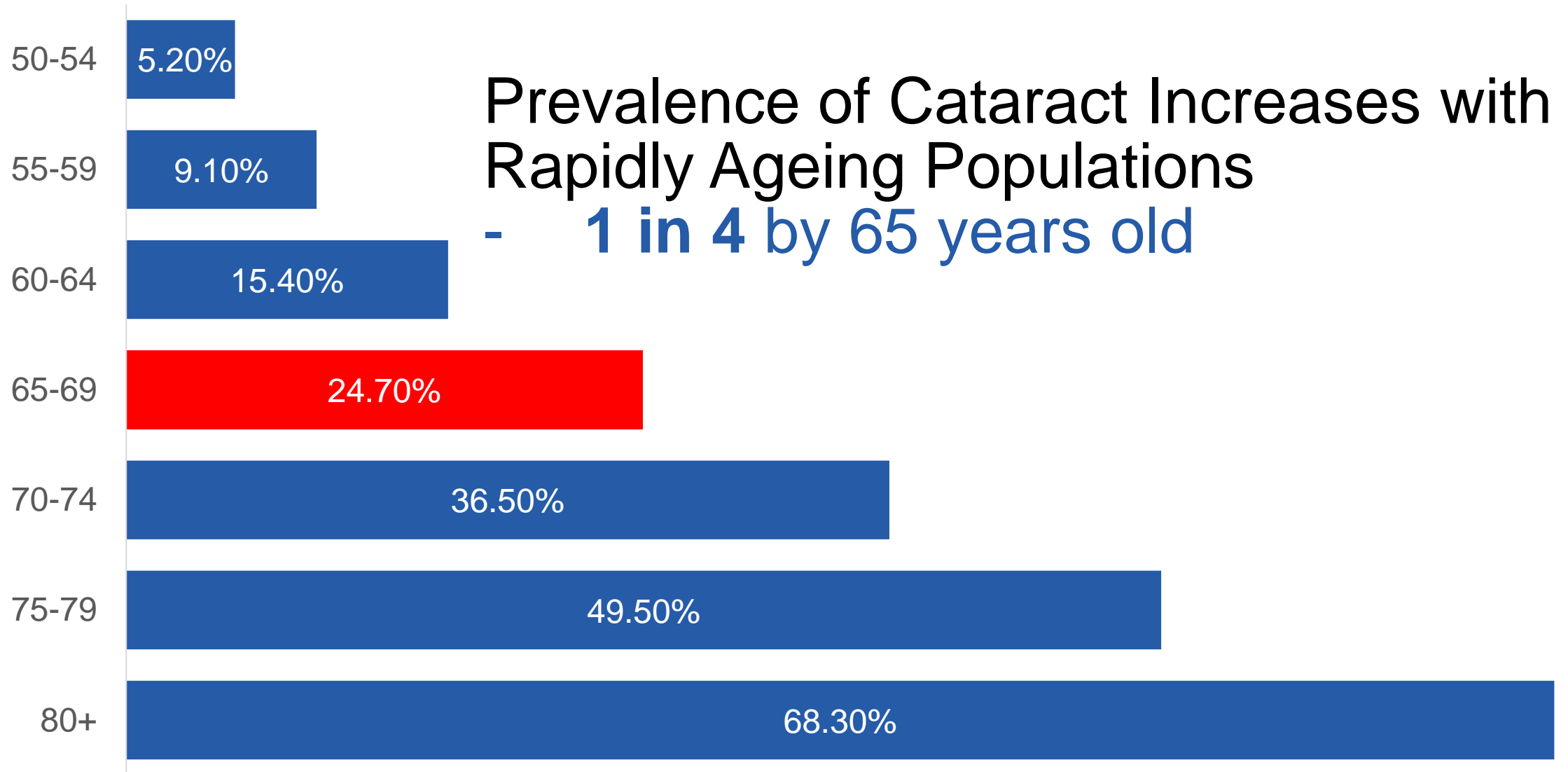
Portable Cataract Screening Device via AI-Powered Analysis of Anterior Eye Segment



KEY TAKEAWAYS



Source: <https://www.imarcgroup.com/cataract-surgical-devices-market>

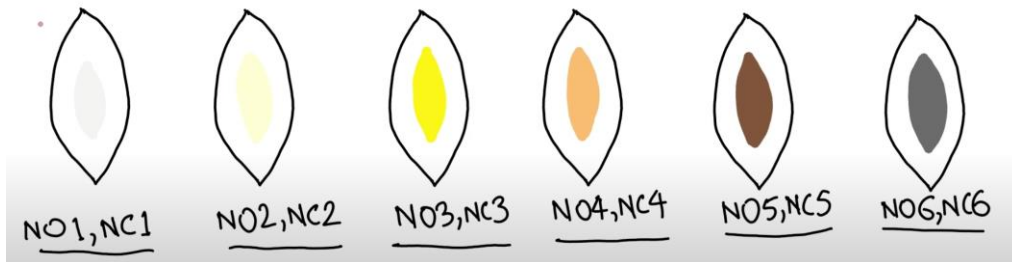


Source: <https://www.nei.nih.gov/learn-about-eye-health/eye-health-data-and-statistics/cataract-data-and-statistics/cataract-tables>

Cataract Grading is **Subjective** and **requires Complex Equipment**



LOCS III Grading Scale



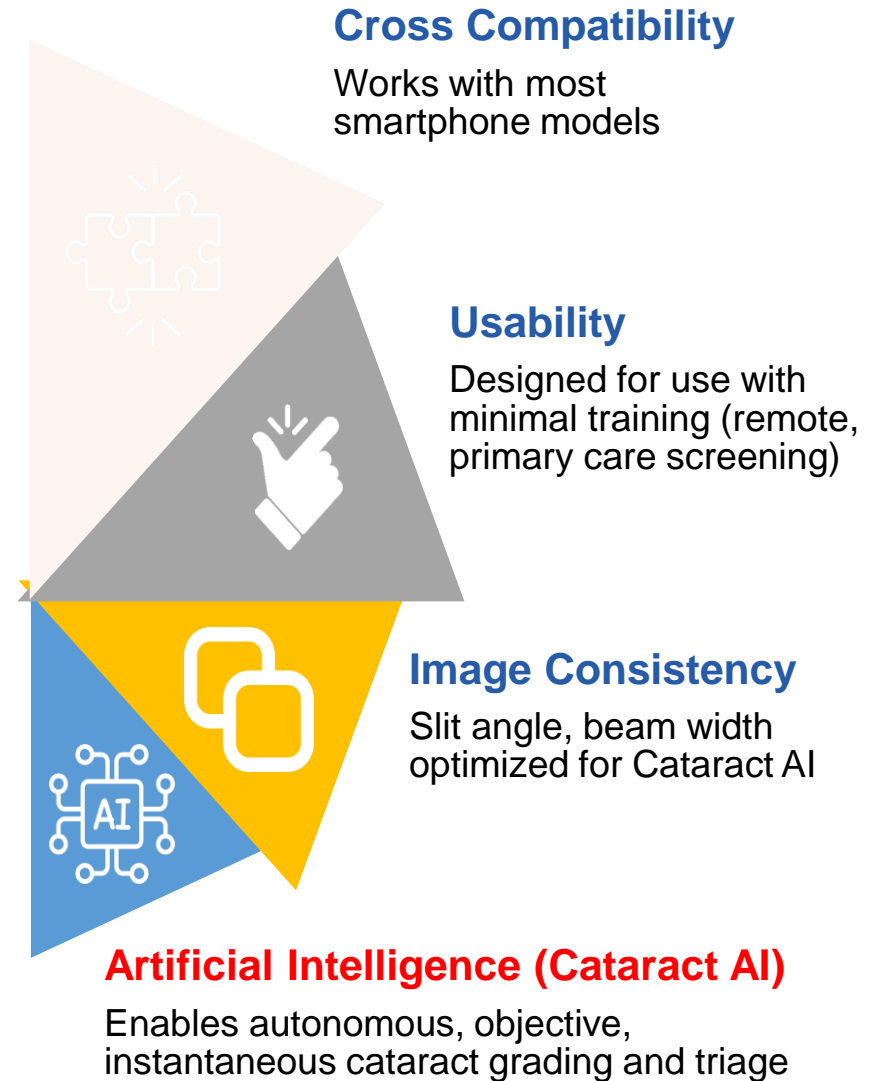
MIDAS

Product Features



[Video demo of MIDAS at:](https://digitallifeline-my.sharepoint.com/:v:/g/personal/weijie_poh_digital-lifeline_com/EZv34tgrKNtLtysm7TaHtTIBYXxFr4v7cdSRPZD5BT-WAg?e=ld96xG)

https://digitallifeline-my.sharepoint.com/:v:/g/personal/weijie_poh_digital-lifeline_com/EZv34tgrKNtLtysm7TaHtTIBYXxFr4v7cdSRPZD5BT-WAg?e=ld96xG



Lightweight Design for **Digital Recording, Ease-of-Use and Wide Compatibility**

Weight	<200g
Take video, photo for remote assessment	✓
Smartphone compatibility	Multiple
Fixed mode for ease of use, minimal training	✓
Built-in eyepiece to ensure proper positioning	✓



MIDAS

MIDAS BUSINESS MODEL

Revenue
Stream



Charge fees based on AI analysis

DLL Management

Deep Operational, Clinical, Technical and Startup Background



Chng Weng Wah, Eddie
MD, CEO

Serial entrepreneur, spanning electronic manufacturing, digital security and multinational retail.



Poh Weijie, PhD
Chief Scientist

Johns Hopkins PhD. Repeat entrepreneur in biotech, digital healthcare and medtech.



Han Yang Kwang
Executive Director

Bachelor of Electrical and Electronics Engineering from NUS with more than 20 years in the manufacturing industry for semiconductor & electronic products.



Muhammad Azri Bin Razali
Chief Engineer

More than a decade experience in image processing, rapid prototyping and translational research in ophthalmology.



Geetha Ganesh, PhD. MBA
Regulatory Lead

Extensively involved for the last 20 years in global regulatory affairs for medical devices, drugs, pharmaceutical products.



Prof Soo Khee Chee
Chairman

Benjamin Sheares Professor in Academic Medicine (Duke-NUS), National Cancer Centre Singapore (NCCS). Top surgical oncologist and esteemed academic.



Dr. Chua Lee Kiang, Melvin
Director

Clinician-Scientist, National Cancer Centre Singapore, Principal Investigator of the Tan Chin Tuan Laboratory of Optical Imaging, Photodynamic and Proton Beam Therapy – Precision Radiation Oncology Programme. Head of Department and Senior Consultant for Head and Neck and Thoracic Cancers, Division of Radiation Oncology and Director of the Data and computational Science Core.

PROPOSED ACQUISITION

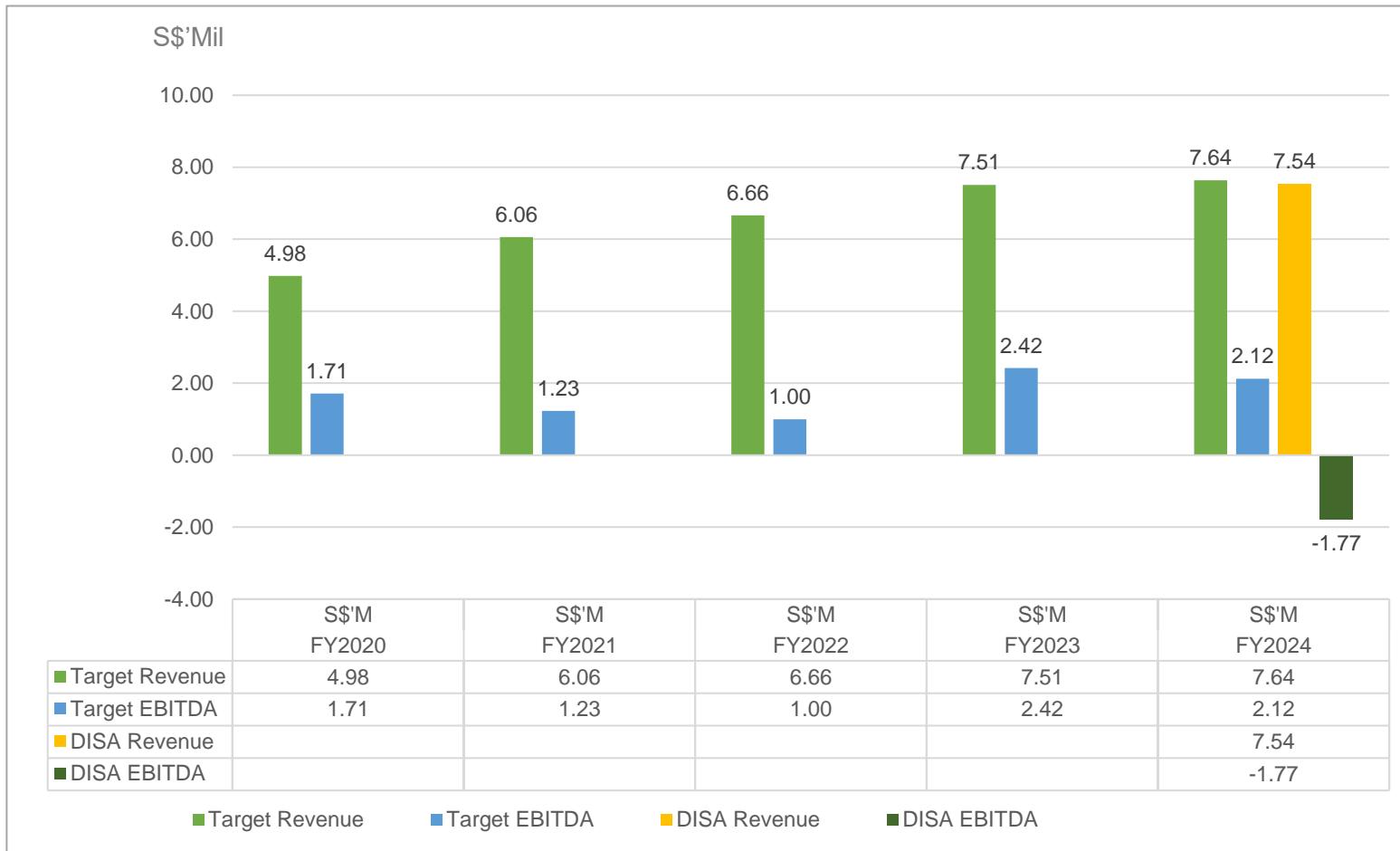
- Healthcare and Medical Centre for Rheumatism and Arthritis treatment

New Business Opportunities and Market

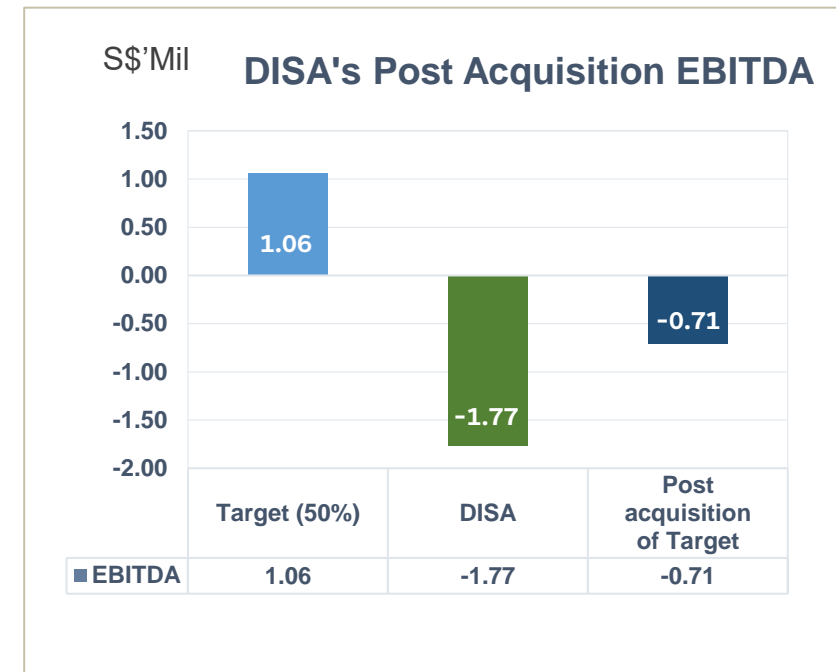
Target's Business

- A specialist medical center for rheumatoid arthritis.
- Focusing on
 - **heartland audience**
 - aged care
 - chronic disorders
 - pain management
 - mobility issues
 - regular medical therapy

TARGET'S FINANCIAL PERFORMANCE FY2020 – FY2024

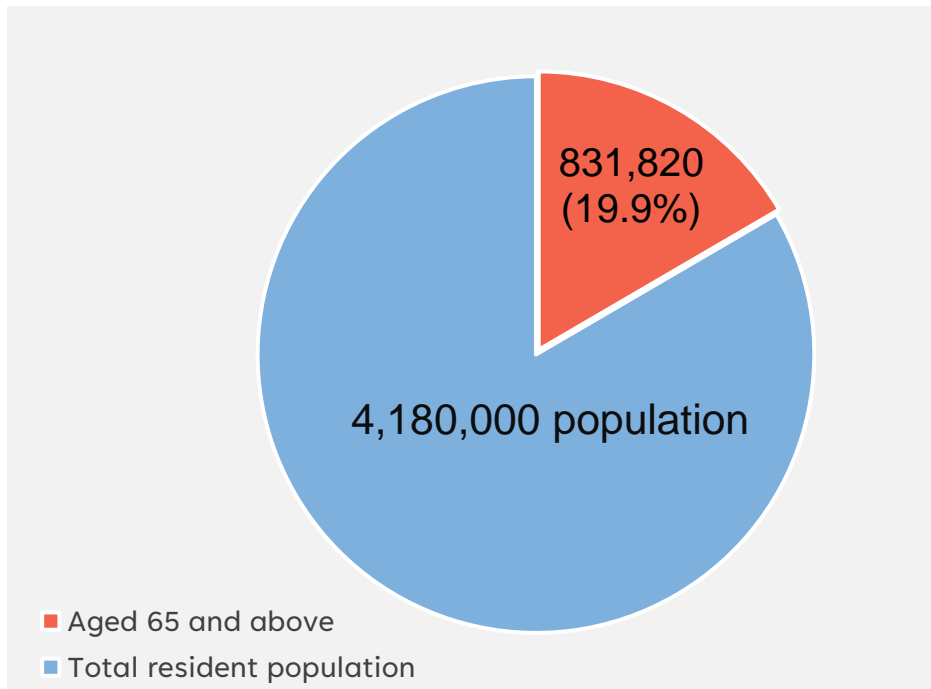


PRO-FORMA



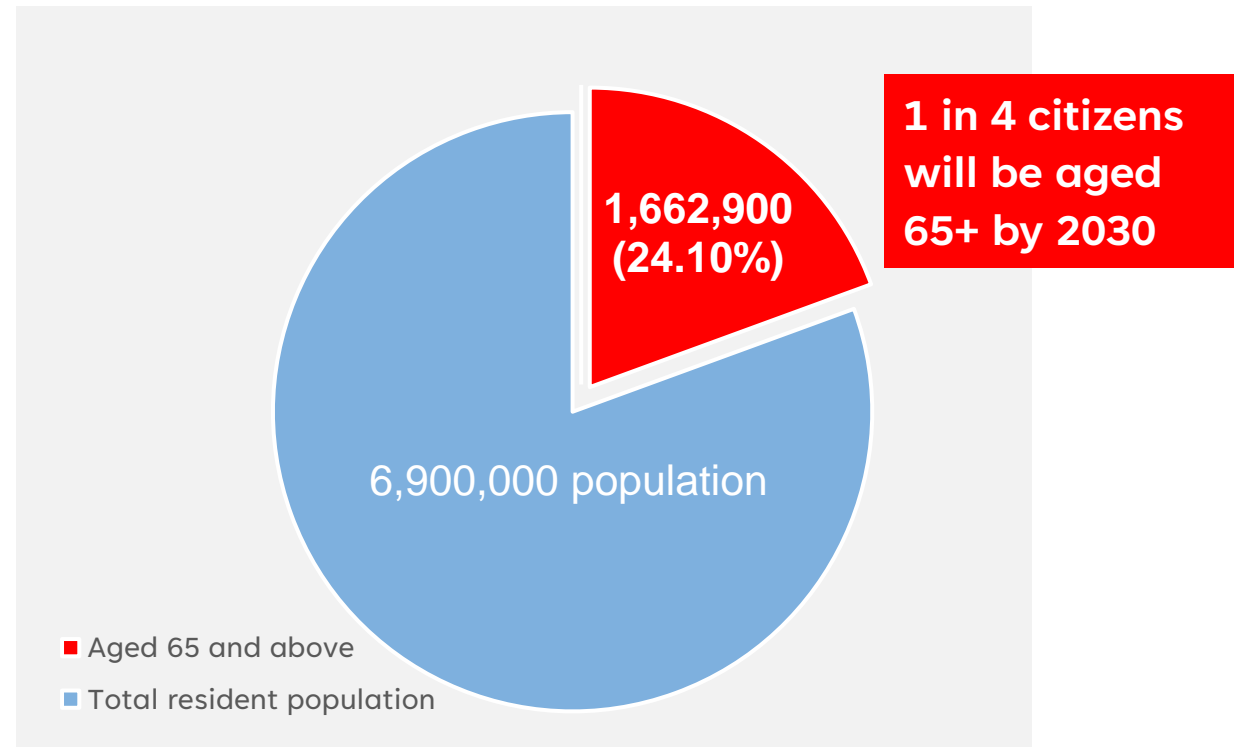
New Business Opportunities and Market

AGEING POPULATION



June 2024, approx. 19.9% of Singapore 4.18 mil resident population is aged 65 and above. Total resident population comprises citizens/PRs

Source: 22 September 2024 National Population and Talent Division, PMO office



MARKET OPPORTUNITY – ARTHRITIS AND RHEUMATISM

Aged population driving demand

Sustainable Demand

- By 2030, 1 in 4 Singaporeans will be aged 65+⁽¹⁾
- 600,000 (11% of the population) affected by autoimmune diseases (or rheumatic diseases), including lupus, rheumatoid arthritis, and osteoarthritis⁽²⁾
- Majority prefer private care
 - ✓ faster service
 - ✓ customised diagnosis
 - ✓ advanced treatments

Current medical resources can't meet growing demand

Unmet needs

- Limited infrastructure – Lack of facilities equipped with advanced diagnostic technology and non-invasive therapy
- Limited number of trained specialists – 1.4 rheumatologist per 100,000 population⁽³⁾ in Singapore, lower than other developed nations

⁽¹⁾ <https://www.moh.gov.sg/others/resources-and-statistics/action-plan-for-successful-ageing>

⁽²⁾ <https://www.healthxchange.sg/bones-joints/arthrit/rheumatological-diseases-in-singapore#:~:text=More%20than%20600%2C000%20people%20in%20Singapore%2C%20or%20about,conditions%20that%20includes%20lupus%2C%20rheumatoid%20arthritis%2C%20and%20osteoarthritis.>

⁽³⁾ <https://www.healthprofessionals.gov.sg/docs/librariesprovider2/publications-newsroom/smc-annual-reports/smc-annual-report-2021.pdf>

LEVERAGE ON **AI TECHNOLOGY** TO DEVELOP **SMART OSTEOARTHRITIS DIAGNOSIS**

Proven Concept

Global Research Proves Viable Concept:

- South Korea approves AI software for osteoarthritis assessment with multiple papers published⁽¹⁾ ⁽²⁾

DiSa Expertise:

- Developed an AI model for cataract detection

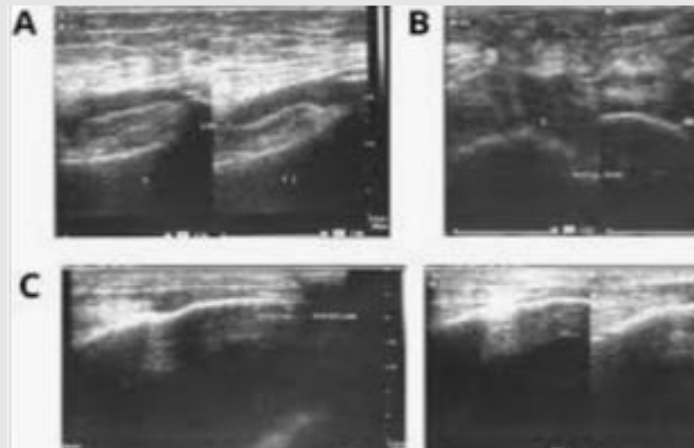
Proprietary Model for Osteoarthritis Assessment (Completing in June 2025)

DLL Inhouse R&D:

- Leverage on cataract software experience; develop model

Target's Database:

- Target has rich database of ultrasonic scans to teach AI model



Deploy First Clinic

- ✓ **Current challenge:** Lack of experienced rheumatology specialist
- ✓ **Deployment of AI-model** to launch first clinic
- ✓ **Enables faster scaling**

⁽¹⁾ <https://www.bing.com/search?PC=G245&FORM=G245DF&q=South+Korea+approves+first+AI+software+to+assess+knee+arthritis%E2%80%9D+Bioworld+Apr+2024>

⁽²⁾ <https://www.techtarget.com/healthtechnanalytics/news/366590190/Artificial-Intelligence-Flags-Knee-Osteoarthritis-Using-Medical-Images>

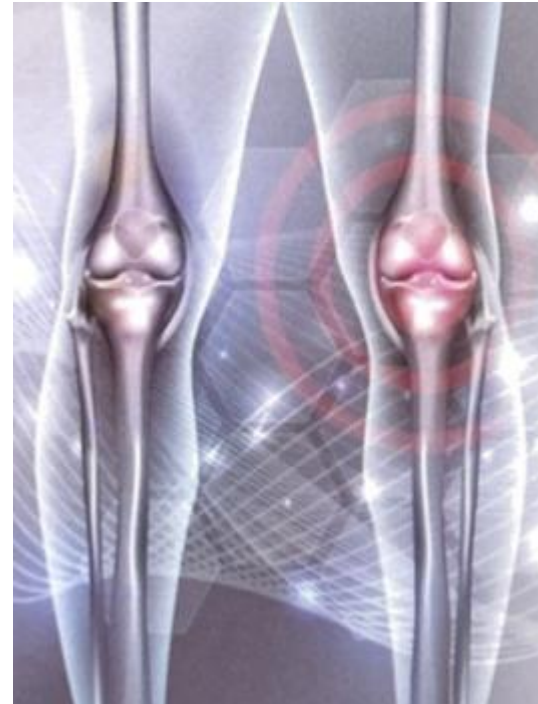
WHAT CAUSES PAIN DURING OSTEOARTHRITIS?

A healthy knee contains synovial fluid, a viscous liquid that is responsible for lubricating the joint and absorbing shocks. Synovial fluid also has anti-inflammatory and analgesic effects.

Hyaluronic acid is a major component of normal synovial fluid and contributes to the fluid's viscoelastic properties. Changes in the synovial fluid and degeneration of joint structures may lead to OA knee pain.

Knee osteoarthritis pain worsens with weight-bearing activities, especially climbing stairs or bending, and may persist even at rest for some.

What goes on inside an osteoarthritic knee



Cartilage wear

If cartilage is completely worn away, bones may scrape painfully against each other

Low concentration of joint fluid (hyaluronic acid)

in synovial fluid results in loss of viscoelasticity, lubrication and protection to the joint

Bone spurs

May form within knee joint



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