

**NUS GRIP**

GRADUATE RESEARCH INNOVATION PROGRAMME



# **NUS GRIP** **LIFT-OFF DAY**

NUS Deep Tech  
Start-Ups Showcase

**FACTSHEETS**

A Flagship Innovation Programme by:



**NUS**  
National University  
of Singapore

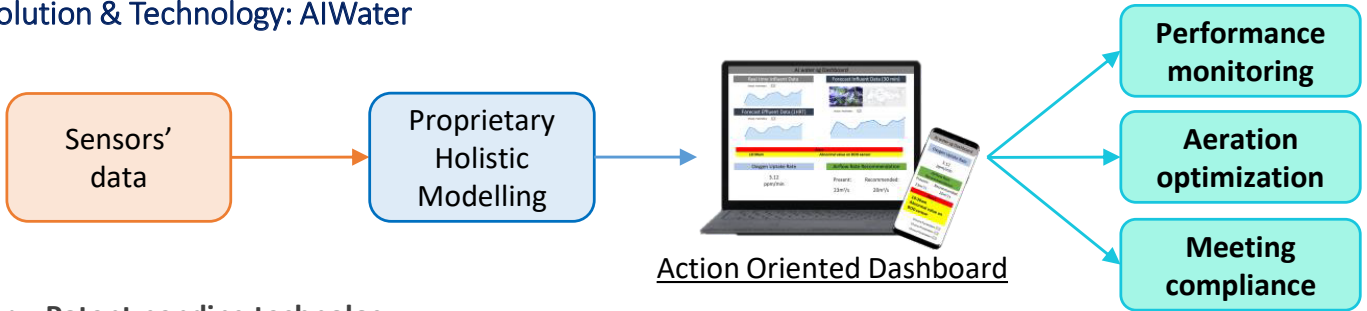
Industry Liaison  
Office

## Problem statement:



- Existing wastewater plants are **highly inefficient** & energy cost of inefficient controls could amount to **20% of plant's total energy cost**.
- Not meeting discharge compliance** due to fluctuating influent characteristics & increasingly more stringent discharge limits **results in massive fines**.

## Solution & Technology: AIWater



- Patent pending technology
- SCADA/PLC compatible.
- Monitor and predict treatment performance
- Holistic approach for aeration optimization

- AIWater provides real-time advisory role on operation to ensure effluent meet target quality for discharge/reuse

## Competitive analysis



## Business Opportunities

### Market Size

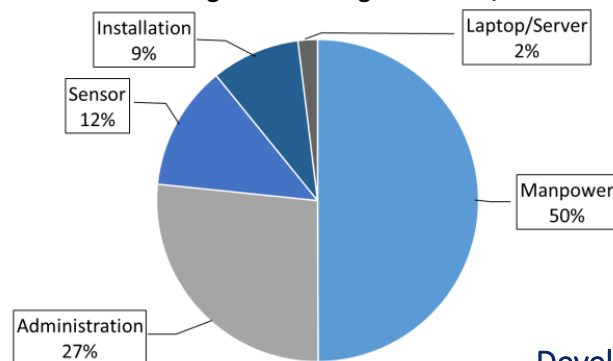
Total Smart water management market: **USD 13.5 billion**  
 China market: **USD 840 million**  
 Singapore Market: **USD 5 million**

### Revenue model

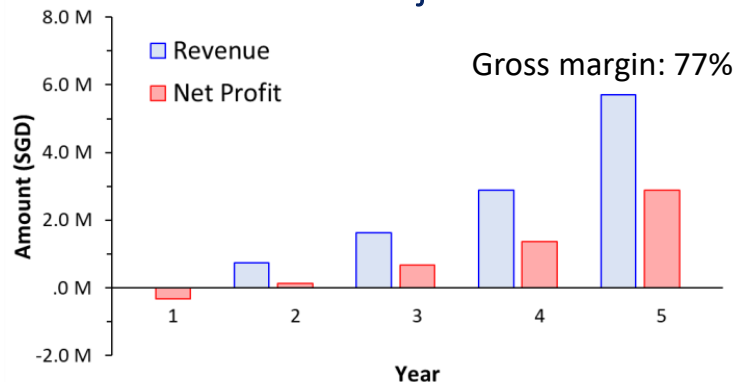
- Product Sales**  
AIWater solution deployment with or without hardware.
- Subscription Fees**  
Software licensing fee

## Funding

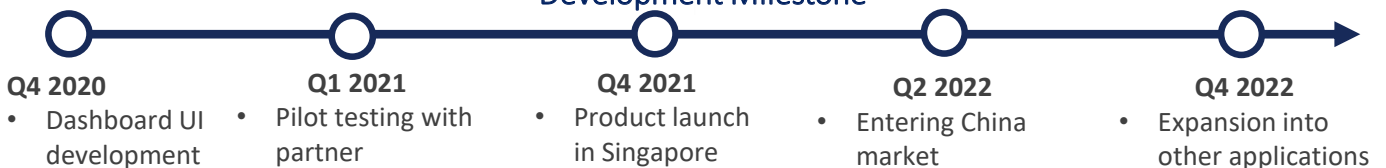
Seeking for funding of \$ 600,000



## Financial Projection



## Development Milestone



## TEAM



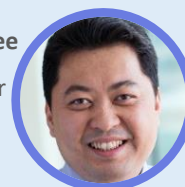
**Pooi Ching Kwek**  
Co-Founder  
CEO



**Aw Boon Jun**  
Co-Founder  
CDO



**Brandon Lee**  
Co-Founder  
CTO



**Professor Ng How Yong**  
Co-Founder  
Advisor



## OUR VISION & MISSION

We envision a world where everyone can have precise health information at their fingertips. We will steadily expand the test panel validated on our simple yet reliable biomarker profiling platform for on demand results.

### The First Problem We Tackle

Countries are awaiting the arrival of COVID-19 vaccines to restart economies fully and safely.

**There is a need to test individuals for protective immunity**



Either from past infection



Or from successful vaccination

This is done by quantifying if individuals have sufficient neutralizing antibody to protect themselves, and hopefully others, from COVID-19 infection.

### Initial Market Size

**TAM: S\$22.3B**

Developed countries and assuming 30% population (essential workers) to be vaccinated.

**SAM: S\$150M**

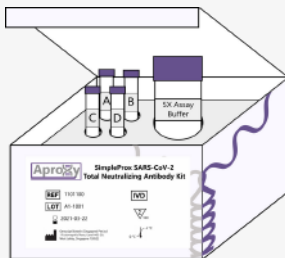
Global markets (China, US, UK) via distributors' network and based on current supply chain capacity.

**Launch Market: S\$27.0M**

Pilot launch in Singapore

### Our Platform Solution

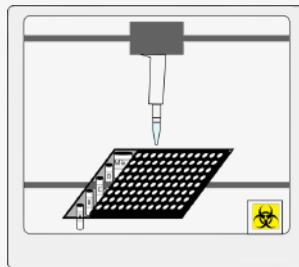
#### SimpleProx™ Test



(PCT/SG2020/050305)

Quantifies biomarker levels (i.e. COVID-19 neutralizing antibody) in 15 min.

#### Aprox Automata



Automated "mix, add and incubate" operation to eliminate manual pipetting.

### Our Competitive Edge

**SimpleProx™** can readily be designed as a fit-for-purpose test, e.g. for neutralizing antibody. Its simple and rapid workflow enables scalable testing for use at decentralized sites.

	Antibody ELISA	Lateral Flow Rapid Test	Virus Neutralizing Assay	SimpleProx™
<b>Antibody Type</b>	Binding	Binding	Protective ✓	Protective ✓
<b>Specificity</b>	> 99% ✓	> 95%	100% ✓	> 99% ✓
<b>Lab Req.</b>	BSL-2	CLIA-waived ✓	BSL-3	CLIA-waived ✓
<b>Speed</b>	3 h	15 min ✓	> 3 days	15 min ✓
<b>Test Vol.</b>	● ●	● ● ●	●	● ● ●

### Development Milestones and Growth Strategy

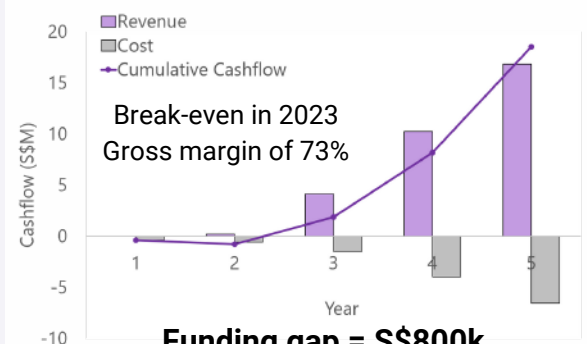
COVID-19 nAb Test	2021		2022		2023		2024		2025	
	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
Clinical Validation		EUA	POCT	Prdt. Reg.						
Device Dev.	Reader prototype									
Scale Up & Sales*		Assay Kit	POCT							
Blood IgE Allergy Test			Assay dev.	Design Freeze	Clinical validation				Prdt. Reg.	

\* Looking for distributors to enter global markets (open to various arrangements).

#### Business Model:



### Financials



- Accelerate device prototyping and manufacturing
- Product registration (regulation)
- Expand team

### Founding Team and Advisors



**Dr. Ang Yan Shan**  
Co-Founder, CEO/CTO  
cheays@nus.edu.sg  
Inventor of tech. with 8 years experience in biosensing design.

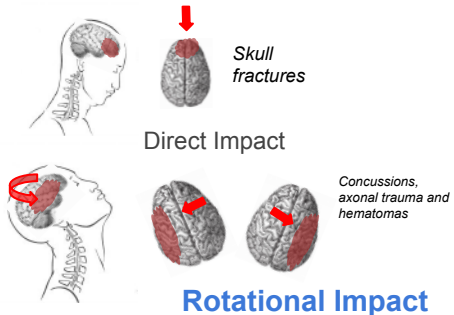
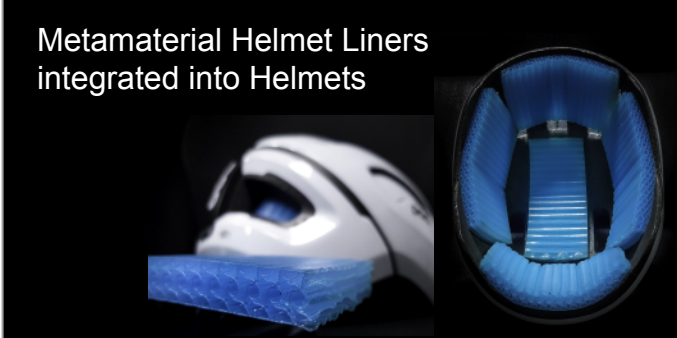

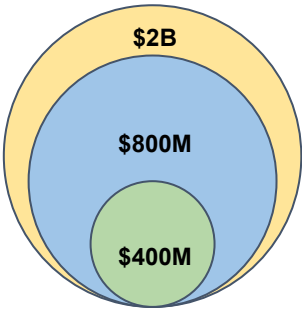

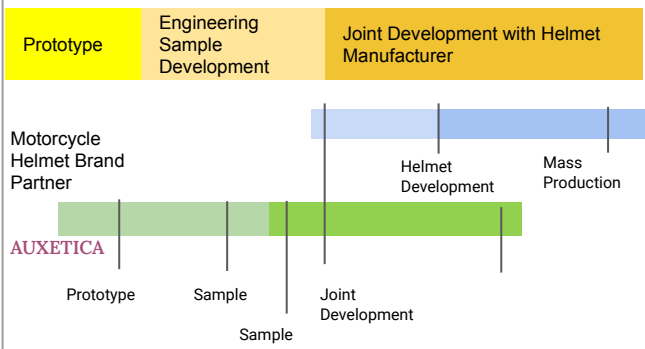
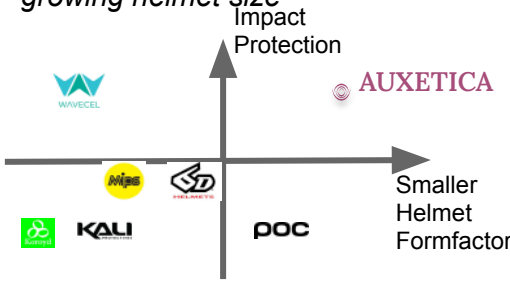
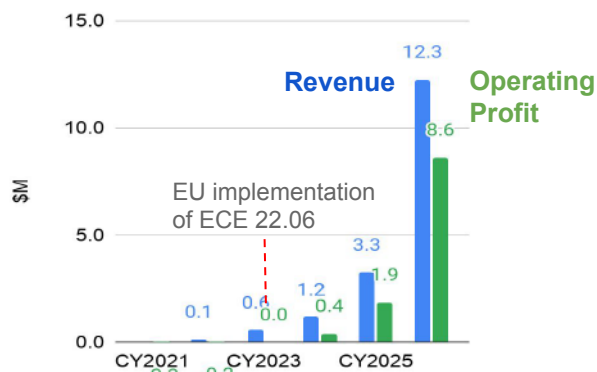


**Prof. Lanry Yung Lin-Yue**  
Co-Founder, Scientific Advisor  
cheily@nus.edu.sg  
Invented and commercialized several biomedical and environmental sensing innovations.

**Dr. Ou Chung-Pei**  
Venture Manager

**Dr. Pauline Ng**  
Commercial Champion

**Ms. Yong Yoke Ping**  
Technology Manager

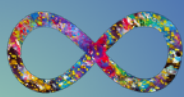
PROBLEM	SOLUTION												
<p>Motorcycle Helmets do not protect against Traumatic Brain Injuries from Rotational Impacts</p>  <p>Skull fractures Direct Impact Concussions, axonal trauma and hematomas Rotational Impact</p>	<p>Metamaterial Helmet Liners integrated into Helmets</p> 												
BUSINESS MODEL	GROWTH STRATEGY												
<p><b>AUXETICA</b></p> <p>B2B sales helmet liners</p>  <ul style="list-style-type: none"> <li>50+ motorcycle helmet brands worldwide</li> <li>80+ bicycle helmet brands</li> </ul>	<ul style="list-style-type: none"> <li>Leverage EU requirement to meet more stringent ECE 22.06 standards by June 2023</li> <li>Joint Development with Motorcycle Helmet Brands</li> </ul>												
MARKET POTENTIAL	MILESTONES												
<ul style="list-style-type: none"> <li>Motorcycle Helmets Liners market potential driven by new helmet safety standards</li> </ul> <p><b>TAM</b> \$2B All Performance Helmet Liners</p> <p><b>SAM</b> \$800M Motorcycle Helmet Liners</p> <p><b>SOM</b> \$400M <b>AUXETICA</b> Helmet Liners</p>  	<p>2021 2022 2023</p> <p>Prototype Engineering Sample Development Joint Development with Helmet Manufacturer</p> <p>Motorcycle Helmet Brand Partner</p> <p><b>AUXETICA</b></p> <p>Prototype Sample Joint Development</p> <p>Sample</p> <p>Helmet Development Mass Production</p> 												
COMPETITIVE ADVANTAGE	FINANCIAL MODEL												
<ul style="list-style-type: none"> <li>Rotational and Direct Impact Protection without growing helmet size</li> </ul> <p>Impact Protection</p> <p><b>AUXETICA</b></p> <p>Smaller Helmet Formfactor</p> 	<p>Revenue Operating Profit</p> <p>EU implementation of ECE 22.06</p> <p>\$M</p> <p>CY2021 CY2023 CY2025</p> <table border="1"> <tr> <th>Year</th> <th>Revenue (\$M)</th> <th>Operating Profit (\$M)</th> </tr> <tr> <td>CY2021</td> <td>0.1</td> <td>-0.2</td> </tr> <tr> <td>CY2023</td> <td>0.4</td> <td>0.0</td> </tr> <tr> <td>CY2025</td> <td>12.3</td> <td>8.6</td> </tr> </table> 	Year	Revenue (\$M)	Operating Profit (\$M)	CY2021	0.1	-0.2	CY2023	0.4	0.0	CY2025	12.3	8.6
Year	Revenue (\$M)	Operating Profit (\$M)											
CY2021	0.1	-0.2											
CY2023	0.4	0.0											
CY2025	12.3	8.6											



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Vincent Leung  
Commercial Founder  
+65 97541945, [vincent.leung@u.nus.edu](mailto:vincent.leung@u.nus.edu)



# AXELR8

# AI-Powered Platform for Rapid Electronics Product Development

The pace of electronics product innovation is faster than ever but hindered by a process from design to product creation that is:

**Manual & Error-Prone**  
Defining part attributes

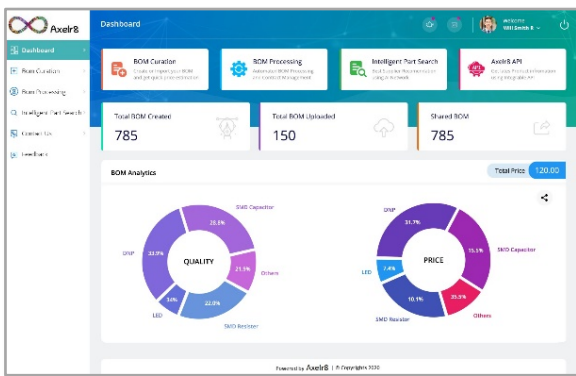
**Incomplete Bill of Material**  
Too many design iterations

**Pricing Not Transparent**  
Overpay by 3x

**Time Consuming**  
Long lead time for approval

## Welcome To AXELR8

An AI-powered platform for **Design Schematics** to **Bill-of-Materials** creation. Seamlessly integrated into CAD software, Axelr8 helps engineers save **time** finding the ideal **parts** from preferred **suppliers** at the right **price**.



Axelr8 Dashboard

### BENEFITS

2x Faster Product Cycle    50% Cost Reduction    Source Parts From BOM    Manage BOM    Team Collaboration

### OUR TEAM



**Ila Mittal**

CEO

- 20+ years with Fortune 500 companies
- C-level operational profitability planning & execution



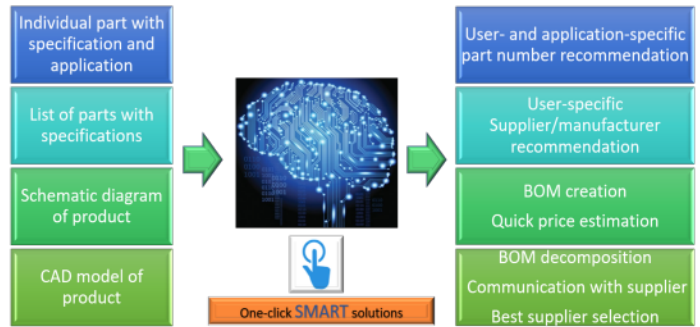
**Satish Panda**

CTO

- AI Researcher in NUS
- 7+ years of R&D & sourcing
- PhD in computational methods and optimization



### OUR TECHNOLOGY



#### Patent pending (NUS ILO Reference No: 2020-358)

- CAD model decomposition and attribute extraction
- BOM creation and intelligent part recommendation AI neural network
- AI neural network for BOM curation to supplier selection

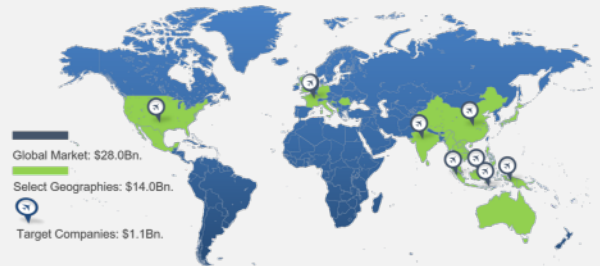
### FREEMIUM SUBSCRIPTION MODEL

**BASIC** Free    **TEAM** \$35/Month    **ENTERPRISE** TBD

### OUR COMPETITORS

	DATASHEET ARCHIVE Supplyframe	Octopart TrustedParts	AXELR8
Part Search	✓	✓	✓
Supplier Listing	✓	✓	✓
BOM Management		✓	✓
CAD Integration			✓
AI Recommendation			✓

### TARGET MARKET



### FINANCIAL PROJECTION





### Vision & Mission

We aim to revolutionize kitchen experience by automating the cooking process, leveraging the precision of technology and bring cooking to the age of IoT.

Egg station is essential for hotel cooking operations especially during breakfast buffets.

It costs hotel SGD 15,000 annually to station a chef for about four hours daily to take orders and deliver egg dishes.

Target customers are those hotels with challenges of labour shortage and high labour cost.



Eggol is a fully automated egg cooking machine that can produce multiple egg recipes like fried egg, scrambled egg and omelette.

Just like the experience of using a multi-recipe coffee machine, Eggol will deliver your favourite egg dishes with the press of a button.

### Market size



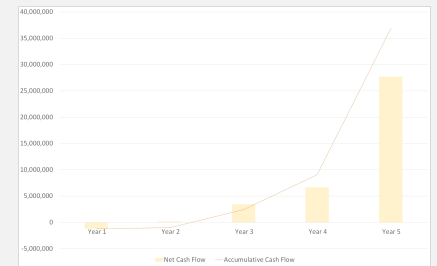
### Deep-Tech:

- Fully automation
- Multiple recipes
- IoT features

### Revenue Model:

- Established Hotels
- Service Apartments
- Hostels

Network effect: leveraging hotel chains to achieve geographically expansion



### High Price

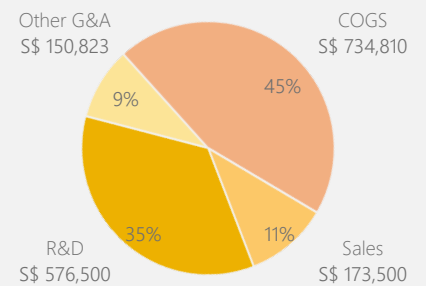


Compare with chef, the current solution at egg stations, Eggol realizes an innovative way to grow, allowing hotels:

- Reduce operation costs
- Increase operation efficiency
- Improve the services quality

### Funds Usage (18 months)

S\$ 1.6millions



### MVP

Fried egg  
Remote control

### LOI



Scrambled egg and omelette  
Multi-language UI control

Prototype Market: SG, ML and TH

### Product Market: APAC

Personalized recipe  
Improved user experience

### Upgrade Market: US

Steam and bake egg  
System self-check mechanism

### New Product Market: EU

Explore vending machine concept



Shao Tianyu (CEO)



Wu Jiaqi (CTO)



Shao Tianji (CMO)



George Han (VM)



Barnabas Chan (CC)





# FACI-FI

FACIFI is an **AI-powered synthetic media solution** that will make post-production animation work **simpler, faster** and **less costly** than the current highly manual processes. This will make professional-grade CGI and 3D animation **more attainable** for a wider range of media service providers.

www.facifi.com | tj@facifi.com | (65) 83510803

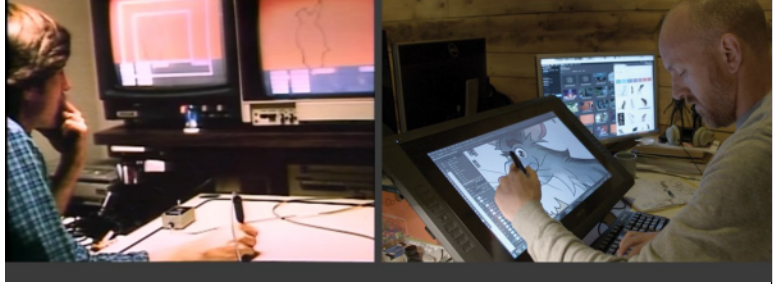
## 40 years of innovation in CGI & animations



## CGI development is still done manually, after 40 years

Then - 1980s

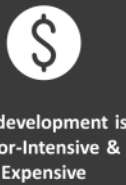
Now - 2020



## Problems in Content Creation Involving CGI & 3D Animation



7 days to animate 5 secs of 1 CGI Character



\$58,000 to make 5 secs CGI footage



Expectation for CGI realism & creativity are increasing

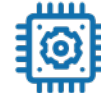
4K contents & gaming are the norm, rise of AR/VR

## Our Solution - FEAS

**FEAS stands for Face Re-enactment As Service**, created to automate animation of character's facial features & expressions



**60% shorter** production time, faster turnaround

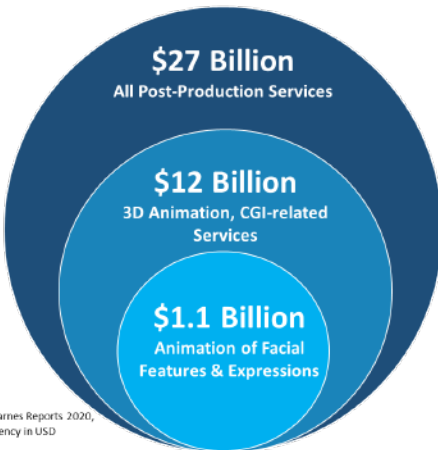


**Produce 3x more** contents with automation

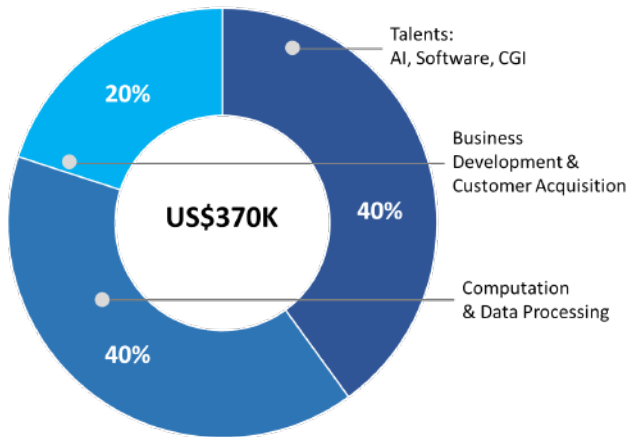


**Democratize creation** of photorealistic CGI characters

## Market Size for Post-Production (Motion Pictures) in 2020<sup>1</sup>



## Seed Fund Usage (2021-2022)



## Revenue Model

- SaaS:** Post-Production & Content Creation (Highest Quality)
- API Monetization:** Plugin for Video Sharing & Social Media Apps (Average Quality)

## Founding Team



**Nir REGEV**  
Co-Founder, Technology Lead  
Career: >20 years of experience as a Data & AI scientist in Tech MNCs Israel



**Amir BARUCH**  
Co-Founder, Product Development Lead  
Career: >15 years of experience as product manager in Tech MNCs Germany



**(TJ) Tze Jie EEY**  
Co-Founder, Business & Venture Lead  
Career: >1 year of experience as innovation lead in start-up to commercialize technology. Multi-national pitching & start-up competitions Singapore

## Commercial Champion



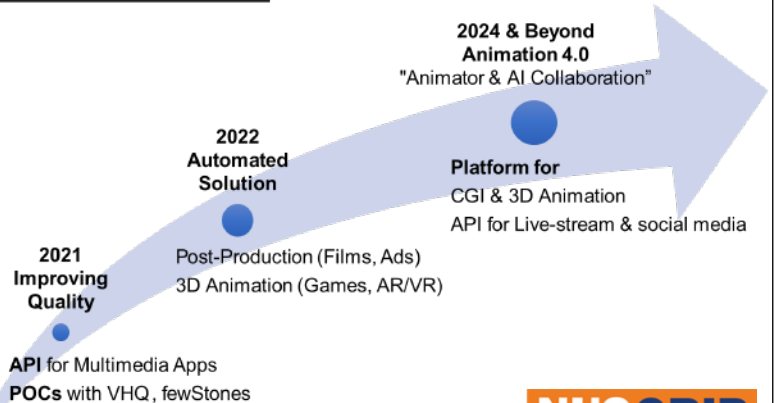
**David ISAAC**  
General Manager, GrowthOps

## Venture Manager



**John PHILLIP**  
Senior Manager, NUS ILO

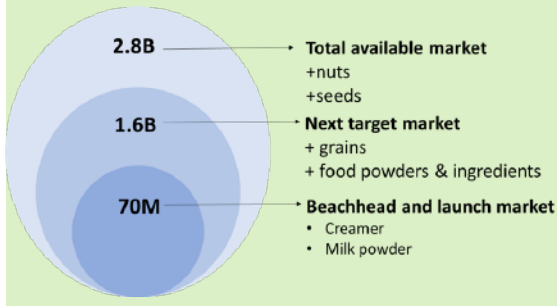
## Timeline & Milestones



### Problem and Our Solution

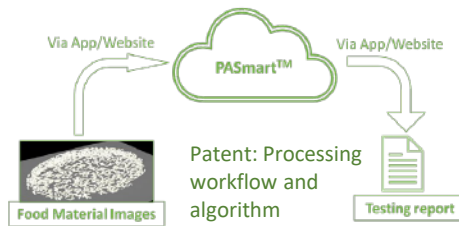
Granular food producers face significant production wastage and product returns from customers due to inadequate process/quality control. Methods adopted by granular food producers are either manual or expensive, requiring different specialised devices to be used for different testing purpose. GranuSmart™ provides a single packaged solution capable of multiple testing for producers to better monitor granular food production with minimum efforts. Our deep learning technology helps ensure better process control based on accurate and fast feedback, automatic tracking, logging and classification.

### Market Size



### Product: PAsmart™

- 3-in-1 testing results (including size, color, porosity)
- Automated tracking and logging



### Competitive Advantages

- Multiple testing with one single processed sample image
- Highly customisable dashboards
- Fast and accurate results
- New capabilities with continuing software enhancement
- Easy to deploy

### Business Model

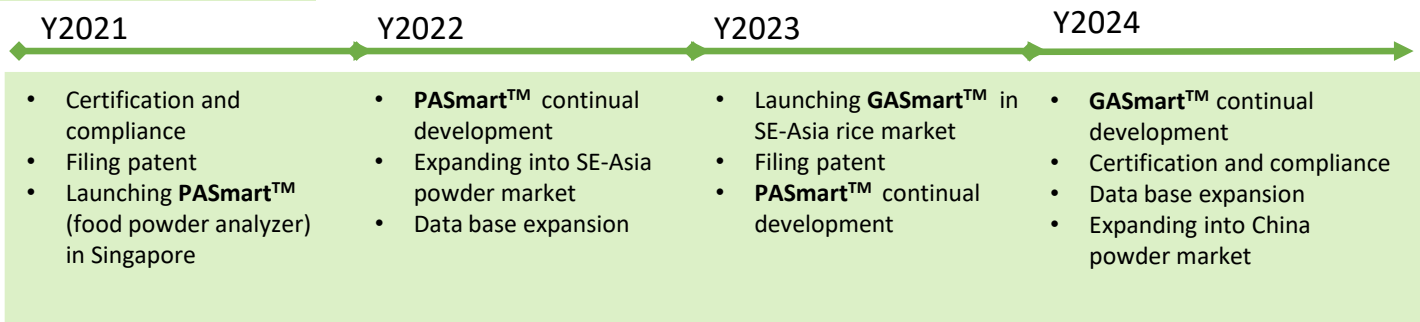
- Business to Business
- Software as a service
- Revenue:
  - One-time setup fee
  - Recurring monthly subscription fee:

### Benefits

- Fast feedback & increased QC frequency
- Manpower saving
- Easy-to-deploy
- Reduce rejection from customers



### Timeline and Milestone



### Team Profile



**Dr Zhang Zhiyong (CEO)**

- NUS PhD
- 4 years R&D experience in granular materials analysis



**Mr Yin Xiaolei**

- Tsinghua PhD candidate
- 6 years working and research experiences in computer vision field



**Ms Yan Zhiyuan**

- SUTD PhD candidate
- 4 years R&D experience in material analysis



**Mr Low Huan Ping**  
Commercial Champion



**Mr Jack So**  
Venture Manager,  
NUS GRIP

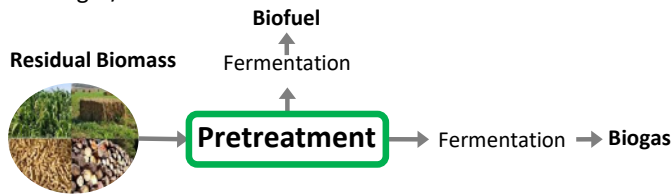
## Problem Statement & Solution

**Problem** – overall widespread challenge of residual biomass. Enormous waste stream that damages land, water and air, speeds up global warming - industry is looking for answers. 2 Examples:

- In India: >600 Million tons of agricultural waste is just burnt annually – This is causing major air pollution and lung diseases.
- In Malaysia: >70 Million tons of Palm Oil Mill Effluent generated annually – This is a major source of water pollution.

### Solution

- We have developed a new Catalytic Alkaline Oxidation (CAP) pretreatment technology to efficiently convert residual biomass into biogas/biofuels.



## Competitive Advantages

- ✓ Non-toxic\* and environmentally safe process
- ✓ Short reaction time
- ✓ No secondary waste generated
- ✓ 90% volume reduction of biomass/POME
- ✓ Energy savings of up to 90%, due to ambient conditions\*
- ✓ Removal of inhibitors by detoxification
- ✓ De-colorization of pretreatment liquors

## Intellectual Property

Patent : Catalytic Alkaline Oxidation (CAP) Processes For Biomass And Sludge Digestion

Registration No : 10202009049V (SG Non-Provisional)

Filing Status : Registered on 15 Sep 2020

## Achievements

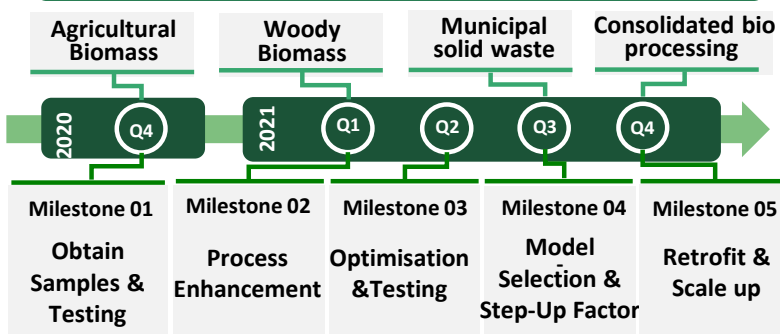
Several NDA's & 2 MTA's : Cenergi-SEA, Praj Industries, PRESPL, Sime Darby Plantation.

2 LOI's: PRESPL-India & Sime Darby Plantations

## Partners



## Timeline & Milestones

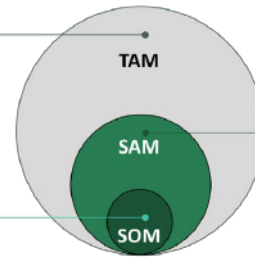


## Market Potential

Bioethanol  
\$30B-35B

CAGR 14%

Target Market  
(~50% of SAM)  
\$1.15B



Asia  
\$2B-2.5B  
7% of global bioethanol market

## Revenue Model

1. Product sales (mixed sugars/lignin/bio-fuels).
2. Per MT pretreatment service fee for Effluent of Palm Oil
3. On-site tech. support fees for Projects.

## Funding & Financing

2025 revenue est. > S\$5 million & gross margin est. > S\$2 million.

Funding Stage: Pre-seed , Target: S\$500K , Closing Date: June 2021

Fund Usage (S\$):

Manpower – Technical team	250,000
Equipment & consumables	180,000
Other expenses including travel for field tests	70,000
<b>TOTAL Estimated requirement</b>	<b>500,000</b>

## Team Profile



### Lee Song Han - Technical Lead

4 years' research in residual biomass pretreatment  
BEng(Chemical)(Malaya)  
PhD student (ChBE)(NUS)



### Rohit Behl – Business Lead

25 years' experience in various MNCs  
BSc(Chem)(Bombay), PGDip(BA)  
MSc(Appl. Econ.)(SMU)



### Sng Yee Ching – Marketing Lead

2 years' experience in biz development  
BEng(Chemical)(Malaya)  
Passionate about the environment & sustainability

## Advisors



A/P Yang Kun-Lin  
Technical Advisor



Dr. Frank Siegfried  
Commercial  
Champion



David Sher  
Venture  
Manager

Contact Us:

Rohit Behl ☎ +65-8498-6261 ✉ rohitbehl@hotmail.com



# Using AI to keep kids safer online

Our technology monitors activities on mobile devices for potential safety concerns such as cyberbullying, sexual grooming and signs of suicidal ideation, so that busy parents can have peace of mind.

## The Problem

# 60%

of 8 to 12-year-olds are exposed to **cyberbullying, game addiction, online grooming & sexual content**

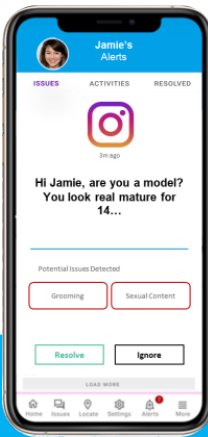
- As children are getting their own devices at a younger age, they face online dangers they are ill-equipped to handle.
- While parents are concerned, it is hard for them to keep up with their children's digital activities and lingo used.

## Our Solution

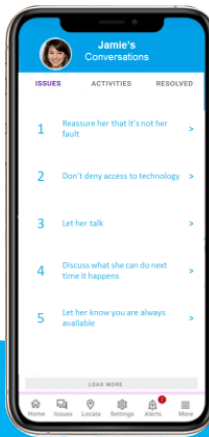
Analyse phone activity and usage



Alert parents to potential dangers



Advise parents with expert recommendations



Technology & IP



**Data capture process** to detect activities on mobile apps (patent pending)



**Context-aware NLP model** to analyse and detect online dangers on the child's device, localized to Asia-Pacific

## Market Potential (SGD)

# \$5.0bn

total addressable market

# \$2.3bn

available market

# \$186m

obtainable market

## Subscription revenue model

# \$99

per family per year  
Unlimited children, devices & activities monitored

## Our competitive advantage



Majority of parental control apps **operate at the tip of the phone usage iceberg** to limit time spent and restrict access to apps and websites

Hiomi **analyses the underlying mobile app activities** to detect potential dangers and provides personalized advice to parents

## Target Customer Segments

- Mothers with young daughters
- Parents considering giving their child their first phone
- Parents concerned about screen addiction

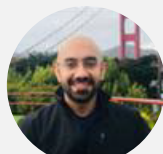
## Key Milestones

- Q4'20 Launch beta test
- Q2'21 Product Launch in Singapore
- Q1'22 Launch in ANZ, MY and ID

### Founding team



**Jackson Tan, CEO**  
VP Strategy, FairPrice Group  
Ex Google, Accenture, MOE  
INSEAD MBA, NOC SV Batch 12



**Nilesh Sadarangani, CTO**  
VP Engineering, Janio  
Ex Zalora, Audacy  
BE Computer Science

### Advisors



**Carol Loi**  
**Parent & School engagement**  
Founder, Village Consultancy  
Fellow, Centre of Media Literacy  
Co-founder, SGfamilies



**Dominic Soon**  
**Strategic Partnerships**  
CFO, Better.SG  
Private Equity Investor, TMT  
Investment Committee, SGInnovate



www.hiomi.com



jackson@hiomi.com

Powered by:

better>sg

NUSGRIP

# HoloSight

NEXT-GENERATION PRODUCT SHOWCASES

HoloSight is a smart holographic platform that allows brands to engage prospective customers using interactive 3-dimensional product displays. With HoloSight, store owners can easily display a full range of products not just within their own stores, but also at public hotspots like malls, airports, and subway stations.

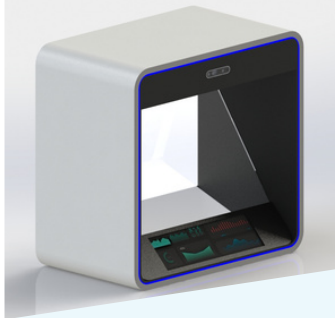
Powered by:



## PROBLEM

- Brands are unable to display full range of products in their limited store space
- Low attention span of customers

## THE SOLUTION



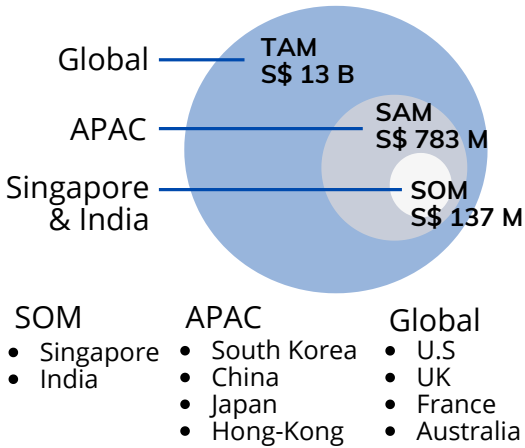
An interactive holographic display powered by AI enabling brands to:

- display all products
- increase attention span

## IP/Patents

- Patented technology under NUS ILO
- Proprietary AI models
- PDPA compliant

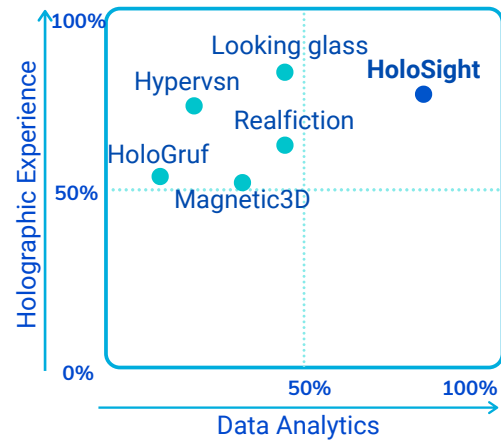
## TARGET MARKET



## VALUE PROPOSITION

- Interactive Holographic Showcase
- Interactive Content
- Shopper Analytics
- Touch-less interface
- Central Dashboard

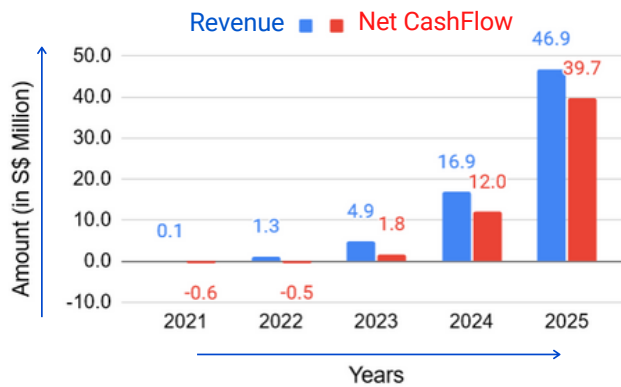
## COMPETITIVE ADVANTAGE



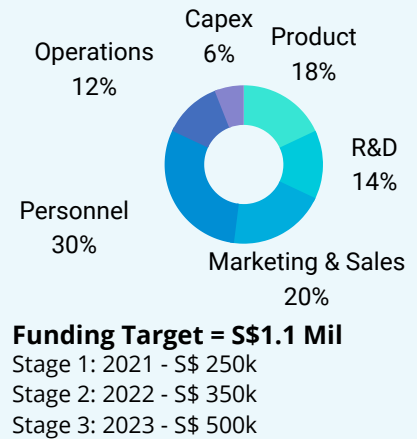
## MILESTONES



## FINANCIAL PROJECTION



## FUNDING TARGET



## REVENUE MODEL

In-store : Leasing  
SG\$2000/month

Out-of-Store : Shared Time  
SG\$1000/Month (10% of time/brand), Supports upto 5 brands at a time.

## LAUNCH PARTNERS



The Attaby Collections Lifestyle Boutique Raffles Arcade



DigiMagic Fifteen years old hologram company

In talks with:

## TEAM



VINAY  
5+ years Robotics



MOUSUMI DHAR  
5+ years AI



PAYAS PANDEY  
4+ years Software



FRANCINE MARTINDALE  
25+ years Media Industry



## Democratizing Industrial Safety

Our vision is to utilize innovative artificial intelligence and IoT concepts to develop the best safety solutions

### Problem Statement



17

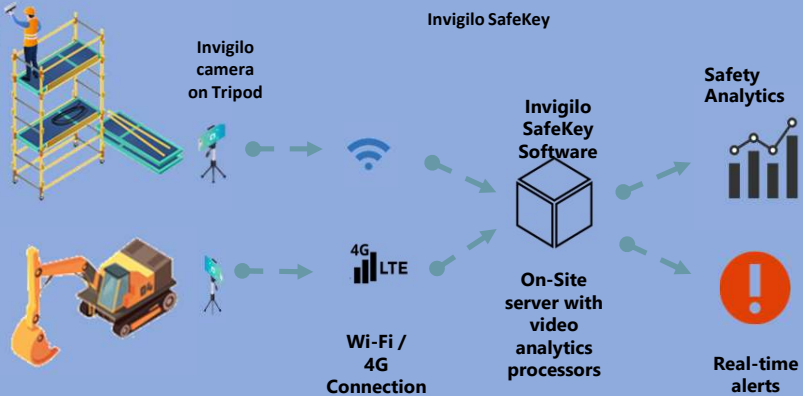
USD 900,000

Globally, one in four workers suffer a major injury resulting in huge amounts of losses to their lives. Seventeen workers died in Singapore 2019, due to accidents at construction sites. Every accident on average results in about USD 900,000 of losses due to non-compliance fines, stop-work orders, liquidated damage.

### Solution (Patent pending)

#### Invigilo SafeKey

- Worker Detection
- PPE Detection
- Excavator proximity to worker
- Safety harness detection
- Intrusion detection



Portable cameras deployed at strategic locations around construction sites, the video feed is streamed to the local server and Invigilo SafeKey sends real-time alerts whenever a safety violation is detected

### Value Proposition

1. Continuous, real-time, automatic monitoring of safety conditions
2. Enhancing efficiency of safety officers by 50%
3. Reducing probability of hazards happening by 50%
4. Portable and easy to set-up approach

### Revenue Model

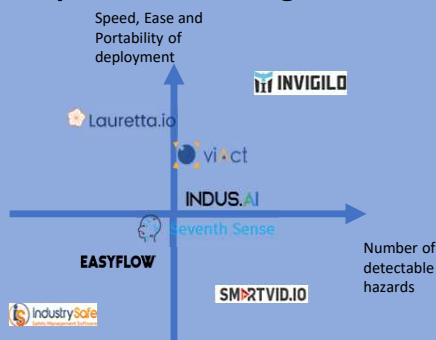


Fixed cost for 10 camera package and 1 server



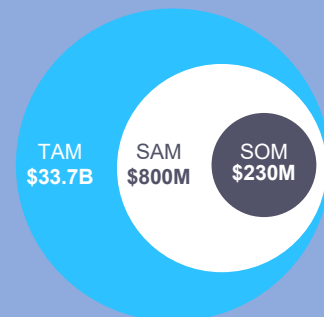
Monthly subscription and maintenance fee per license

### Competitive Advantage



### Market Size

TAM: Global Construction safety  
 SAM: SEA Construction safety  
 SOM: Construction projects > \$10M



### Team



**Vishnu Saran**  
CEO, Founder  
Design Thinking  
Software Product Management



**Thanh Nguyen Son**  
CTO, Founder  
Ex Zendesk, Paypal  
Full Stack Engineering



**Wee Jin Tan**  
Commercial Advisor  
15 years construction engineering



**Goh Chye Guan**  
Commercial Advisor  
Ex WSHC director  
20 years of industrial safety



# The Future of Digital Rural Marketing

Our Vision is to empower every village to be the next Smart City. Rural markets need rural solutions, not adapted urban solutions. The QTV Network is a live selling network created by QSignage to transform the way brands and ad agencies reach out to the rural market.

## Brands have difficulties reaching out to the rural markets effectively

Villagers don't behave like urban consumers so most ads don't work

It isn't easy to predict demand so inventory distribution is frequently inaccurate

Hard to get data that gives more market insights or prove ROI

## We solve this by setting up a live selling network powered by humans and AI in the villages

### OUR QTV NETWORK



We set up a network of interactive screens at village shops where villagers typically gather.



We call this the QTV Network.

Shopkeeper pay to join this network and earn a monthly fee in return

### OUR LIVE SELLING METHOD



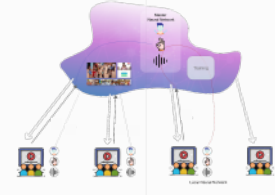
We use the live selling experience to attract and interact with the villagers.



The villager responses are detected using AI and shared with advertisers so they can better plan their marketing campaign and inventory distribution.

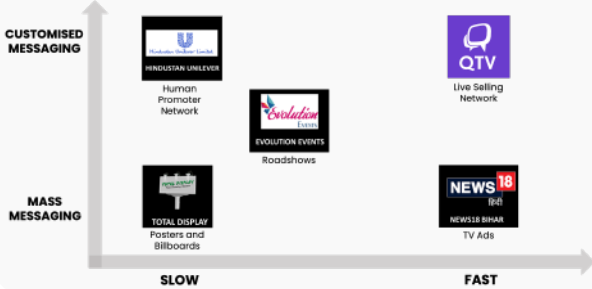
## Made possible by our core IP

### EDGE INTERACTION NETWORK ARCHITECTURE



Our novel Edge Interaction Network Architecture allows us to have individual local gesture detection engines for each interactive screen using only low powered processors. This makes it possible for us to detect villager responses across many locations. We have filed a Patent Invention Disclosure for this IP.

## This set us apart from the usual advertising methods since we can do 2-way interaction with the masses



## We have gotten market interest and financing partners



50 Shopkeepers signed up to join the QTV Network and willing to pay our onboarding fee



5 Advertisers on waiting list to be on our network. One advertiser has a \$40k a month budget to sell his water filtration system on our network for 2 years

1 Major Micro-financing Company is willing to be our financing partner for the shopkeepers onboarding fee

## We make money by charging for access to the QTV Network

### Onboarding Fees - Shopkeepers

Shopkeepers pay to join our network and get an interactive screen put up

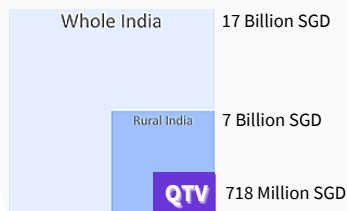
### Advertising Fees - Advertisers

Brands pay to advertise, sponsor or do live demos on our QTV Network

### Sales Commissions - Advertisers

Brands pay for every successful sale made during our live demos

## Rural advertising is a big market in India



## ...which we conquer one niche and one location at a time

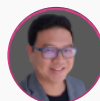


## Our team has startup, social sector and tech expertise



Amit Choubey  
Operations

Founder, SANMAT with reach to 8000 villages  
UNESCO National Youth Icon (India)  
LLB, Masters in Public Policy,  
Masters in Governance and Development



Bryan Long  
Growth

Founder, Testing Ground  
Founder, Stacck (sold end 2017)  
Entrepreneur in Residence, SUSS  
Fellow, ralSE  
BSc in Mechanical Engineering  
MBA, LLB



Gokul Chinnappan  
Technology

Ex-ISRO Scientist  
B.Tech,  
M. Tech in Electrical Engineering, IIT Bombay  
PhD Candidate in NUS



Senthil Kumaran  
Advisor  
General Manager, Corp Business Dev, TIS Intec



Cato Gullichsen  
Advisor  
GRIP Venture Manager



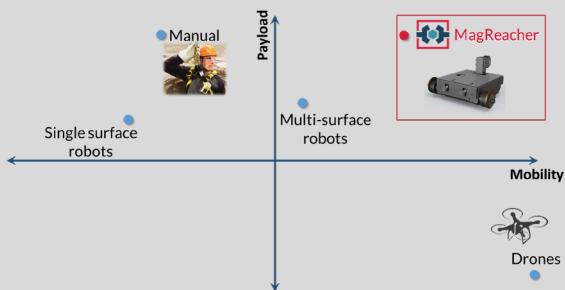
Prasanna Shiridi  
Advisor  
GRIP Technology Manager



## Problem

Accessing complex confined spaces or heights by workers to perform operations are often **risky, inefficient** and **costly**.

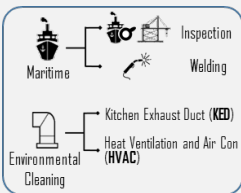
## Competitive Analysis



## Market



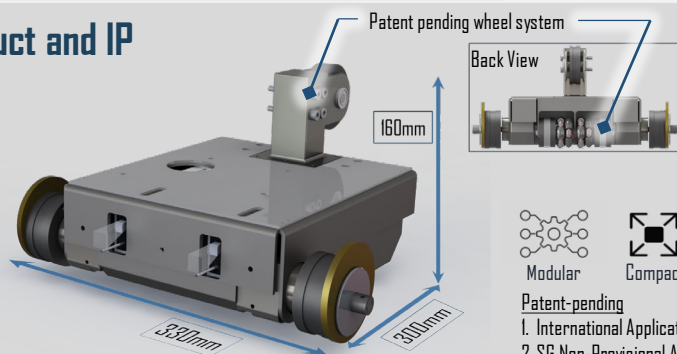
### Launch Markets



### Future Markets



## Product and IP

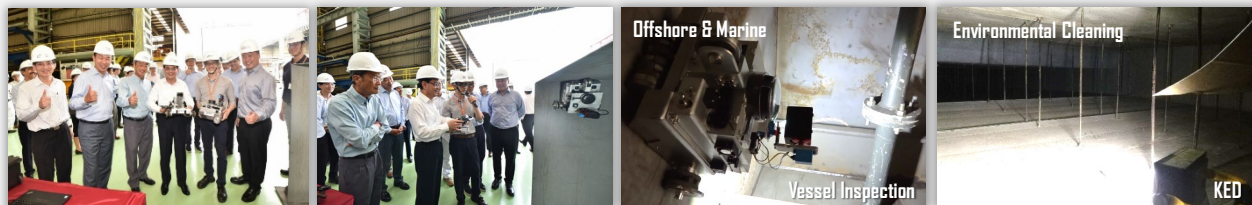


- Modular
- Compact
- Remote Operation

Patent-pending  
 1. International Application No. PCT/SG2020/050188  
 2. SG Non-Provisional Application No. 10201903755S

Patented magnetic wheel system allows crawler to climb ferrous surfaces and perform surface transition to reach target locations whilst carrying a high payload

## Partners



Keppel Offshore & Marine - Ongoing POC + Commercial Discussion

EXCELTEC - LOI obtained

## Business Model

- Robot as a Service (70%)
- Sales of Robots (25%)
- Maintenance fees (5%)

Channels: Direct sales, Distributors/Agents, Customer Overseas offices, Conferences and Exhibitions

Customer Relations: Solutions provider, Partnership, Co-creation

## Funding

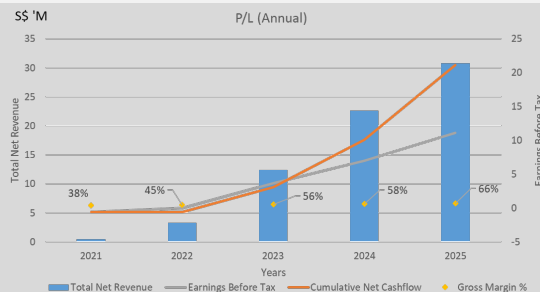
Funding Gap

\$500,000

Projected Funding to accelerate growth

\$5,500,000

## Financials



## Product Roadmap

	Features/Improvements	2021	2022	2023	2024	2025
Meet markets' needs	Environmental cleaning	█				
	Non Destructive Testing	█	█			
	Upgrade chassis	█	█			
	Surface preparation		█	█		
AI for greater productivity	Upgrade welding		█	█		
	Autonomous	█	█	█		
Next Gen crawlers: More Applications	Predictive Analytics			█	█	
	Gen 2				█	█
	Gen 3					█

## Team Profile

**Mr. Rayner Tan**  
 Founder & CEO  
 B.S in Mechanical Engineering, NUS ME  
 rayner.reachbots@gmail.com

**Mr. Alex Tham**  
 Commercial Champion

**Mr. Amir Niv**  
 Venture Manager

**Dr. Tan Yan Zhi**  
 Founder & CTO  
 PhD in Precision Control, NUS ECE  
 yanzhi.reachbots@gmail.com

**Mr. Chia Mun Loang**  
 Technology Manager

Our mission is to provide intelligent health condition monitoring to improve equipment performance, reducing power wastage and optimising the useful life of air conditioning systems

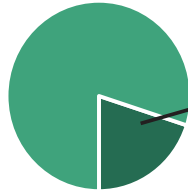
## Air-Con early fault diagnosis software

### Problem Statement

#### Late detection of fault

An office building with 10 million kWh annual power consumption would have lost \$200,000 due to late fault detection.

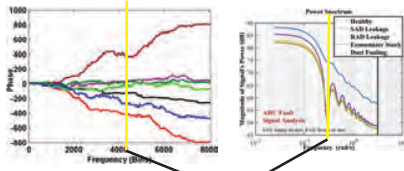
#### ACMV power consumption



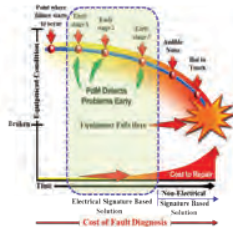
10-30% that is caused by inefficiencies due to faults  
\$200,000 lost due to late fault detection

### Technology and IP

#### Algorithm and Electrical Analysis



Anomaly detected



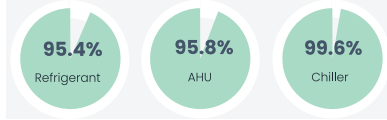
\*Patent application in progress

SCPscan detects faults earlier at stage 1-3 when mechanical signs are not substantial to be detected.

SCPscan's background analysis is able to:

- Detect and identify faults earlier by electrical analysis
- Differentiate the issues that are causing the faults

#### Accuracy of Electrical analysis algorithm



Reliable and consistent fault analysis

### Solution



Detection of faults 75% earlier than current solutions



Accurate detection of fault location for fast and effective remedy



Optimising maintenance schedule by providing the most efficient cost to benefit schedule



### Team



**CEO**  
Dr Hasmat Malik  
Ph.D. (Electrical Engineering)  
10 years experience in Condition Monitoring, Fault Detection & Diagnosis



**CTO**  
Dr Nishant Kumar  
Ph.D. (Electrical Engineering)  
10 years experience in Condition Monitoring, Fault Detection & Diagnosis



**COO**  
Joseph Teo  
B.Eng (Mechanical Engineering) NUS  
Venture Portfolio Manager at Origin Ventures



**Advisor**  
Prof Panda S K  
Phd University of Cambridge

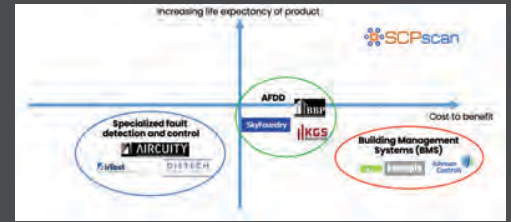


**Commercial Champion**  
Derrick Lee  
Early-stage Tech startups investment, operations & management.



**Venture Manager**  
Cato Andre Gullichsen

### Competitive Advantage



#### Advantages:

- 1) Non-intrusive deployment
- 2) Reduces probability of critical breakdown
- 3) Non-exclusive and is complementary to BMS

#### Revenue Model

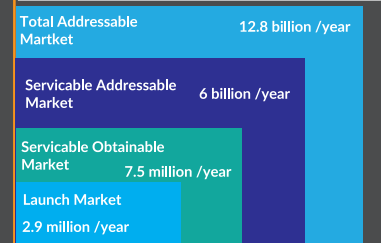
Project sales & software subscription sales

Price of license is determined by the size and type of their air conditioner system.

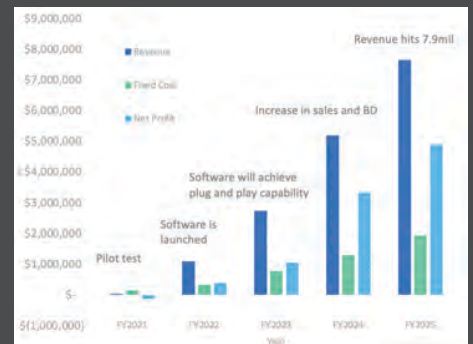
Sale of fault diagnostic data to ACMV manufacturers

The collected data of the various size and type of system will be collected and provided to manufacturers for future R & D.

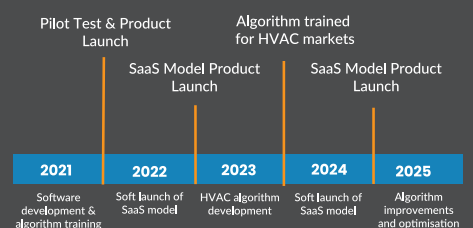
### Market Size



### Financial Projection



### Development Plan



**"We provide a catalyst for the Propane Dehydrogeneration (PDH) Process that is superior to the industry leader (UOP) with an 8% higher propylene output."**

### Key Problems

- Current UOP PDH catalyst is **expensive** considering it's low propylene output
- Frequent regeneration due to rapid **carbon formation** on the catalyst
- The **security** of catalysts supply for China customers

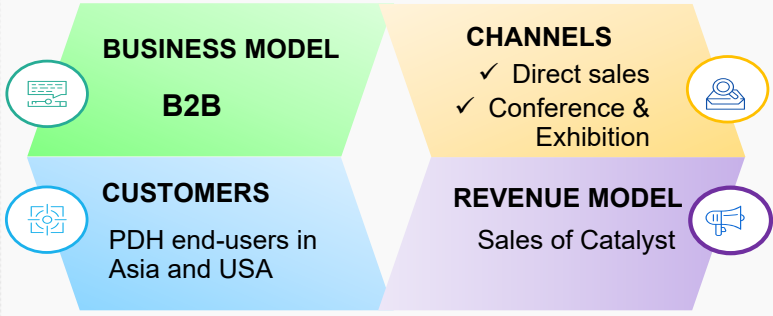
### Our Solutions

- ✓ SINGNOVEL catalyst is less expensive considering high propylene output (8% higher than UOP's catalyst)
- ✓ **Lower** regeneration frequency due to less carbon formation
- ✓ SINGNOVEL is only alternative non-US based catalyst supplier

### Market Size



### Business and Revenue Model

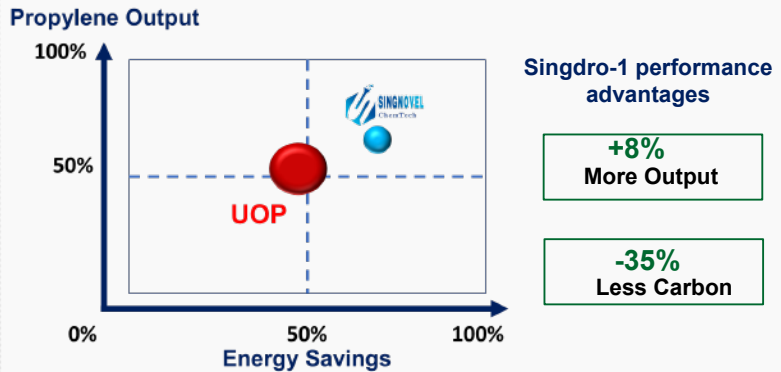


### Technology and IP

- ✓ Single-step synthesis
- ✓ Higher surface area of active sites

- Provisional patent filed
- Worldwide Patent is under filling
- Trade secret

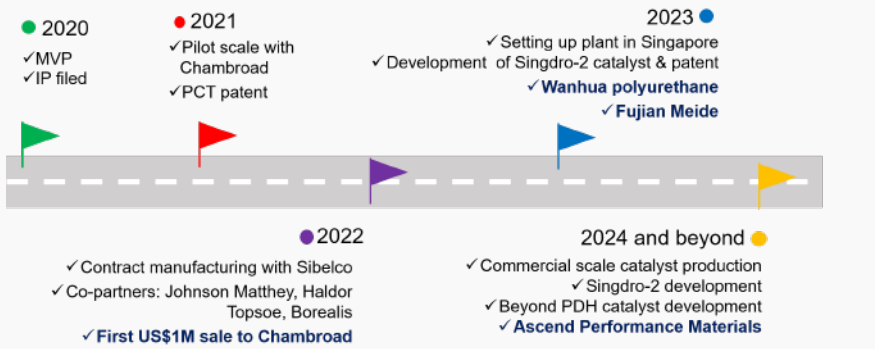
### Competitive Advantages



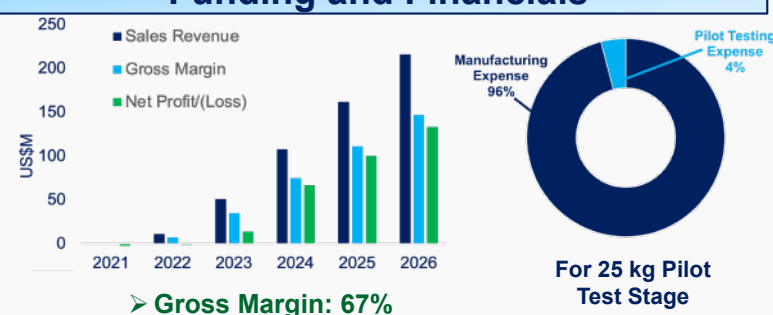
### Industrial Partners

- First technology adopter
- Pilot scale tester
- Potential co-developer
- LOI** secured

### Product and IP Roadmap



### Funding and Financials

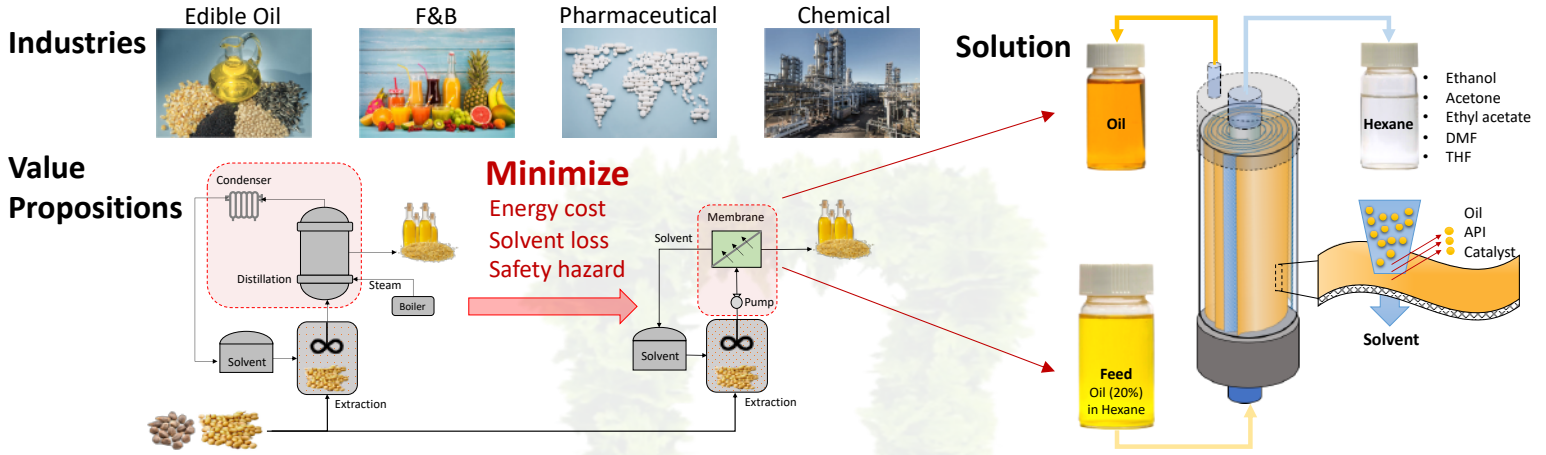


### Our Team



# Sustainable Membrane Technology for Solvent Recovery

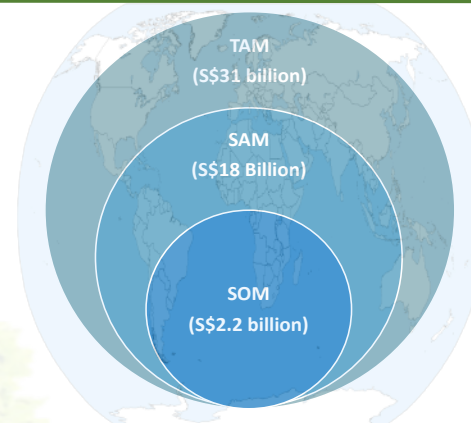
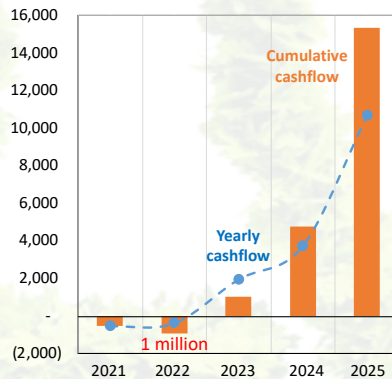
Thermal separations are highly energy-intensive but essential to the industries. SOLV8 solvent filtration process provides the most cost-efficient way for effective separation.



## Go-to-Market & Growth Strategy

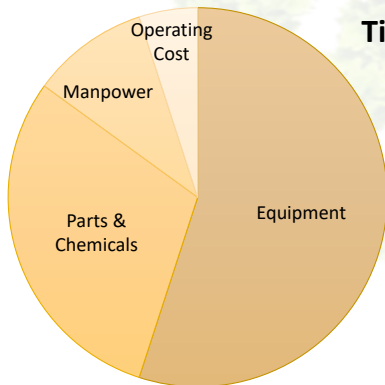
## Financial Projection

## Market Size



We are raising 1 million SGD for productization and production.

## Fund Utilization



## Timeline



Wan Chunfeng  
Co-founder

Shi Guimin  
Co-founder

Shekhar Kinjavdekar  
Business advisor

Prof. Neal Chung  
Scientific advisor



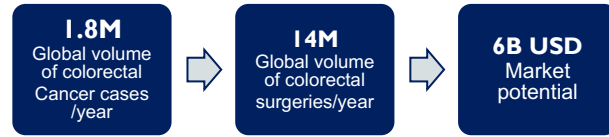
## CLINICAL NEED

Gastrointestinal (GI) surgeries are essential to treat gastrointestinal disorders like colorectal cancer, obesity and hernia. GI disorders are increasingly prevalent due to the ageing population and changing lifestyles. Colorectal cancer, in particular, is the leading cause of death due to cancer in Singapore with 1,200 cases diagnosed every year.

One of the most critical portions of GI surgeries is anastomosis - a procedure to join two segments of the digestive tract. Despite careful surgical techniques, up to **19% of anastomoses fail**, resulting in anastomotic leakage (AL) of the internal contents into the abdominal cavity.

The symptoms of AL appear late and this increases the **mortality up to 32%** due to septic shock. The hospital readmission rates increase by **1.3 times** with an additional charge of **38K USD**.

*Clear unmet clinical need and market potential for on-demand, direct monitoring of AL, for early medical intervention.*



## SOLUTION & TECHNOLOGY

**WiSeCue continuously monitors anastomotic integrity to enable early medical intervention**

International Patent Pending: PCT/SG2020/050643

Implantable, passive, **WiSe sensor Tag** attached at the anastomotic site during the surgery itself

Hand-held **WiSe Reader** to power and alert on-time

On-demand monitoring

## MILESTONES



### Financials

- WiSeCue Price: **USD 2.7K / Patient / Surgery**
- Projected Revenue by 2030: **USD 226.6 M**
- NPV Valuation at 10%: **USD 53.8 M**
- Funding GAP till 2025: **USD 5.6M**

### Validations

- Winner of LOTUS-NUS Healthcare Award of SGD 50K
- Midst of signing MOU with Medtronic
- Preclinical validation done
- Raised 200K SGD translation fund, 2019-20

## TEAM

## ADVISORY BOARD

## KOLs



**Viveka KALIDASAN, PhD**  
CEO

Inventor of WISE  
Research Fellow@NUS  
Wireless Bioelectronics Lab



**Tern Poh LIM**  
COO

Commercial Experience  
with AI Expertise  
Assistant Head@AISG



**Technical Advisor**  
*John HO*  
PI, Wireless Bioelectronics Lab



**Clinical Advisor**  
*Lawrence HO*  
Director, Centre for Innovation in Healthcare



**Commercial Advisor**  
*Randel FRAZIER*  
Former CTO, Medtronic

**Jimmy SO**  
Senior consultant, NUH

**Choon S CHONG,**  
Consultant, NUH

**London LUCEIN,**  
Senior consultant, SGH

**Anton CHENG,**  
Senior consultant, KTPH

**Davide LOMANTO,**  
Director, ASTC, NUH

**Greg Grady,**  
Consultant, ACH



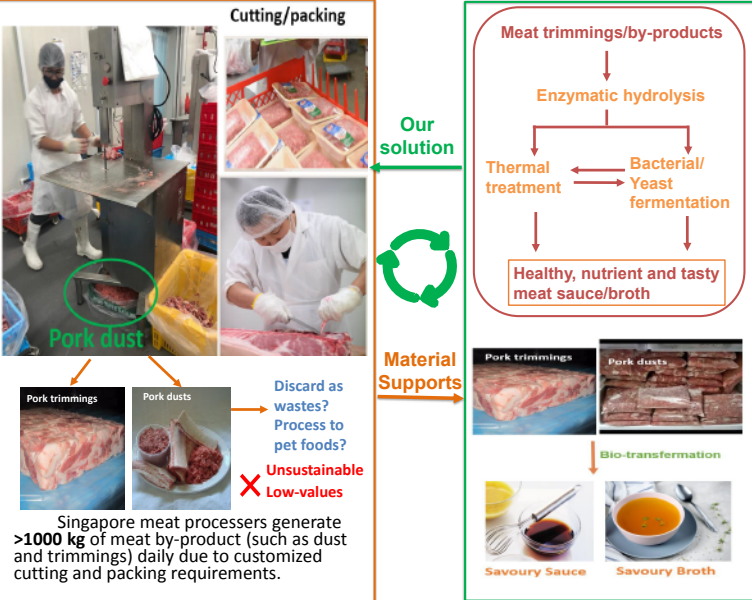
# Xavoury Foods

## - Tastier by being Healthier

A patented foodtech solution to transform underutilised meat by-product to healthy and savoury food products.



### PROBLEM STATEMENT & SOLUTION



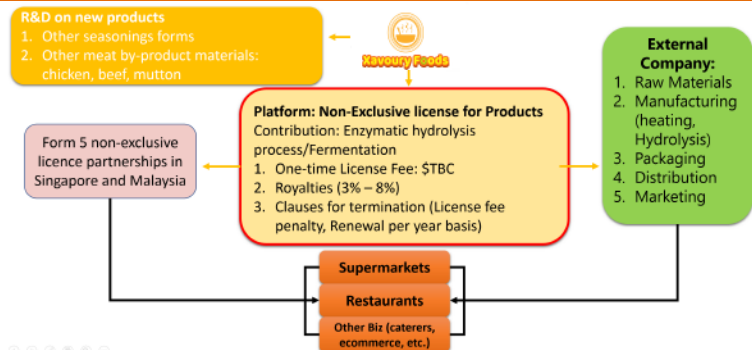
### COMPETITIVE ADVANTAGE

Competitive Products	Preservatives -Free	Flavouring -Free	High-Protein	Low-Sodium	Affordable Price	Healthier Choice	Ready-To-Eat
Savoury Meat Sauce/Broth	✓	✓	✓	✓	✗	✓	✓
Tai Hua Soy Sauce - Seafood	✗	✓	✗	✗	✓	✗	✓
Lee Kum Kee Soy Sauce - Seafood	✗	✗	✗	✗	✓	✗	✓
Kikkoman Sauce - Teriyaki	✓	✓	✗	✓	✓	✗	✓
Swanson Pork Bone Broth	✓	✗	✗	✓	✓	✗	✓
Hai Di Lao Hot Pot Soup Base	✗	✗	✓	✗	✓	✗	✗

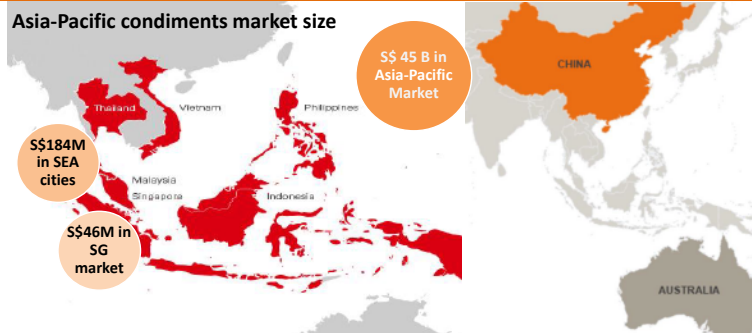
### BUSINESS MODEL

Key Partners (1 LOI)	1. Meat processing plants 2. Restaurants and caterers 3. Healthy condiments manufacturers
Key Activities	1. Scale-up productions 2. R & D and new product development
Channels	Licensing (B to B)
Revenue Streams	1. Sales of products 2. Licensing of solutions

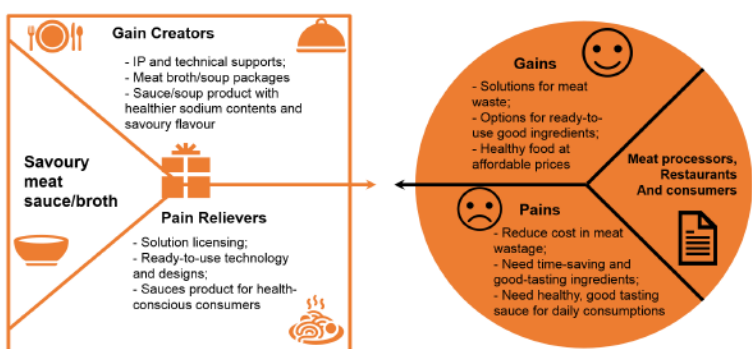
### GROWTH STRATEGY



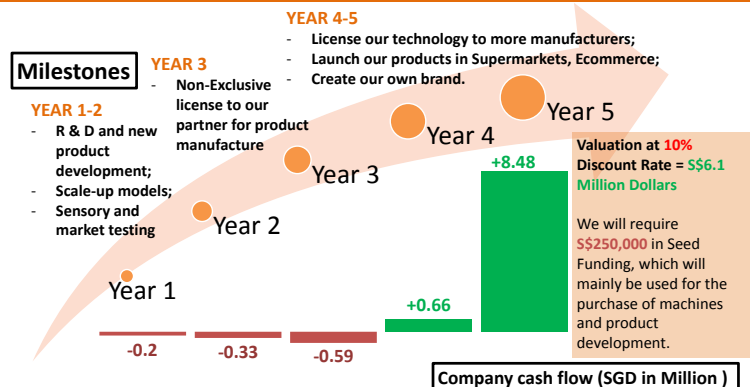
### MARKET SIZING



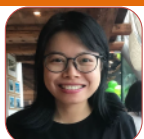
### VALUE PROPOSITION MAPPING



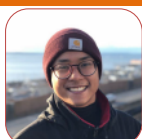
### MILESTONES AND FINANCIAL PROJECTION



### TEAM PROFILE



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Specialise in food fermentation



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