# NOVAPEK

Robotics Droné & Data Analytics Solutions
Unified Platform Provider

-Powered

2025 Presentation Deck

101 Defu Lane 10 Singapore 539222

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# Introduction: Managing Director Eugene Choy





NovaPeak was incorporated in 2022 with ISDN Holdings, a listed company in Singapore and Hong Kong. Eugene is the managing director of NovaPeak and helps to oversee the group's business development and industrial transformation.

He was a **committee member of TR 78**, the technical reference using drones for building facade inspection. He continues to advocate for best practices within the construction monitoring, survey and inspection industry.



## Periodic Façade Inspection Building Inspection Criteria



In Singapore, Periodic Façade Inspections (PFI) are legally mandated under the Building Control Act and guided by Singapore Accreditation Council Technical Reference 78 (TR 78). Building owners are legally required to inspect façades every 7 years. This creates recurring, inelastic demand for inspection services—regardless of economic conditions.

With recent updates to TR78, the use of drones and AI is not just optional—it is prescribed for efficient, accurate, and safe inspections.

In a recession, businesses and governments may reduce discretionary spending—but they cannot ignore legal obligations.



PFI - HDB

PFI – Private / Commercial

**PFI - Industrial** 

The Periodic Facade Inspection (PFI) regime was introduced in 2020 and has taken effect on 1 Jan 2022.

Buildings that are more than 20 years of age are to be inspected every 7 years.

All building must be surveyed using Drone to take photographs. 100% of façade must be carried out using this method.

Hotels

Shopping Complexes

Telecom Exchanges

Commercial Buildings

Industrial Buildings

Government Flats

## Built with Purpose, Inspired by the Future



#### **MISSION**

NovaPeak exists to redefine how the world inspects and maintains its critical infrastructure through digital transformation powered by AI, drones, and data intelligence. We drive safer, smarter, and more sustainable operations across buildings, transportation, marine, and industrial sectors, enabling our partners to scale with precision and purpose.

#### **VISION**

To inspire a global shift in how industries manage critical infrastructure — by leading with Al-driven inspection solutions that make data truly actionable, reduce environmental impact, and preserve precious planetary resources for future generations.

#### **FOCUS**

The **focus of NovaPeak** is to revolutionize infrastructure inspection and maintenance through the integration of AI, drone technology, and smart data platforms. By digitizing and automating inspection workflows particularly for façades, bridges, and other critical assets — NovaPeak aims to enhance safety, regulatory compliance, operational efficiency, and sustainability. It empowers industry professionals with tools for real-time analysis, defect detection, and compliance reporting, all aligned with standards like SAC-TR78.

## Winning Advantage



Regular Interactions with various Stakeholders such as with BCA, Town Councils. Professional Engineers, Registered Architects, R&R Contractors, Term Contractors, Managing



Commercially Al Ready Defects Detection

**Proven Track** Records

Operational Task Force to Address Bottlenecks

Organising Technology **Forums** 

Local Robotics, Al & Systems Integration Team

Training, Consulting, Technolog

their success with its bespoke survey & inspection

power of artificial intelligence with data

Adhering to & Advocating **Best Practises** & Standards

Agents

## **Strategic Differentiation**

Industrial 1st Fully Unified **PFI Software Platform** 

**Utilizes Regenerative AI while** others rely on Fixed-Al Model

#### LIVEINSPECT AI



Proven & **Practical Solutioning** -**Zero Drone** Incident

The only Centralized Collaboration Hub



The only DSP using Drone Tethering **Devices designed based on Military** & Aerospace Specifications







**Recession-Proof Business Demand is Regulatory -Driven**, not Optional

**Public Safety – Inspections** cannot be Deferred



The only provider that offers Technical Managers - End-to-**End Project Oversight** 



Since Incorporation



Our inspection Flight Prints - Notable Projects



Residential Over 250



Over 70

**Façade Inspection using AI** 

& Robotics is Mandated by

Singapore Law – 1st in the World



#### Residential [HDB Cluster]

- Ang Mo Kio Ave 5/8/10

- Jurong West St 64/65
- Redhill Close



#### Residential [Private]

- Villa Des Flores
  - Mandalay Mansion
- **Beaverton Court**
- Landridge Condo
- Hollywood Apt.





lewel Changi

Four Points by Sheraton



- Anglican High Sch
- Damai Pri Sch
- Methodist Girls' Sch
- Rosyth Sch



- 35 Tampines St 92
- Pan-I Complex
- 16 Tagore Lane
- 29 Tanjong Penjuru
- 623 Toa Payoh Lor 4
- **Sharely Warehouse**
- Cavan Haus

**Technology** Adoption **Incentives Up** to 50% Cost

Extremely

High

**Barriers** to **Entry** 

Savings

**Panasonic** 

Backed by a strategic technology partnership with Panasonic, NovaPeak delivers enterprisegrade Al inspection solutions with the credibility and scale of a global tech giant."



## **Façade Defect Inspection**



#### **ACCREDITATION SCHEME** FOR INSPECTION BODIES



## Schedule

Issue No

: 6 January 2025

Expiry of Certificate

: 1 of 1

Inspection Field: Building Façade Inspection

Type A Inspection Body

TYPE OF PRODUCT	TYPE AND RANGE OF INSPECTION	INSPECTION METHOD, CODES OR STANDARDS USED
Building Façade	Building Façade Inspection Using Unmanned Aircraft Systems (UAS)	NP-SAC-02 (1 Aug 2024) TR 78-1:2020+C1:2021 TR 78-2:2021
	Al System Software Version: LIVEINSPECT.Al Version 1.0	
	Defect detection: a. Concrete/Plaster Crack b. Spalling Concrete/Plaster c. Corrosion d. No Defect Scenario	
	Anonymization: Human and Vehicle	

Approved signatory

Kelven Yee

To be one of the Industrial Pace Setters for Al & Drone Aided Inspection & Survey activities with specialisation for Building Inspection employing LiDAR,



SAC-TR78 Accredited as Type A Inspection Body using Drones & AI for Building Façade Inspection

BCA and IES, with Singapore Accreditation Council (SAC), has launched the accreditation programme for building façade inspection using Unmanned Aircraft System (UAS) on 12 July 2023

Note: An inspection body's fulfilment of the requirements of ISO/IEC 17020:2012 means the Inspection body meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid inspection results. The management system requirements in ISO/IEC 17020:2012 (Section 8) are written in language relevant to inspection body operations and are aligned with the pertinent requirements of ISO 9001.

RGB and Thermal analysis

## **Linking Operation Technology to Information Technology**



## 4 Primary Areas



## **Supervisory Interfaces**

(Wide Range of Data Reporting & Analysis Features, Diagnostic Displays)
Output of Current & Historical Data Sets



Qualifying Suitable
Technology Platforms &
learning to be Cost Effective

#### Cloud

(Farthest from Network Edge)
Big Data Processing & Data Warehousing
Greatest density of computer, storage,
and networking resources



INTERNET

т

Slower

### **Edge Infrastructure**

(Small Distributed Data Centers)
Realtime Data Processing, Data Visualisation,
At Source / On Premise







LAN/WAN

Factor

Faster

## **Edge Supporting Devices**

(Survey, Inspection, Surveillance)
Drones, ROVs, Crawlers
Data Collection & Origination





#### **SMART WIFI**



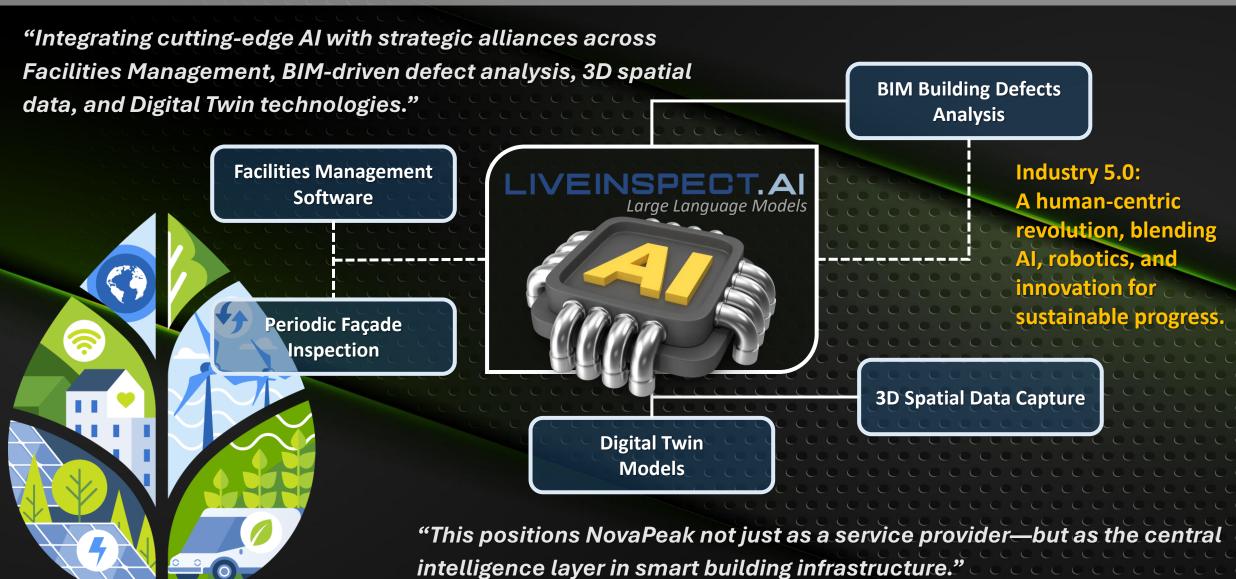
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## Future of Building Inspections & Lifecycle Management





Presenter: Eugene Choy

# **Expanded Solutions**



AI & Software Engine
Platform

REPORT MODULES

AI Modules

- Rusting
- Plaster Crack
- Plant Growth
- Bulging Plaster
- Concrete Spalling
- Face & Vehicle Masking

FAÇADE AI MODULES

Plaster Wall

Wall Claddings

Stone & Masonite

Glass

#### **Enhanced Services**

Periodic Facade Inspection Non-Periodic Facade Inspection

Periodic Structural Inspection Pre/Post
Construction
Condition
Survey

Certificate of Supervision

Drone 100% Visual

Thermal

Close Range Inspection

Rebar

Visual Inspection

Visual Inspection

Visual Inspection Visual Inspection

## **Business Functions & Supporting Business Units**





Presenter: Eugene Choy

## NovaPeak Technical Support Function to CP & FI



#### Point Person to CP Assist Assist TR-78-2:2021 Façade **Unmanned Aircraft Technical** Competent Inspector (FI) Service Provider (DSP) Person (CP) Manager (TM) · PE in Civil or Structural · Registered Resident Certified UAPL Certification in Façade **Technical Officer** Inspection 500 HDB Track Records Engineering Inspection Joint Any Person who Service (Professional Engineers without Incident Registered Resident Accreditation Provider possesses the relevant Board) 6 Years Flying Engineer Committee by the (ISP) qualifications and Registered Architect Institution of Experience in drone-Engineers of experience as related infrastructure NovaPeak is Singapore, the recognized by BCA A person who inspection activities a company Association of oversees the that can Consulting operation of Identifying Risks to provide Engineers the inspection its Impartiality building Singapore, and of the building façade BCA for the using UAS Identifying types of Independence inspection NOVAPEAK accreditation of for its inspection activities and services using Facade risks in maintaining impartiality UAS & AI Inspectors. **Ensure Safety Protocols & Work** and independence to their (TR-78-2:2021) Ultimately responsible for Familiarise with all available Procedures are adhered to inspection activities inspection and assessment of information inspection findings **Ensuring Confidentiality of** Diligently prepares the reports of Record defects & immediately flag Information & Proprietary Rights the results of the inspection of the up any unsafe conditions to CP Any unsafe conditions are to be are Protected building facades in such form as reported to the Commissioner of the CP may specify

**Building Control & Building Owner** 

To adhere to 4.2 Organisational Requirements

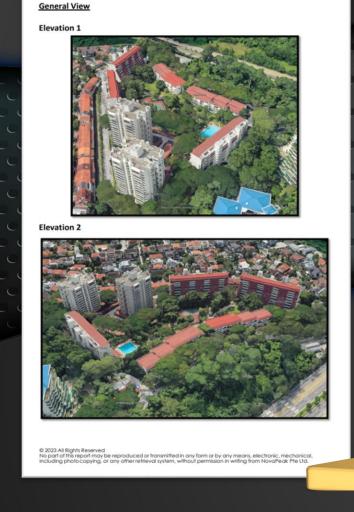
## Preliminary Desktop Site Reconnaissance



"Appreciating the Scope of Inspection, Access Methods, Risk Levels, Approaches for Drone 100% Visual & 10% Close Range Tactile, Manpower Allocation and Project Budgeting"

# ownhouse (4 Storey) - 251 & 263 Point Blocks (14 Storey) - 255 & 257 Terraced Blocks (10 Storey) - 259 & 261 Terraced Blocks (8 Storey) – 253 Commercial Block – 251A

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some parts of the buildings, while some buildings do not have road access. Thus, we can do boom lift system, manual tapping, and rope access method to cover up 10% close range inspection for this clusters.

# **Risk Management Drone Tethering**



> 85% Singapore Airspace is No-Fly Zone

Drone Inspection may be carried out with the Requisite Permits supplemented with use of Tethered Drones

Offenders will face fines of up to \$\$100,000 a maximum jail term of 10 years or both

20 Storey 50 meters



Public Liability Insurance Coverage \$1m













60 Storey















More than 30 Years of Combined Drone Flying Experience

UAPL A
Rotorcraft 7kg,
25kg & Nil
Limitations

UNMANNED AIRCRAFT PILOT
LICENCE

CAAS

Name of Pilot:
Choy Keng Loong Eugene
Date of Birth:
12 Aug 1975
Date of Issue:
17 Jan 2021
Issuing Authority:
Civil Aviation Authority of

Unmanned Aircraft Pilot
Licence

CAAS

Name of Pilot
Ahmad Lukman Bin Muji

Date of Issue:
09 Oct 2023
Issuing Authority:
Civil Aviation Authority of
Singapore



Name of Pilot:
Khairulanwar Bin Ab Rahman
Date of Birth:
16 Nov 1993
Date of Issue:
13 Feb 2022
Issuing Authority:
Civil Aviation Authority of Singapore

International
Filming Support
for Hollywood,
Singapore, Hong
Kong and China

Bachelor of
Engineering (Hons)
Mechanical
University of
Aberdeen (Scotland)

Bachelor of Surveying Science and Geomatics (Hons) University
Technology Mara (Malaysia)

Surveying Experience (Malaysia, Australia) Certificate of Business Administration University of Leicester (UK)

Master of Science Construction Project Management Birminghan City University (UK)

Marine Offshore Flying Experience

Presenter: Eugene Choy

**TETHER DRONE** 

Up to 300 meters

CAAS Approved

Unlocks No-fly Zones

Endurance up to 6 hours

Military & Aerospace Specifications

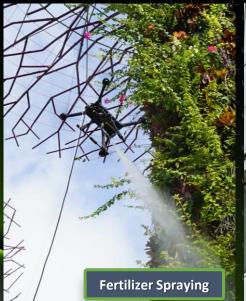
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# **Façade Cleaning Drones**



## SAFE, EFFICIENT and COST-EFFECTIVE



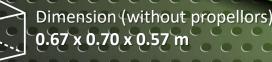




Max. Takeoff Weight



Flight Time **120** mins





Pump Pressure up to 180 bar



#### **Patented Algorithm**

Automatically positioned for precise targeting and applying effective pressure.



#### **Effective Washing**

Highly versatile. Choose from booster pump to industrial-grade high-pressure pump, depending on applications.



#### Safe-by-design

The electric power tether enables long, continuous flight for efficient operation with minimal downtown while preventing flyaway incidents.













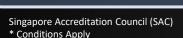
#### LIVEINSPECT.AL

## PFI Multi-sided AI-Enabled Software & App Platforms



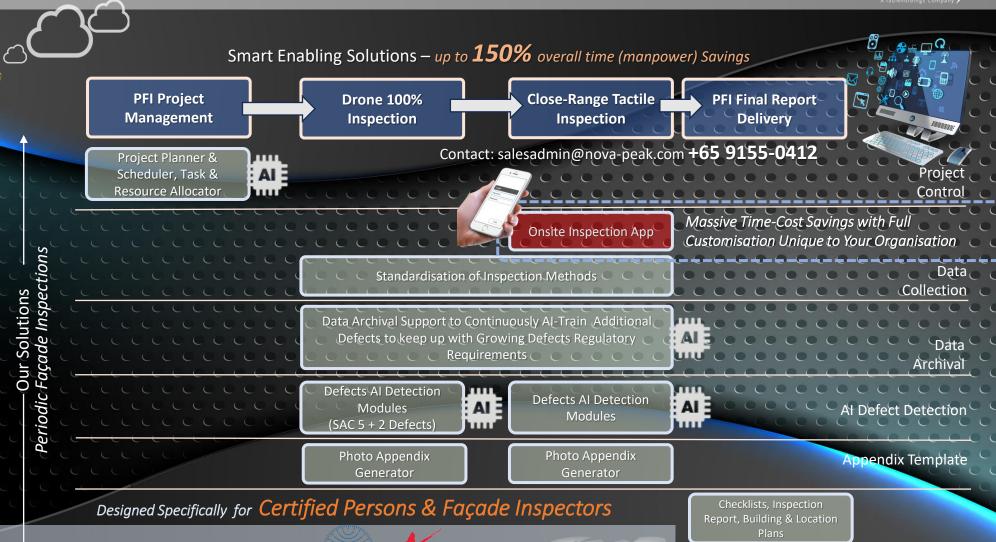
#### Critical PFI Pain Points

- Multiple Parties makes Coordination Difficult
- 2. Impossible to Standardise
  Data Collection & Photo
  Appendix (Drone & CloseRange Teams)
- Uncapitalised Opportunity to Utilise NovaPeak's Drone Inspection Photo Appendix Generators
- 4. Difficulty Securing SACready Drone Provider to Lock Down Future AI Detection Costs
- 5. Lack of Custom Close-Range Inspection & Reporting Platform
- 6. Difficulty Owning a Custom PFI Final Report Delivery Platform
- 7. No Access to Vision /
  Regenerative AI to formalise
  for a Total Manage Solution
- 8. Not Ready for Scaling to Service PFI Market once Regime is Matured (200,000 Buildings and growing)



EQA IMS

Presenter: Eugene Choy



Panasonic R&D

Center Singapore

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**Panasonic** 

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Report

Template

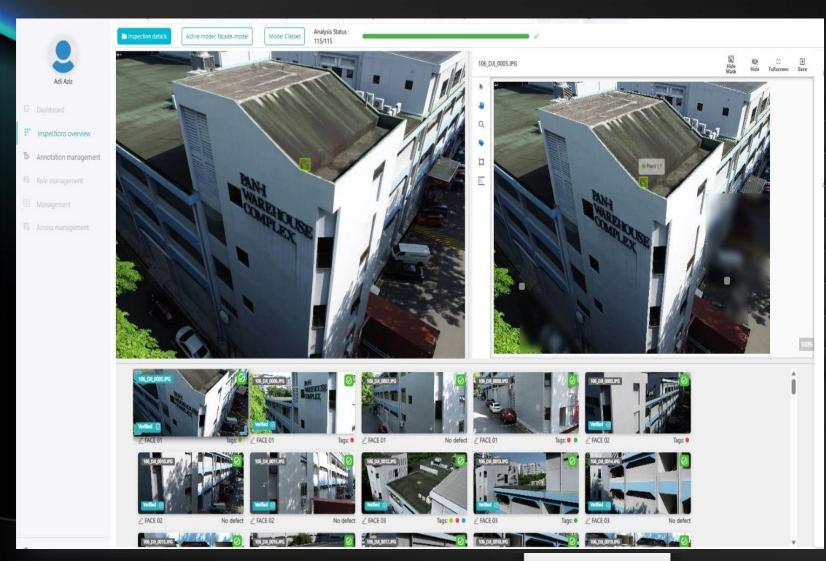
Defects Severity,

Recommended Repair

Methods & Timeline

## Software & App for PFI





Simplify the data collection methods and enhance analytics processes to meet inspection standards and Produce Reports that are both Timely & Accurate

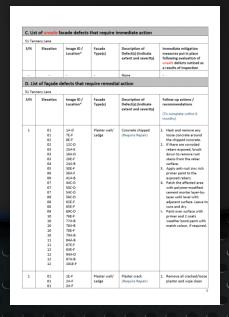
- Rusting
- Plaster Crack
- Plant Growth
- Bulging Plaster
- Concrete Spalling
- Face & Vehicle Masking

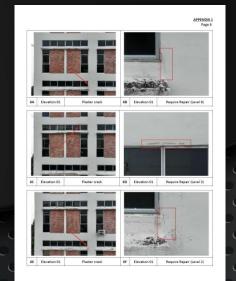
Pre-qualification as Productivity Solution Grant (IMDA & BCA) Technology Adoption Grants for LiveInspect for targeted launch Dec 2025.

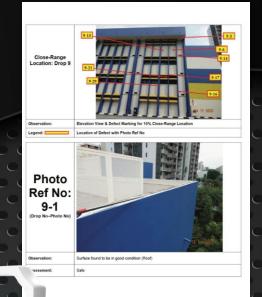
**Panasonic** 

Panasonic R&D Center Singapore

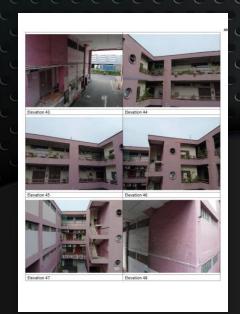


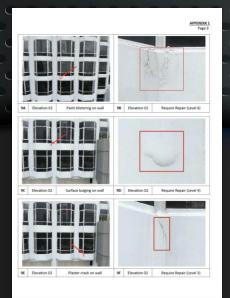


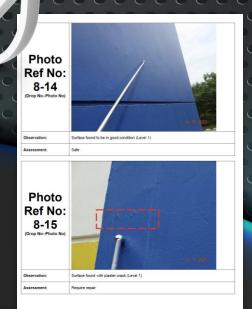












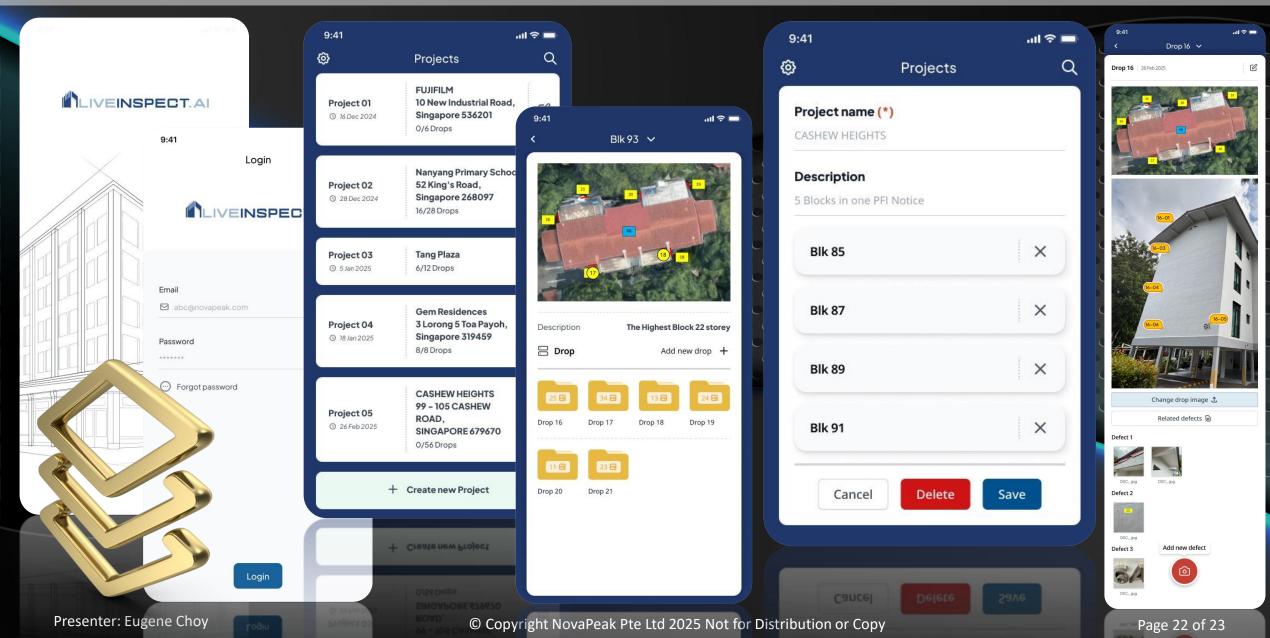
**Preliminary Survey** 

**100% Drone Appendix** 

**10% Close-Range Report** 

## Software & App for PFI















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+65 9155 0412



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