



5 - 8 DECEMBER 2022
DUBAI WORLD TRADE CENTRE

THE FUTURE OF FACILITY MANAGEMENT

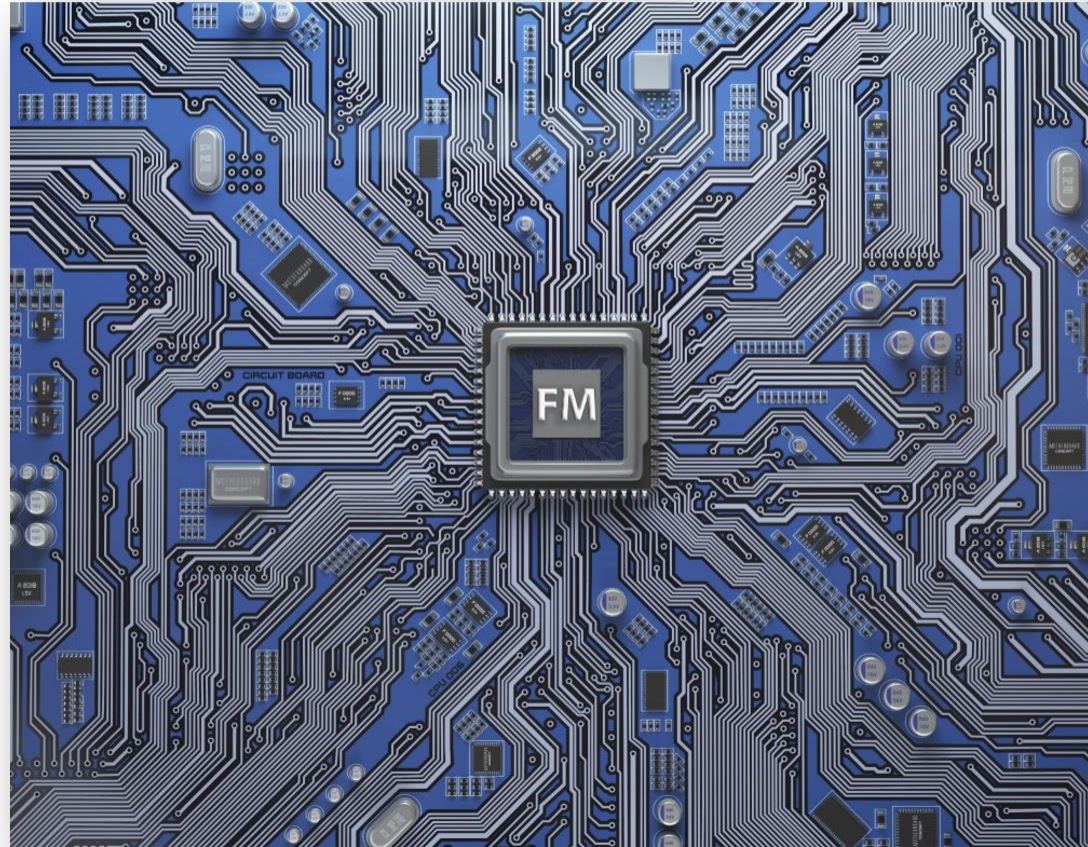
VALENTIN GABUROV
5 December 2022



OVERVIEW



- About Me
- What is Facility Management
- FM the Key to Importance
- Smart Buildings & 3D Mapping
- ELIOS 3 Introduction
- UAV as a tool to Adopt
- Power of Photogrammetry
- Future of Technology



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ABOUT ME



Worked in the U.A.E from 2000 and gained 22 years of professional experience in **QHSE, Security, Risk Management** and in **Healthcare Management**.

Involved in projects operating in **Abu Dhabi, Saudi Arabia, Yemen, Qatar** and other countries.

Experienced in **Unmanned Aerial Vehicle (UAV)** operations as a **Certified Commercial Drone Pilot for 8 years. FPV Drone Racing Pilot**.

Coming from **Safety & Security background** with strengths and abilities to develop and effectively manage projects' **QHSE & Security** in controlling the operational activities in safe and secure manner.

Worked with **multiple aerial's data** to supports the **projects studies**, value engineering information, promotional media and archiving of the development progress.

#BIG5EXHIBITION
www.thebig5.ae

BUILDING LIFECYCLE



FUTURE PLANNING

Deconstruction. Long Term Management.
System Upgrades. Additions. Demolition.
Transportation.

PARTNERSHIP

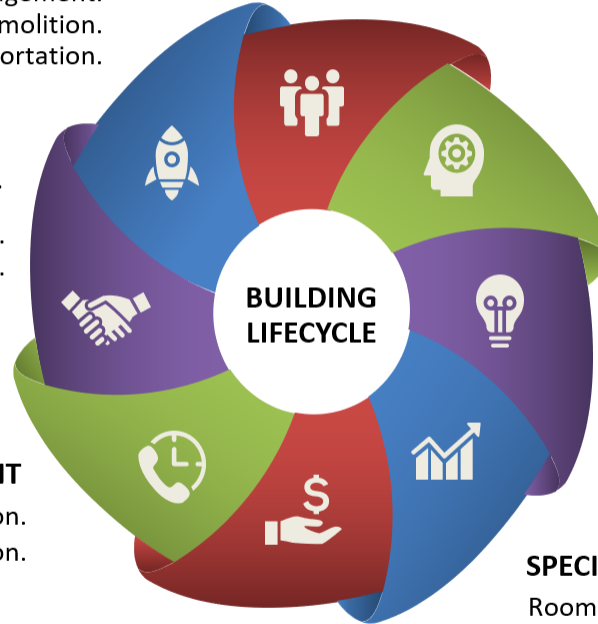
Investor. Owner. Project
Group. Architects. Contractor.

FACILITY MANAGEMENT

Maintenance. Repair. Operation.
Monitoring. Replacement. Refurbishment.

CONSTRUCTION MANAGEMENT

Construction. Installation Process. Transportation.
Integration. Scheduling. Administration.



BUILDING MANAGEMENT SYSTEM

Planning. Conceptual Drawings. 3D Modelling.
Visualization. Data Analysis. System Detection.

RECREATIONS

Environmental. Ventilation. Heating. Lighting.
Sound. Clash Detection. Seismic Design.

SPECIFICATIONS

Room Data Sheets. Materials Supply.
Quantities. Building Standards. Manufacturing.

PROCUREMENT

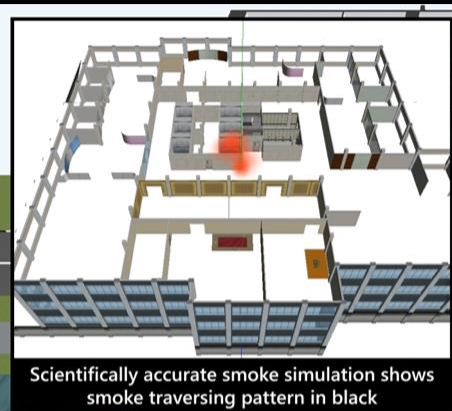
Tender and Bid. Pricing and Material Database.

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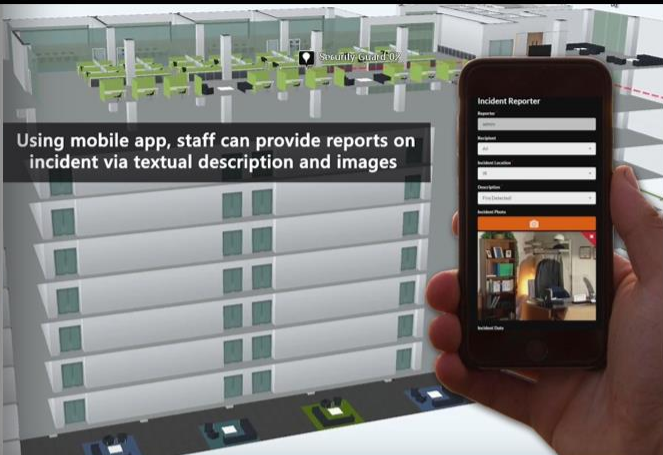
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3D SOLUTIONS FOR SMART BUILDINGS AND CITIES



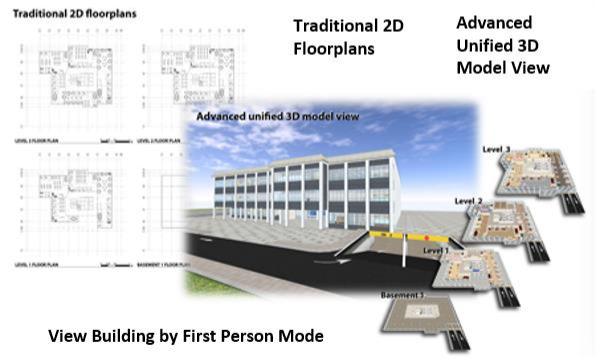
Scientifically accurate smoke simulation shows smoke traversing pattern in black



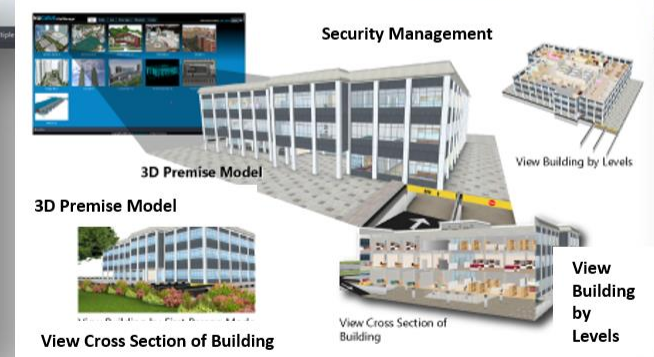
Using mobile app, staff can provide reports on incident via textual description and images



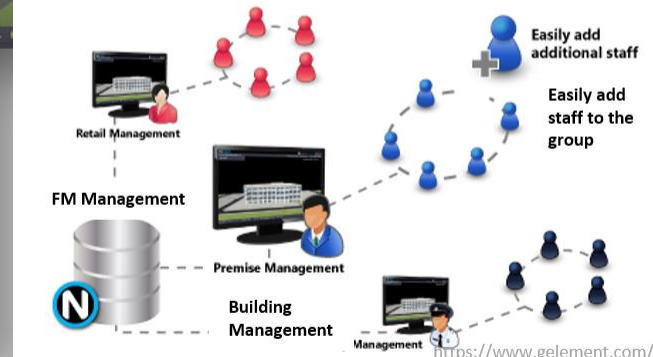
Evacuation routes broadcasted to app on mobile phones (For Public Users)



Traditional 2D floorplans
Advanced unified 3D Model View
View Building by First Person Mode



Security Management
3D Premise Model
View Building by Levels
View Cross Section of Building



FM Management
Premise Management
Building Management
Management
Easily add additional staff
Easily add staff to the group

The whole point of smart facility/building isn't just to be more energy efficient..(it is all that part of it) but it's about of using as much of the information available, within the building as possible connecting that information with people who are using the building, and doing that in the meaningful way in order to optimize all of the different aspect of the space, reducing operative cost, while also make a safe, smarter, more effusive place that people wants to spend more time in.

Use of Laser Technology in Facility Management

Laser scanning and lidar technology combine controlled swath angles with a laser range finding to provide precise accuracy of complex geo-data. The data collected can then be integrated into a complete BIM model to be used for clash detection and overall design automation.



FM RFID Tag

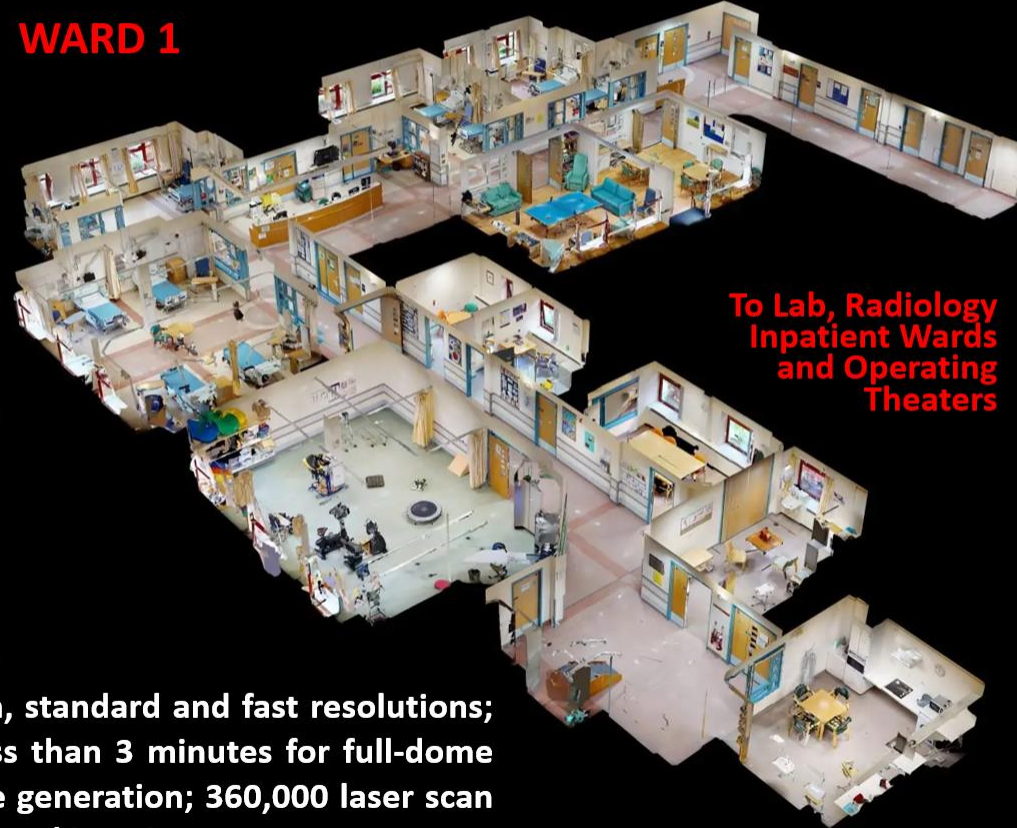


<https://leica-geosystems.com/products/laser-scanners>

VIRTUAL FACILITY MAPPING – 360 CAMERA



WARD 1



To Lab, Radiology
Inpatient Wards
and Operating
Theaters

BLK360 imaging laser scanner; Allows you to scan in high, standard and fast resolutions; Weighs 1 kg / Size 165 mm tall x 100 mm diameter; Less than 3 minutes for full-dome scan (in standard resolution) and 150 MP spherical image generation; 360,000 laser scan setpoints per second; High-Dynamic Range (HDR) and thermal imaging

USE OF DRONES IN CONSTRUCTION PROJECTS

PROJECT/FACILITY DIGITALIZATION

Planning & Design



Contracts/Bidding



Procurement



Construction



Close Out



Site Evaluation
Site Surveying
3D Modelling
Media & Graphics
Geographical Data
Collection

Project Risk Analysis
Quantity Estimation
Faster Submission of
Closed Tender Proposal
Critical Path Method
Project Delay Claims

Analysis of 3D Data
Insurance & Warranty
Survey Data Overview
Inspect the Actual Work
BIM Data Analyzation

HSE Site Monitoring
Progress Reports
Workers Supervision
Site Security Review
Control of Contractors

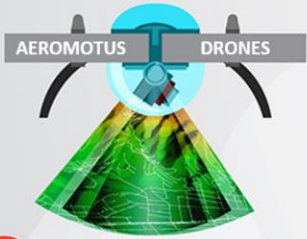
Projects Data Storage
BIM Data Archiving
FMS Data Analysis
Project Documentation
3D Computer Modeling
Media and Graphics

USE OF DRONES IN PROJECT LIFECYCLE



1 PLANNING

During planning stage, 3D models and 2D orthophotos provide highly visual overview for feasibility planning and final project visualisation.



2 SURVEY

Surveyors can make use of drones for large scale area scanning for mapping, generate contour lines and digital surface modelling (DSM).

HOSPITAL PROJECT

3 DESIGN

Detailed and complete 2D/3D data is essential during design phase. They are used as base maps on which to design the project.



4 BUILD

The use of drones for regular building updates during build phase ensures project is on-design and on-schedule, with errors caught early and reworking minimised.

5 MANAGE

When the building is completed and asset/facility management phase starts, images and mapping data with aerial perspective can be used for building inspection.



4K Camera
0.18 mm/px GSD

Thermal Camera

Distance Sensor

ELIOS 3







Much more than a flying camera,
Elios 3 is a **powerful data-harvesting tool.**



FlyAware™
SLAM Engine

SLAM-Based
Stabilization

3D
Live Map

3D
reporting

3D Surveying
Solution

Modular
Payload Bay

Collision-Resilient
Rugged Design

Close-Up Inspection
Dedicated Payload

Extended
Air-Time



DRONE SELECTION



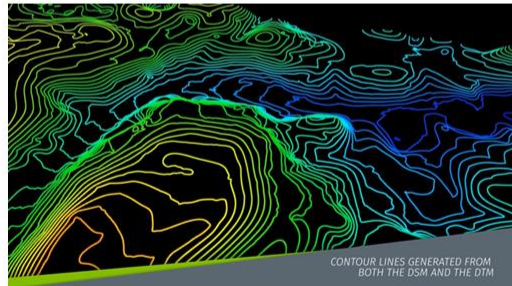
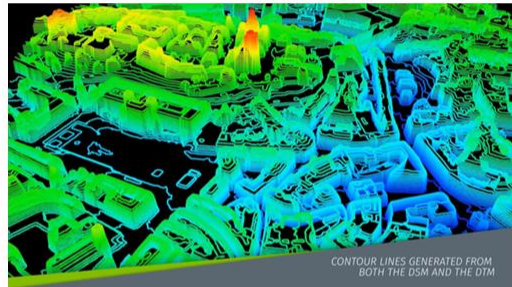
Insta360 X3



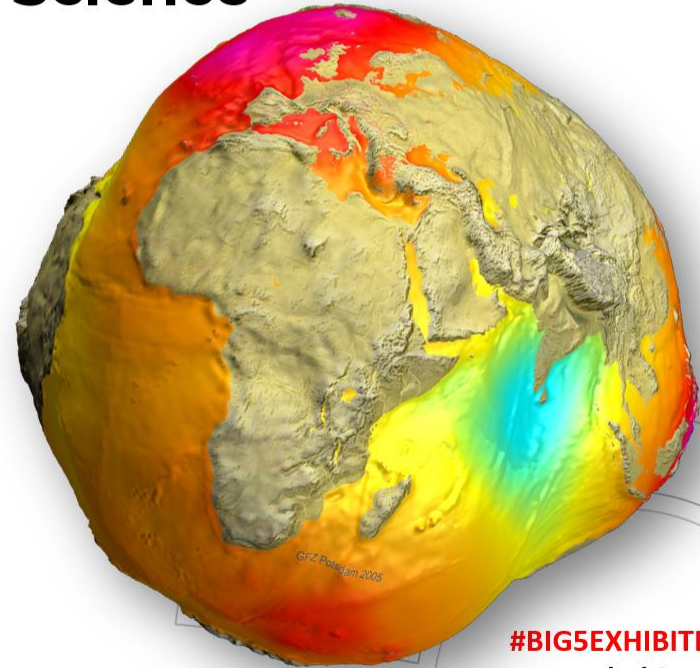
Insta360 ONE X2

360 CAMERA





LIDAR and Photogrammetry Science



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Lidar is a direct measurement—you're physically hitting a feature with light and measuring the reflection. **Drone photogrammetry** uses images captured by a drone-mounted camera to reconstruct the terrain in an accurate 3D model using image overlap and sufficient ground control.

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DRONES FOR INSPECTIONS AND ANALYTICS

Digital Transformation in most advanced Commercial Drone Solutions



Aeromotus is a leading and an emerging Drone Technology Company in the Middle East and Africa region with its head offices in Dubai, United Arab Emirates, primarily focused in offering Drone-as-a- Solution.

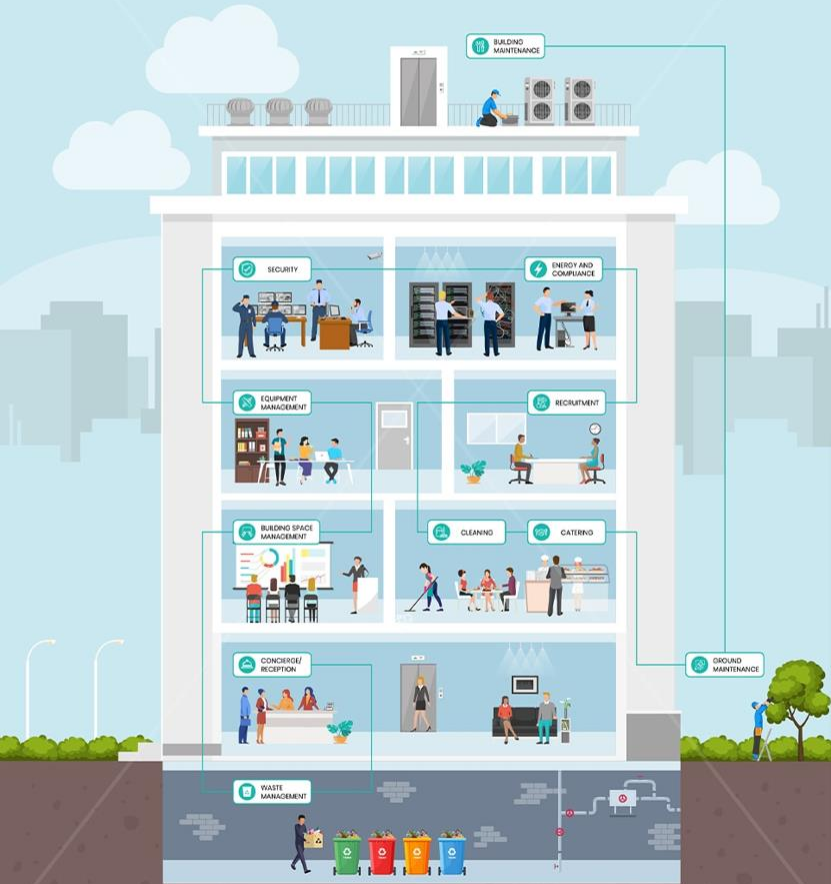


Aeromotus plays a vital role in the Industry's Digital Transformation using Drone Solutions, enabling and supporting Organizations in the Middle East and Africa in embracing Drone



FACILITY PROCESSES

IN A BUILT ENVIRONMENT



VISUAL REPRESENTATION OF THE WORKFLOW THAT LEADS TO DEFERRED MAINTENANCE



55% of Facility Managers

fall into reactive management

228 hours

lost every year as a result of reactive management!

<https://www.aafintl.com/en/commercial/solutions-offered/deferred-maintenance>



“The immediate future clearly is all about technology, yet the bigger future lies in transcending it”.



Concrete



Facilities Management



Geotechnical & Engineering



HVAC R



Offsite & Modular



Project Management



Solar



Stone Design



Technology



Urban Design & Landscape