

Thank you for joining my workshop presentation on the importance of digital twin technology in asset, facility and maintenance operations!



INFRAMAPPA

Let us help you create your digital twin!

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Book a meeting with me: <https://calendly.com/katherine-inframappa/30min>

Under the patronage of **HRH Prince Khalid Al-Faisal**
Advisor to the Custodian of the Two Holy Mosques & Governor of Makkah Region



المؤتمر الدولي الثاني والعشرون لإدارة الأصول والمرافق والصيانة
The 22nd International Asset, Facility & Maintenance
Management Conference

Digitization - Excellence - Sustainability

DIGITAL INFRASTRUCTURE MAPPING

Revolutionizing Facility Management with Technology

26-28 January 2025

The Ritz-Carlton Jeddah, Kingdom of Saudi Arabia

www.omaintec.com #OmaintecConf

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المجلس العربي لإدارة الأصول والمرافق والصيانة
Arab Asset, Facility and Maintenance Management Council

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How many of you already have scanned plans?

How many of you already use GIS?

How many of you already have a complete digital twin of your facility?

89%

OF DATA COLLECTED ABOUT
BUILDINGS AND
INFRASTRUCTURE GOES
UNUSED
*Verdantix, IDC

35%

MANAGEMENT TIME IS SPENT
FINDING INFORMATION ABOUT
INFRASTRUCTURE*
*2018 FMI Plan Grid Report

OBSTACLES WHEN MANAGING A FACILITY

- Data Silos
- Inaccurate or Outdated Data
- Lack of Real-Time Data
- Complex Data Sources
- Poor Data Quality

- Limited Analytics and Insights
- Scalability Issues
- Compliance and Reporting
- High Cost of Data Integration

WHAT IS A DIGITAL TWIN?

A virtual representation of infrastructure updated in real-time.

Features:

- 2D & 3D visualization
- AR/VR capabilities
- Real-time updates
- Integrations

BENEFITS OF A DIGITAL TWIN

Improved Operational Efficiency

- Real-time Monitoring
- Predictive Maintenance
- Process Optimization

Risk Mitigation

- Failure Prediction
- Disaster Simulation

Faster Time-to-Market

- Accelerated Design
- Real-time Feedback Loops

Enhanced Decision-Making

- Data-Driven Insights

Cost Reduction

- Proactive Maintenance
- Energy Efficiency

Enhanced Experience

- Customization

Sustainability

- Resource Optimization
- Lifecycle Management

Collaboration and Innovation

- Cross-functional Collaboration
- Continuous Improvement

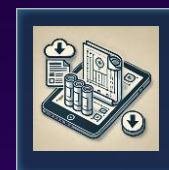
The Journey to Your Digital Twin...



Data Acquisition



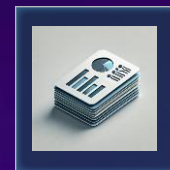
Software & System



Digital Planroom



Verification



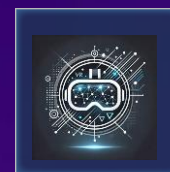
Reports



IoT



Augmented Reality (AR)



Virtual Reality (VR)



Integration

DATA ACQUISITION

Gathering and classifying data

- Data acquisition using drones, 360 camera, phone imagery, lidar
- Correcting and aligning data with real-world conditions

Scanning images/upload, include GIS data

- merge all of these together

Data Sources

- paper
- scanned pdfs
- autocad drawings
- microstation drawings
- GIS system with shape files



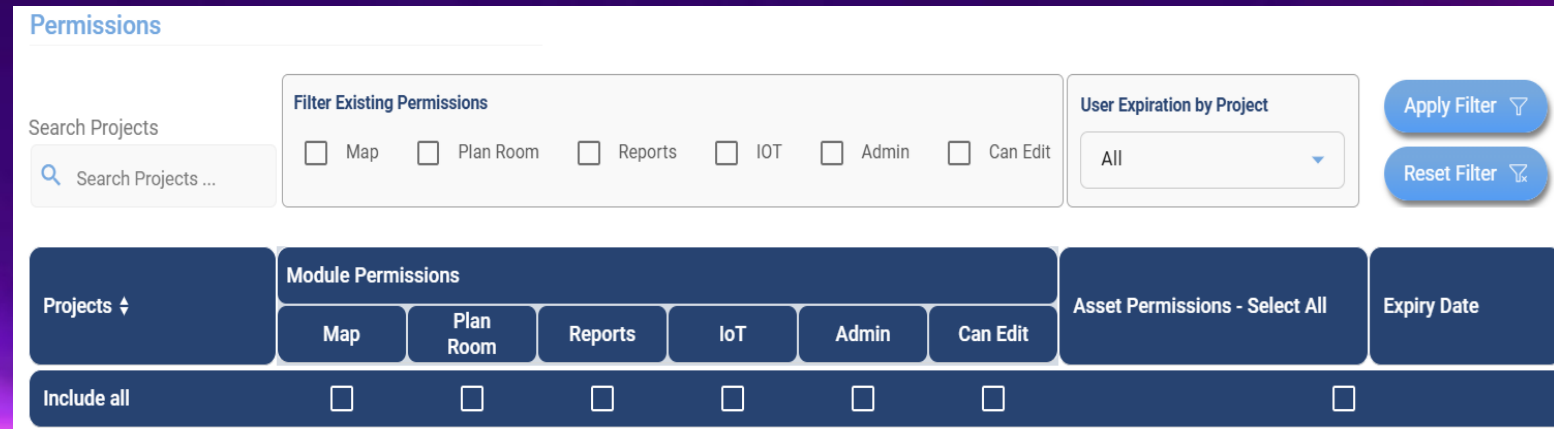
SOFTWARE & SYSTEM

Procure a solution
Give access to your team

- contractors
- construction
- maintenance
- emergency

Key Attributes:

- Unlimited Access
- Temporary Access
- Filtered Access



The screenshot shows a 'Permissions' management interface. At the top, there is a search bar for 'Search Projects' and a 'Filter Existing Permissions' section with checkboxes for 'Map', 'Plan Room', 'Reports', 'IoT', 'Admin', and 'Can Edit'. To the right, there is a 'User Expiration by Project' dropdown menu set to 'All', with 'Apply Filter' and 'Reset Filter' buttons. Below this is a table with columns for 'Projects', 'Module Permissions', 'Asset Permissions - Select All', and 'Expiry Date'. The 'Module Permissions' column has sub-columns for 'Map', 'Plan Room', 'Reports', 'IoT', 'Admin', and 'Can Edit'. The 'Include all' row has checkboxes for each of these module permissions.

Projects	Module Permissions						Asset Permissions - Select All	Expiry Date
	Map	Plan Room	Reports	IoT	Admin	Can Edit		
Include all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

DIGITAL PLAN ROOM

Plan Room Add Plan +

Wild Search... 🔍

Filters

Digitized ▼

All

From Year ▼

Contractor ▼

Contractor

Plan Set Datum ▼

Plan Set Datum

Architect ▼

Architect

Mechanical ▼

Mechanical

Electrical ▼

Electrical

Plumbing ▼

Plumbing

Plan Set type ▼

Till Year ▼

Till Year

Apply Filter

(13) - Fiber Optic Addition Unspecified 2016/May	(14) - Security Upgrades Unspecified 2016/May	(12) - Soccer Field Renovation Div. of Highways Monume... 2015/Feb	(8) - Flex Space Unit Div. of Highways Monume... 2008/Dec	(11) - Football Field Renovation Div. of Highways Monume... 2008/Dec	(4201) - Bldg 420 - Floor Plans Unknown 2008/Dec	(4202) - Bldg 420 - Architectural Plans Unknown 2008/Dec
(4203) - Bldg 420 - Civil Plans Unknown 2008/Dec	(4204) - Bldg 420 - Landscape Plans Unknown 2008/Dec	(4205) - Bldg 420 - Structural Plans Unknown 2008/Dec	(4206) - Bldg 420 - Mechanical Plans Unknown 2008/Dec	(4207) - Bldg 420 - Plumbing Plans Unknown 2008/Dec	(4208) - Bldg 420 - Fire Protection Plans Unknown 2008/Dec	(4209) - Bldg 420 - Electric Plans Unknown 2008/Dec
(42010) - Bldg 420 - Telecom Plans Unknown 2008/Dec	(42011) - Bldg 420 - Fire Alarm Plans Unknown 2008/Dec	(42012) - Bldg 420 - Specifications and Addendum Unknown 2008/Dec	(6) - Maintenance and Shops Complex Div. of Highways Monume... 2001/Dec	(10) - Main Complex TI Unspecified 1999/May	(3004) - Bldg 300 - Landscape Plans Unknown 1995/Dec	(5) - Administrative Complex Bldg 300 Div. of Highways Monume... 1995/Dec

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VERIFICATION

Show mapped data against the high resolution image
Orthorectification
Field verification for assets
Correction of missing or incorrect field data



REPORTS

Replacement Costs in 1 Click
Cost References for Expiring Items

Labor Costs

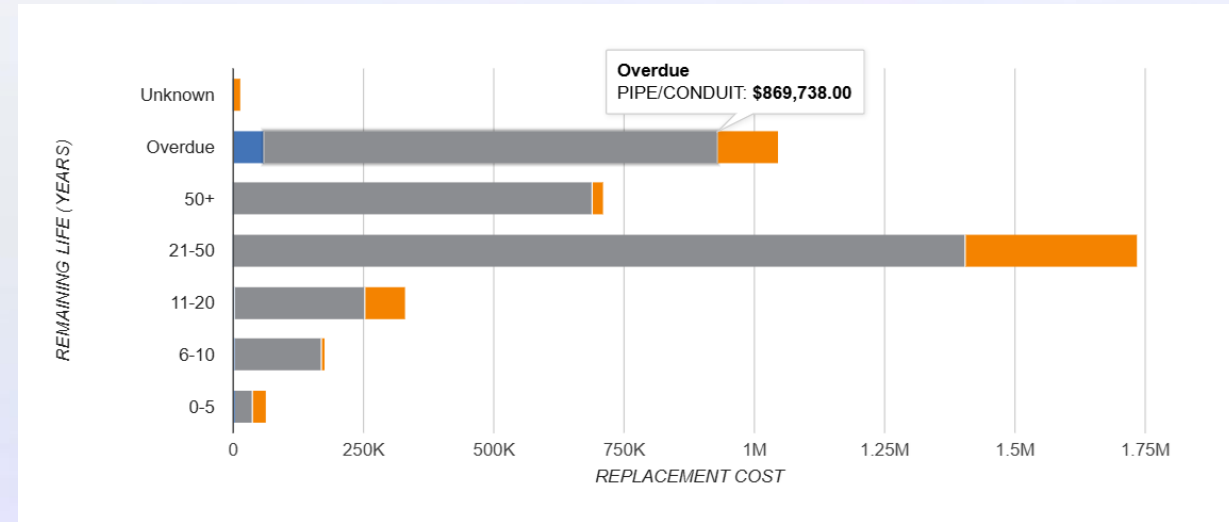
Order Management Status

- when
- schedule

Integratable Data

- Mapped Data vs External Data Sources

Filterable data





INTERNET of THINGS (IoT)

Real-Time Monitoring
Proactive Maintenance
Emergency Response
Data Integration
Smarter Decisions
Safety Compliance

Live updates for utilities.
Predictive insights reduce costs.
Faster issue resolution.
Unified platform for all data.
Trend analysis and resource
allocation.
Detect hazards and minimize risks.

DEMONSTRATING A DIGITAL TWIN IN ACTION

Have you used AR/VR tools in your operations?

Enhanced Visualization
Better Decisions
Training
Efficient Maintenance
Accident Prevention
Remote Collaboration
Stakeholder Engagement

3D infrastructure view.
On-site data overlays.
Realistic skill-building.
Real-time repair data.
Hazard awareness.
Virtual team reviews.
Immersive presentations.

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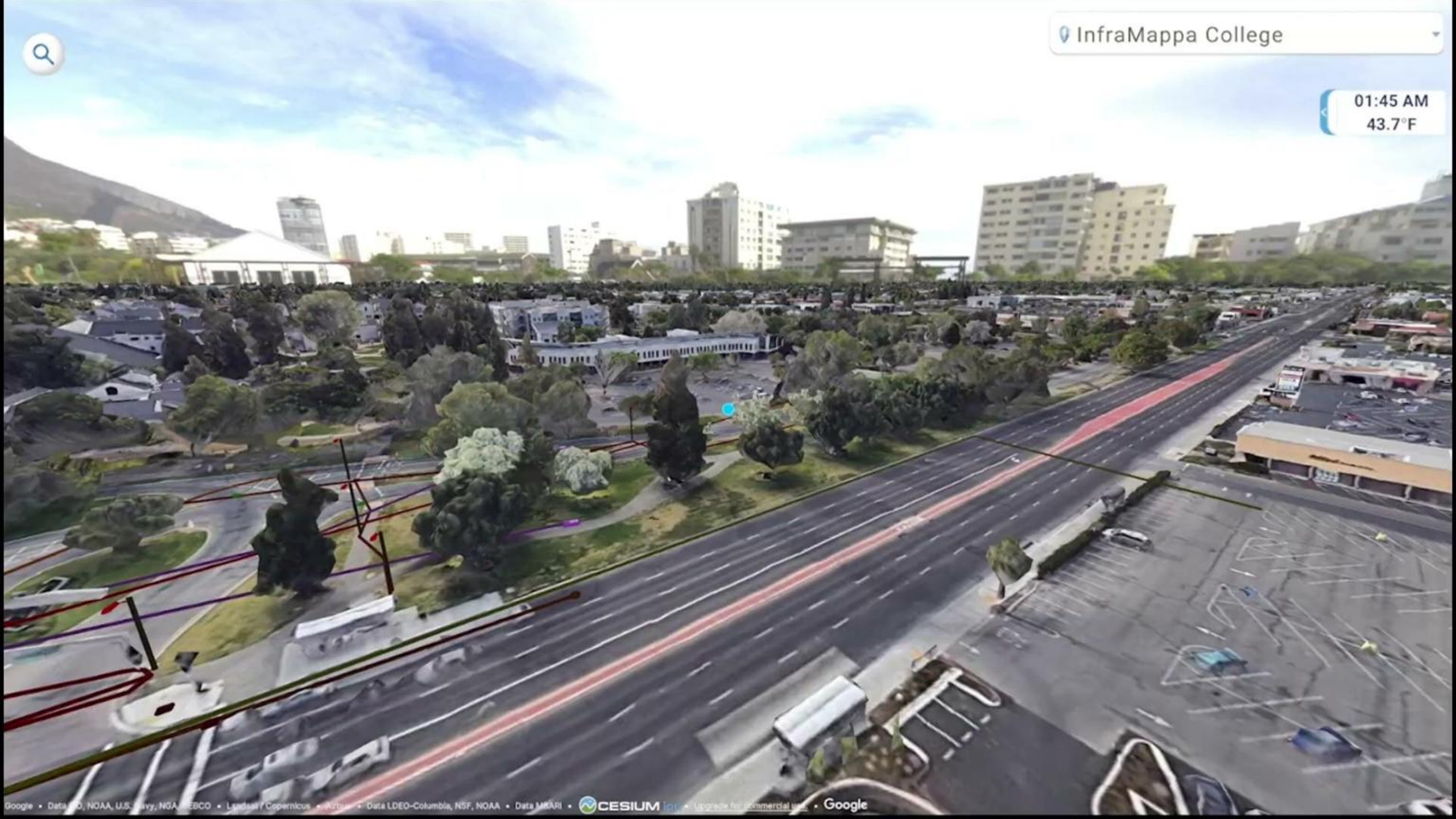




InfraMappa College

01:45 AM

43.7°F



INTEGRATION WITH EXISTING SYSTEMS

- Compatibility
- to remove silos and promote efficiency-
- GIS
- CAD
- IoT Platforms
- Work Order Management
- Lease/Property Management Software
- ERP

Lighting [Close]

ID: LTNG-CONDUIT BANK

Status: Operational [Edit]

Length: 123 456 789 101

Verification: Verification Not Attempted

ASCE Quality Level: D- Location Per Plan

Conduit: 1

Brightly SIEMENS [Expand]

Manufacturer/Model: DSXF3-LED-8COB-A530/40K-4x4 OPTICS-MVOLT-IS-DDBXD-FSB-DDBXDU, SSS 25 4C SBT-5S

Diameter: 8"

WO #	Title	WO Status	Requested by
392	Change Bulb M...	In Progress	Brandon S.
469	Check Function...	In Progress	Christopher P.

[Show other possible attributes](#)

[VIEW SOURCE PLANS](#)

FUTURE PROOFING YOUR SYSTEM

Continuous updates ensure data accuracy
Intuitive interface accessible on any device
Editable Data
Scalable solutions for growth



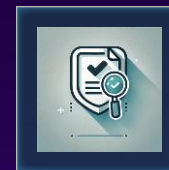
SUMMARY



Data Acquisition



Digital Planroom



Verification



Software & System



Reports



IoT



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Virtual Reality (VR)



Integration



QUESTIONS?

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