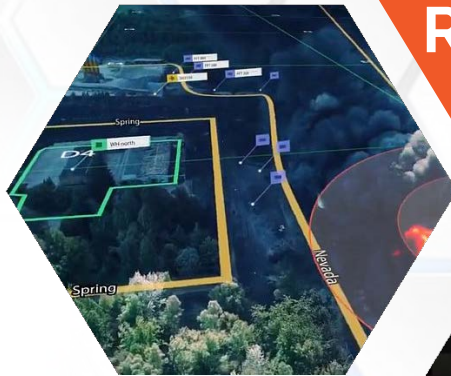# GEOREGISTRATION

7

Critical Requirements

Bring Accuracy and Speed to Lifesaving Missions

Real-time Georegistration for your Aerial Video

EDGYBEES

What is
Georegistration?

Georegistration is the association of a visual object in an image or a video with an accurate geographical location. In other words, it is the aligning of imagery with the geographical coordinates and landmarks that provides the necessary context to the visual.

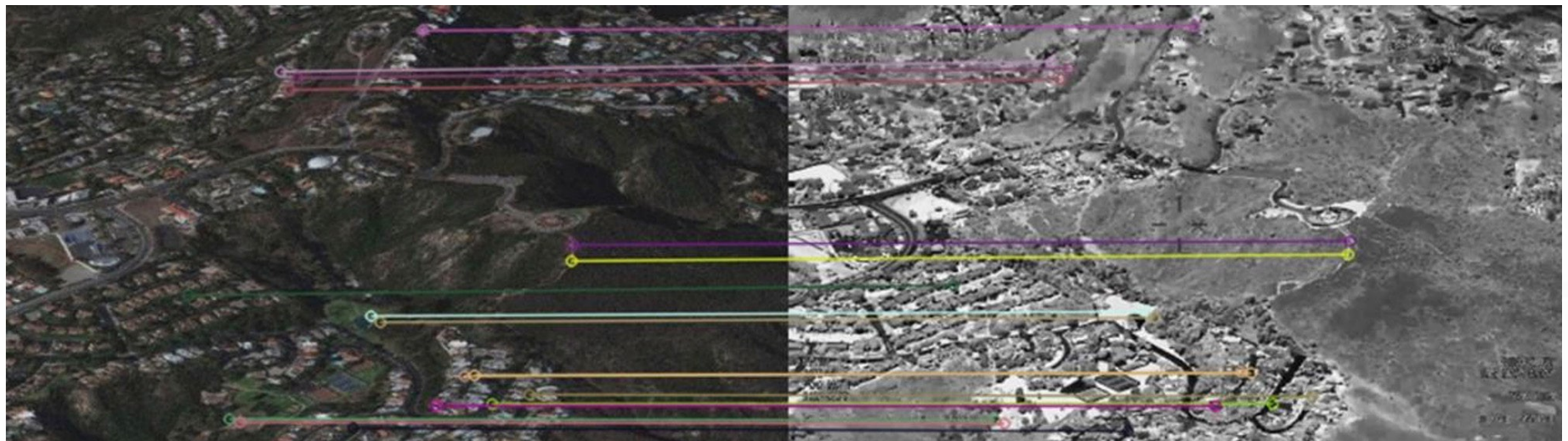**1** **CORRELATE** incoming video frames to referennce satelillite

2 **IDENTIFY** accurate camera 3D space location and ground image footprint

3 **AUGMENT** video stream with high precision geography features

Reference Image   **Drone Video**

Why do
You need it?

We have more video footage than ever before, but we still don't have the right information when we need it.

The explosion of video footage and sensor data from drones, helicopters, and airplanes has expanded the availability of imagery assets during critical missions such as natural disasters, emergency incidents, and precision military operations.

> **$1Trillion**
a year spent on aerial imagery and video footage

Much of the imagery and video received is ignored due to lack of context

However, the software tools used to exploit and analyze these video signals struggle to geolocate important information and quickly orient a mission around a particular road or geographic feature.

A House threatened by close by wildfires

A vehicle trapped in a flood area

A hiker lost in a remote area

Accurate

Geographical information can save lives

Georegistration is crucial to make aerial and satellite imagery easier to review, analyze and act upon the information it provides. It can significantly increase the situational awareness of the person reviewing the imagery and reduce disastrous human error. Ultimately, georegistration is lifesaving technology!
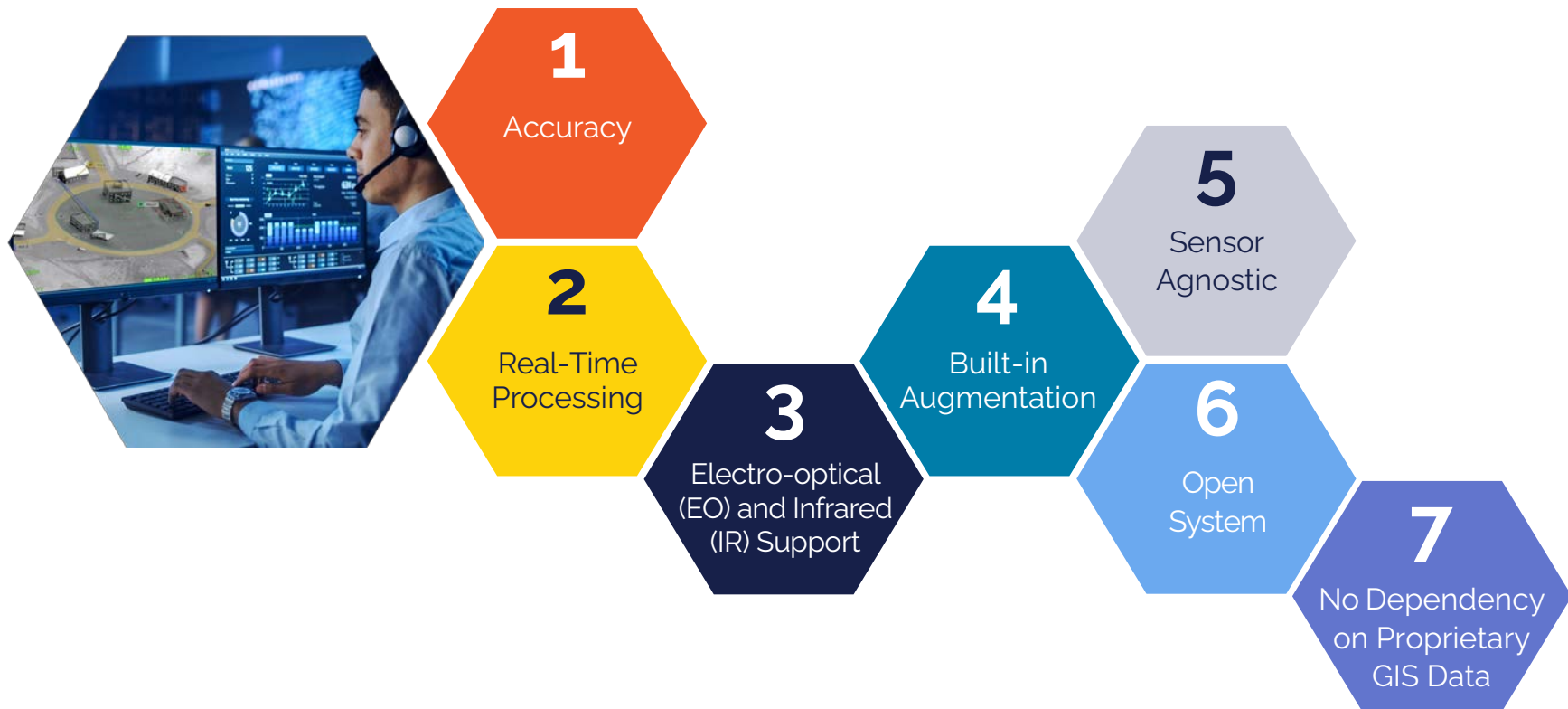
Without Georegistration

With Georegistration

7
Critical requirements for georegistration

Georegistration for full motion video footage is an emerging technology that is quickly becoming a crucial component of mission critical operations. As such, different solutions vary in capabilities, some of which are detrimental to their viability and effectiveness for the task in hand. The following list should assist you in understanding the critical requirements for Georegistration and guiding the evaluation of a solution.

1 Accuracy

2 Real-Time Processing

3 Electro-optical (EO) and Infrared (IR) Support

4 Built-in Augmentation

5 Sensor Agnostic

6 Open System

7 No Dependency on Proprietary GIS Data

1

Accuracy

GIS data from most aircrafts can be off target by as much as 5–20 meters. Camera position (heading, declination, and field of view) could also materially affect georegistration accuracy. Depending on the aircraft flight elevation, even a small discrepancy can have a huge effect on the final result.

A good georegistration solution should identify and correct all such errors to provide a position of all objects in the video with a level of accuracy that is down to 1-3 meters.

2

Real-time Processing

In critical missions, you need to quickly interpret a video and identify the important points of interest. A delay of a few seconds in understanding the incoming imagery can truly mean the difference between life and death. It won't help to get a 100% accurate georegistration if it takes minutes or hours for the processing to be completed.

For such missions, you need a georegistration solution that can provide the relevant information in a matter of milliseconds.

3

Electro-optical (EO) and Infrared (IR) Support

The most common type of imagery is electro-optical (EO), which can be most easily understood by humans. However, there are cases where EO is not enough or cannot be retrieved - for example during night time when visibility is limited, or when you need to see through a canopy of trees.
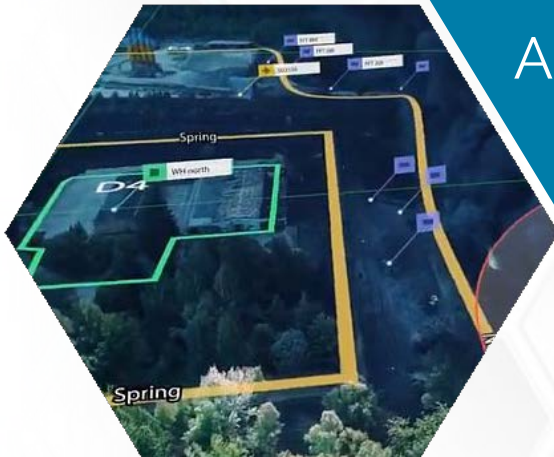
For these situations, other types of imagery such as infrared (IR) should be supported in addition to EO.

4
Built-in Augmentation

The ability to georegister is only the first step in providing clear and crisp situational awareness of aerial imagery. Providing additional data layers on top of imagery is important, as is the ability to choose which data layers to present.

To enrich the information displayed, advanced users may need the ability to create their own points and areas of interest (POIs and AOIs) on the video and share them with other users.

5

Sensor
Agnostic

In very few cases you can rely on images from a single type of platform or sensor. More than likely, you will need to integrate images and videos from various sources.

Your georegistration solution should be agnostic to the specific platform or sensor providing the video and reach the same high level of accuracy and performance on all of them.

6

Open System

Your georegistration solution should enable you to easily integrate data from different sources (e.g. OpenStreetMap that holds the data on roads worldwide) so it can be properly layered and displayed.

In addition, to minimize system footprint, training, and migration efforts, you should look for a georegistration solution that can push its output to your existing systems.
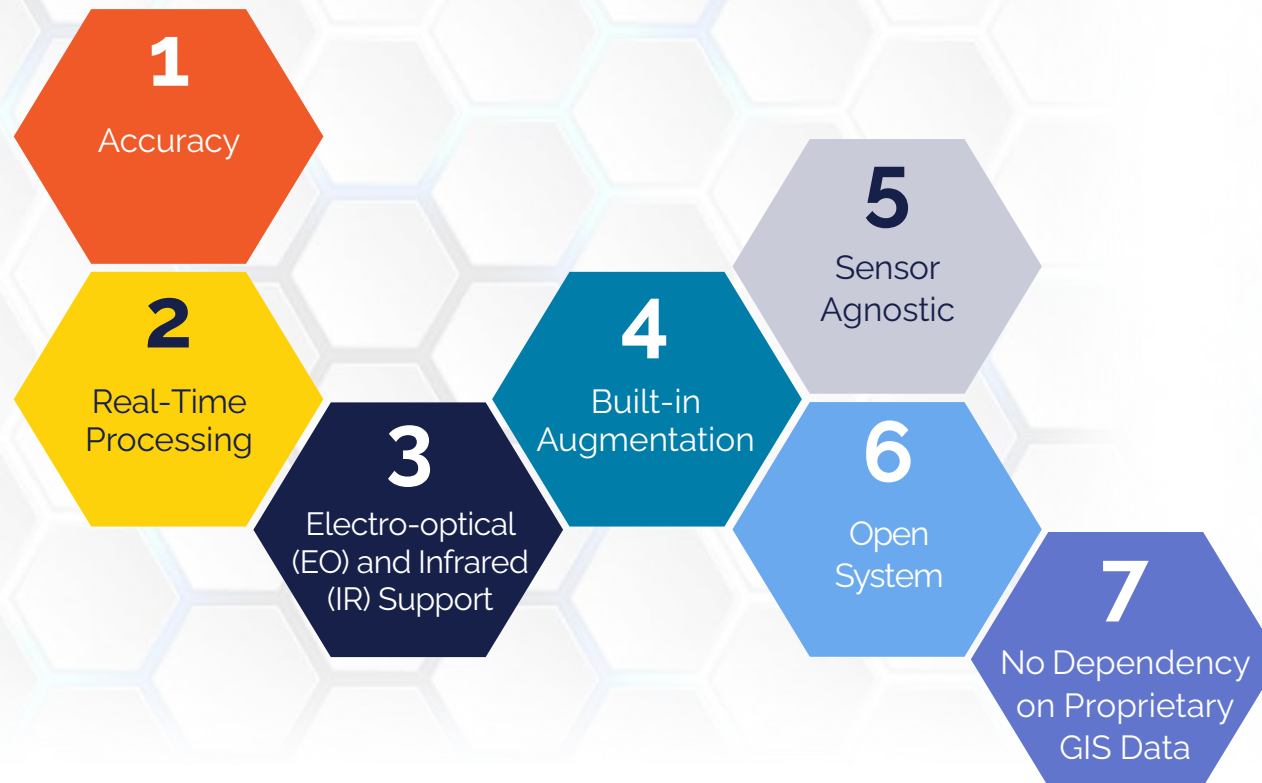
7
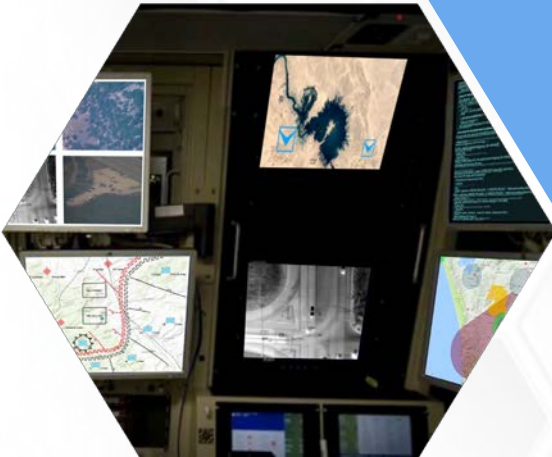
No Dependency on Proprietary GIS Data

GIS and mapping services come in many different flavors, providing varying quality of data at varying costs for different areas of the globe. Depending on your budget and need, you might want to use different mapping services for different scenarios.

A georegistration solution that can support any mapping service rather than require its own proprietary GIS data would be a better match for your needs or budget.

Georegistration
Quick Checklist

Georegistration is a critical element to attaining situational awareness. Before implementing a solution, start by mapping out your specific needs, and ensure you have the right technology to support each of these **seven crucial considerations**.

1
Accuracy

2
Real-Time Processing

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Electro-optical (EO) and Infrared (IR) Support

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Sensor Agnostic

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No Dependency on Proprietary GIS Data

About Edgybees

Edgybees is on a mission to instantly transform spatial content into actionable and reliable information to deliver a safer world. Edgybees software combines advanced computer vision and machine learning technologies to accurately align aerial video and satellite imagery to reference imagery in real time.

This unique approach enables rapid decision-making by visually augmenting roads, key landmarks, and other mission-critical data. And today's AI and ML technologies need accurately located images and source data to maximize algorithms' effectiveness and power. Edgybees software can be integrated with existing systems, used in geospatial analysis tools, and is compatible with on-demand cloud computing services.

Edgybees makes complex operational environments instantly clear – enabling defense, public safety, and critical infrastructure teams to accomplish critical, lifesaving missions quickly and safely.

EDGYBEES

For more information, please visit
www.edgybees.com or contact us at **info@edgybees.com.**