WHITEPAPER

Locana
a TRC company

# Location-based AI Delivers a Differentiated Advantage

*Automate, identify, and predict with next-level effectiveness using geospatial-powered solutions for business*

# Everyone wants AI. But most fail.

In 2024, excitement (and investment) abound around AI, with the market projected to reach $407 billion by 2027. Yet often, the return on value has not been delivered. That's because most AI projects fail, with Harvard Business Review reporting that failure rates could be **as high as 80%**.

For most, none of this will diminish pursuing the promise AI holds in how organizations deliver products, services, and improving new business models to customers, as well as supercharging operations and productivity.

Thanks to the benefits of cloud computing—which includes pay-as-you-go pricing and nearly unlimited amounts of scalable compute power —companies of all sizes can move forward with robust strategies.

The key for many, from **utilities** to real estate, insurance, **commercial**, **government**, and even **non-profits**, involves developing the correct data, models, tools, and analytics.

With location-based AI, businesses can do more and work smarter at every level. It can automate mundane processes the typical worker distains, process massive amounts of data in a split second, make accurate predictions on the fly, and optimize assets and infrastructure using custom-trained models. By coupling location intelligence and analytics, businesses improve accuracy and gain deeper insights using a more complete solution.

# AI is everywhere. But it's still complicated.

While more organizations than ever will implement AI solutions, companies often lack the training, resources, and proficiency to achieve intended benefits. Understanding the proper use cases, data, infrastructure, and training models requires technology skills as well as industry-specific expertise. This is particularly true for launching location-based AI, which promises optimized outcomes but involves geospatial knowledge.

Companies struggle to get their data in order, particularly around quantity, quality, and fit-for-purpose. AI models need massive datasets to test and validate, and managing data requires the right tools. Businesses also struggle to attain enough of the right kind of data to process using AI tools, including unstructured and heterogeneous data sets. Put simply—you need to have data, and a lot of it, to make it work.

To avoid failure and reduce risk, governance matters—its' the key to trustworthy AI. Organizations must ask: what policies do we need for AI to operate correctly? For example, are we sending data to a third-party service? If so, what guidelines do we need regarding what we expose our data to? Are we sending data to a third-party service that will display that data to a large language model, which may then use it to create answers for other customers of that third-party service?

Or do we have information about critical infrastructure that we are required to keep protected, or does it have personally identifiable information of staff or customers that can't be distributed outside the enterprise?

Simply copying and pasting large chunks of text into things like ChatGPT exposes tremendous risk that, once done, can't be undone. Governance—proper data management and tracking in and around AI—provides controls to avoid hazards. It includes getting security in order so you don't expose data improperly.

Performing AI operations at scale can require significant data storage, bandwidth, and compute power. Organizations need to ensure that they understand the order of magnitude for costs involved up front so they avoid unexpected charges performing, for example, an AI model piloted on just a handful of data objects or set it up to run overnight on a massive dataset; they could inadvertently use a year worth the credits because they don't understand how to scale and the requirements involved in moving from prototype to production.

**Challenges to business-focused AI:**

- Employing technical skills, knowledge, and expertise
- Identifying and building fit-for-purpose data
- Training models for business use cases
- Ensuring proper governance and security
- Proper resource usage and management

# Location-leading AI can make all the difference

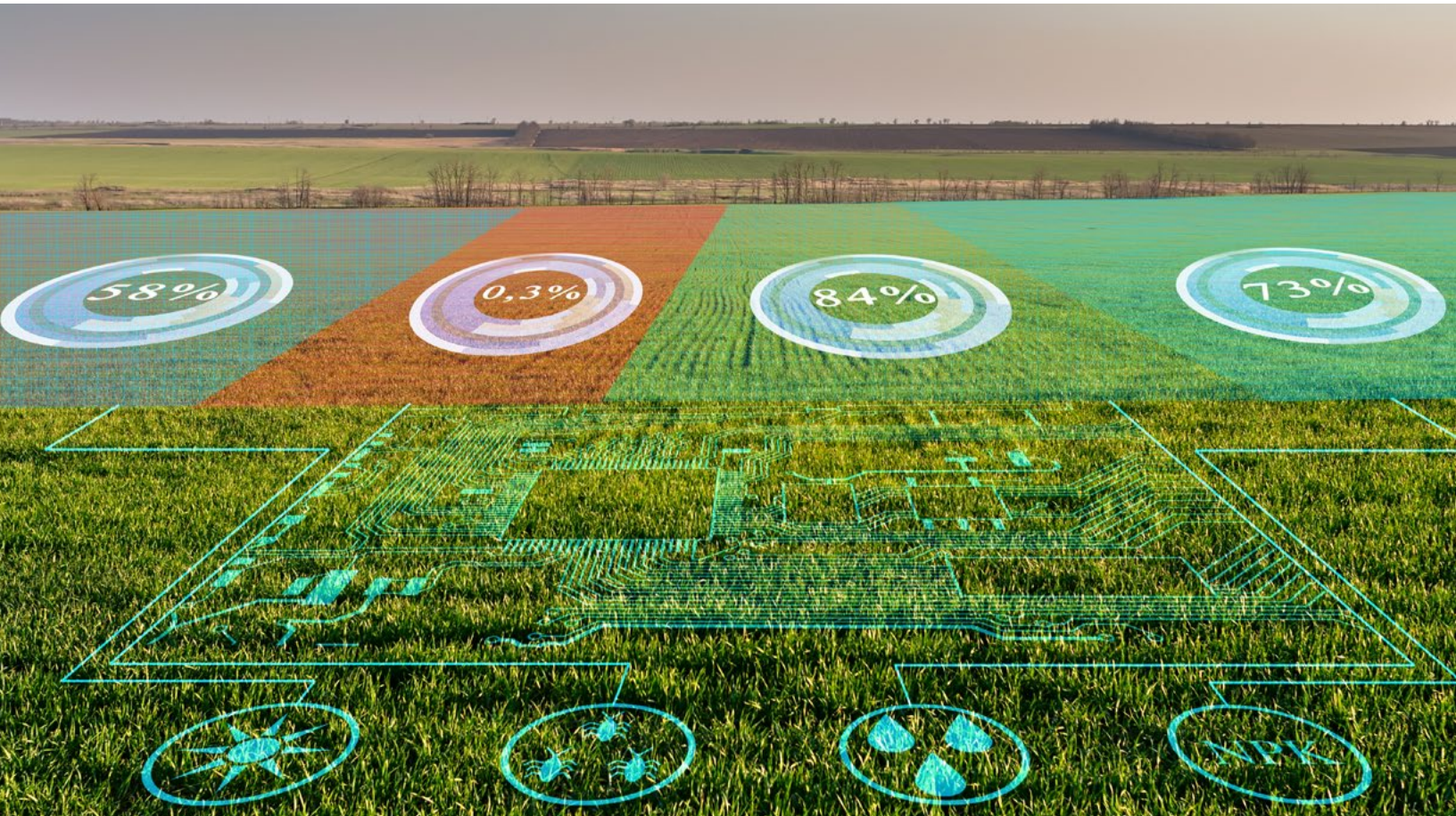
Adding geospatial tools, technology, and location intelligence to your AI solution helps from the onset—from building and preparing data to developing your in-house AI capabilities. Location-based AI connects different types of data using spatial relationships to train your models.

With the proper data science and geospatial expertise, you can take advantage of intelligence built into the location-based AI that allows the use of unstructured and heterogeneous data. For example, you can apply tools to an S3 bucket containing a collection of files or random data objects to process more effectively.

As a best practice, you can also catalog data, create detailed metadata, and then preprocess it to make it more efficient to build the first iteration of your location-based solution. When doing prompt engineering against a data source, if you know the schema structure and have "nouns" defined in the data, it makes it easier to write a prompt against it versus having to discover details of the data as part of your solution. This reduces orders of magnitude of complexity. And when you're dealing with an already complex technology like AI, simplifying things wherever possible is a good strategy to improve the likelihood of your success.

With the proper engineering and data science, companies can employ custom-trained, location-aware models to detect, capture, and classify features and attributes from raw data, such as imagery. Inference techniques help detect, capture, and classify features and characteristics from raw data sources, from social media to satellite imagery and surveillance cameras.

Once your data is ready and your solution in place, the combination of AI and location intelligence provides optimum functionality to perform several workflows with superior speed, accuracy, and efficiency. Companies can automate enormous tasks that would take combinations of people and an exponentially greater number of hours to complete—and quickly make sense of complex situations.



For example, a government agency can rapidly develop a spatial inventory of land resources using satellite imagery. Utilities can process massive networks stretching across multiple state boundaries using drone data to safeguard against interruptions. Transportation agencies and telecommunications and energy providers can analyze enormous amounts of information to predict future outcomes correctly. This supports determining where to invest or upgrade the infrastructure needed to defend against calamities.

GIS combined with AI can reduce labor costs and increase the value of products and services. Organizations can use inference techniques to correlate information that enriches existing products. Examples of this can range from an infotainment system to maps that pull in geo-tagged information, to a travel website that offers clients hotels that match their preference, to open development topic modeling that pulls out keywords to determine a summary and create a map of an issue.

Using modern architectural patterns, companies can use geo-powered AI to harness insights from corporate databases and customer data by simply asking the questions. For example, an engineering leader can ask for all assets meeting specific parameters within a given network. Or sales staff can ask for potential upsell opportunities for prospects in a given market or even competitor locations.

With AI and location intelligence, decision-makers can answer paramount questions such as:

- Where are customers, competitors, prospects, and partners? Where will they be in the future?
- Where in the utility network will I need to perform inspection, maintenance, repair, and replacement to prevent future disruption?
- What locations are in danger of extreme weather or climate risks?
- How can I optimize my bi-directional electricity network for increased capacity?
- Where do commercial business functions sustainably operate with the least impact on the environment?
- How do I build out my infrastructure to meet net-zero requirements and goals?
- What potential supply chain risks could impact product delivery or customer service?
- Where do vegetation management efforts need to be prioritized?
- Where can non-profits effectively assist agriculture producers with land use, crops, and livestock?
- Where do government entities need to protect vulnerable populations from hurricanes, flooding, and wildfire events?

**The benefits of location-based AI:**

- Enhanced data preparation and quality
- Improved AI models, testing, and validation
- Automated and streamlined workflows and processes
- Enhanced products, services, and customer care
- Optimized operations, infrastructure, and performance

# Location-based AI means business

Combining AI with geospatial technology delivers value across industries and applications. It helps make sense of complexity and identify solutions quickly. Companies can automate processes at scale, as well as analyze information to predict future scenarios or unearth hidden patterns. No matter the market, the combination of AI and geospatial offers unparalleled opportunities for resiliency, efficiency, and effectiveness.

## Insurance

Organizations can take advantage of highly accurate AI models for things like extreme weather forecasts to improve everything from market planning to risk management. They can use AI to assess potential threats for reducing portfolio liabilities. In addition, geospatial AI can capture detailed location data to develop specific mitigation and preparedness measures for homeowners.

## Commercial

Location-based AI supports real-time maps at a global scale. It can clean up volunteered geographic and tabular data to determine different confidence levels. Companies can use machine learning (ML) to process video from cameras, buildings, streets, cars, assets, and structures. They can gain faster, more efficient updates for things like managing facility security, understanding the spatial distribution of activities of interest, and evaluating the quality of open-source data.

## Real estate

AI combined with geospatial helps both real estate brokers and buyers. For sellers, it can wade through datasets to remove wasteful showings, creating more time and efficiency for higher-quality opportunities. By streamlining this approach, agents accelerate their pipeline and increase sales. Buyers can use AI to look at more homes and information that helps them identify the residence or neighborhood that matches their unique preferences, increasing customer satisfaction.

## Customer service

Companies can use geo-enabled AI to meet customers where they are—and provide rapid, quality engagement. It can consume digitally posted comments from social apps, run through natural language processors, pull out keywords, and create summary reports with georeferenced data in near real-time. For example, a utility can use it to respond to reports of a downed electric line, or a commercial business can react quickly to disrupted service or a poor-performing shop location. It can create heat maps depicting real-time purchase behavior to identify opportunities and areas of concern.

## Operations

Whether a government agency, energy provider, telecommunications business, or any other asset-based business, organizations always aim to reduce field service trips to lower costs, avoid hazard exposure, and increase delivery efficiency. Companies can deploy AI to replace inspections by predicting issues before they arise, reducing labor and non-productive time driving from place to place. Computer vision solutions can quickly process data to identify issues and report problems.

## Conservation

Organizations can use AI to detect where reforestation is needed for things like conservation and carbon offset. Both public and private sector organizations can use imagery and ML algorithms to process imagery to assess forest and wildland health; for example, if trees are growing correctly and no longer need to be monitored. They can identify where human activities encroach on wildlife, as well as areas suitable for infrastructure with low risk factors around things like wildfires, flooding, and hurricanes.

## Humanitarian aid

AI can preserve precious budget and labor costs by supplying a force multiplier for processing data. It can automate data collection processes using digital and mobile devices. It can also help carry out tasks such as medical and scientific analyses, agricultural assessments, land surveys, and water quality assessments at an accelerated rate by processing reams of information with tremendous speed.

# An AI leader you can trust

Operating at the leading edge of innovation, where emerging technologies get tested, validated, and successfully deployed on time and within budget, **Locana** provides solutions that increase time-to-value for deploying geo-enabled AI.

Locana maintains proven protocols for identifying where and how to apply location-based AI tools to most business processes. This includes identification, classification, organization, and delivery using location to create reality-based data sets—instead of relying on schematics. From capturing raw data to automating processes to extracting insights, Locana solutions remove tedious, labor-intensive work to unburden your staff.

Moreover, Locana consultants, technologists, developers, and industry experts bring world-class AI skills coupled with geospatial and data science expertise. We have experience working with clients from government agencies, utilities, commercial, and non-profits, from global enterprises to entrepreneurial start-ups. Employing agile methodologies, scrum, and other customer-friendly project management techniques, Locana prioritizes listening first, then designing and delivering solutions for your unique needs. We maintain constant open communication and collaboration through all stages of the project lifecycle and offer training and support.

# Your Location-based AI delivered

Take advantage of world-class location-based AI that provides unique business benefits in today's digitally connected global marketplace. Locana's geospatial-powered solutions can help you automate, pinpoint, and predict with efficiency and lightning speed. Improve accuracy and insights using a more complete AI solution that leverages location intelligence and analytics—and enter a new era of innovation and growth.

Locana
a TRC company

**Contact us** today or vist our **solutions page** to learn more about how location-based AI can deliver a competitive edge to your organization.

Locana.co

info@locana.co

303-713-3230