

Intelligence Advanced Research Projects Activity (IARPA)  
BENGAL Proposer's Day

# **Guidehouse Capability Statement**

Data, Analytics, and Generative AI

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# Capability Statement

## About Guidehouse

Guidehouse is a leading global provider of consulting services to the public and commercial markets with broad capabilities in management, technology, and risk consulting. We help clients address their toughest challenges with a focus on markets and clients facing transformational change, technology-driven innovation, and significant regulatory pressure. Across a range of advisory, consulting, outsourcing, and technology/analytics services, we help clients create scalable, innovative solutions that prepare them for future growth and success.

Guidehouse is technology-agnostic, offering a unique approach in the market to deliver the optimal tools to meet each client’s needs. Our data science professionals are trained and certified in a wide range of open-source and COTS data analytics, modeling, and visualization software.

## Data and Analytics Capability Overview

Guidehouse’s Advanced Analytics and Intelligent Automation team has a proven track record in building and deploying advanced data analytics, artificial intelligence (AI), machine learning (ML), data engineering, and data visualization solutions. Over the past two years alone, the team has supported over 200 engagements in both government and commercial programs, including more than 100 in the Defense, Intelligence, and National Security space. Our Advanced Analytics and Intelligent Automation team has 300+ experienced professionals including data scientists, visualization experts, data and machine learning engineers, cloud and solution architects, and statisticians with extensive experience in a wide variety of technologies, tools, and frameworks. Our technology-agnostic approach allows us to recommend and deploy “best fit” solutions for our clients depending on their environment, approved tools, and desired investment.

The team’s suite of capabilities is showcased in **Figure 1**. Our team delivers integrated solutions that ultimately drive mission-oriented decision making, informed by the full wealth of available data assets.

### Project Highlight: Initial COVID-19 Vaccine Distribution

Team Guidehouse engaged with a major pharmaceutical company to establish mature data ingestion and visualization process in support of the first and most widely distributed COVID-19 vaccine in the world. We developed a data ingest process originating from both vendor and internal systems, applied data modeling techniques to enable analytical workloads, and provided business users with a single view for understanding operations and supply chains of the vaccine rollout. Team Guidehouse successfully designed and implemented the overall cloud environment, data warehouse, API integrations for vendor data, and security controls for this solution. The entirety of the implementation was accomplished in under 3 months, demonstrating Team Guidehouse’s ability to deliver complex data solutions to inform critical, high visibility decisions in an efficient manner.



Figure 1. Guidehouse's Advanced Analytics and Intelligent Automation team service offerings.

## Generative AI Capability Overview

Guidehouse data scientists are working with the latest advancements in Generative AI (GenAI) technology to develop impactful, explainable solutions for a variety of clients and internal innovation efforts. Our team is utilizing both open-source models and proprietary models in Virtual Private Cloud (VPC) architectures that ensure the security, accessibility, and scalability that our clients demand. Among the Generative AI services that we offer are:

**Prompt Engineering** involves crafting carefully designed prompts or input instructions to guide the behavior of language models. It is about finding the right way to ask a question or frame a task to get the desired response from the model. Prompt engineering is useful when you want to leverage a pre-trained language model for specific tasks, such as text generation, translation, summarization, or question-answering. It helps tailor the model's output to your specific requirements. By using well-crafted prompts, you can improve the accuracy and relevance of the model's responses, making it more suitable for your service's users. It ensures the model understands the context and intent of the user's input.

**Retrieval Augmented Generation (RAG)** combines the strengths of language models and retrieval

### Project Highlight: U.S. Intelligence Agency AI Solution

**Background:** For almost two decades, a U.S. Intelligence Agency has utilized a software package as the foundation of its evaluation process for industry proposals, but the process continues to be a labor and time-intensive process. Guidehouse was engaged to develop an AI and Natural Language Processing (NLP) prototype in a series 2-week sprints, over a 4–5-month period, to improve on and enhance its proposal evaluation process with the capability to review proposals in an automated fashion, prepare and review pre-solicitation artifacts to include specifications, source selection plans, solicitations, model contracts, instructions to offerors, market research reports, and evaluation criteria.

**Our Approach:** The solution developed and delivered by Guidehouse has the capability to ingest RFP and proposal documents, run NLP algorithms to clean the text and extract all key concepts, terms and entities from documents, run an 'ensemble' of NLP algorithms comparing the processed RFP text against the proposal text, and based on statistical and semantic algorithms, score how well each requirement was responded to and apply any weights for each section as determined by the RFP.

**Impact/Benefits:** This effort provided the U.S. Intelligence Agency with a working prototype to consider implementing into its current acquisition process, and enabled leadership and business stakeholders to see first-hand how innovative technology and solutions, such as AI, can function within their environment. Upon successful implementation, this solution and tool would provide efficiencies to a labor-intensive process, allowing for time optimization and enhanced reviews and data-driven decision making.

systems. It involves using a retrieval mechanism to fetch relevant information from a large knowledge base or dataset and then generating text based on that retrieved context. Use RAG when you need your service to provide informative and contextually relevant responses that require access to external knowledge sources. This is especially valuable for tasks like content generation, chatbots, or virtual assistants. It enhances the quality of generated content by incorporating external information. This approach ensures that the generated text is more accurate, up-to-date, and contextually appropriate, improving the user experience.

**Large Language Model (LLM) Fine-tuning** involves training a pre-existing LLM on specific domain-specific or task-specific data. It adapts the model's knowledge to a particular niche, making it more proficient in handling tasks within that domain. Employ LLM Fine-tuning when your service requires specialized knowledge or expertise in a particular field, industry, or use case. For example, you might fine-tune a language model for legal document analysis, intelligence gathering, or financial forecasting. Fine-tuning tailors the model's understanding and generation capabilities to a specific domain, making it more accurate and reliable for domain-specific tasks. It can significantly improve the service's performance in specialized areas.

Using this suite of techniques, Guidehouse is able to reliably and automatically generate brief summarizations for thousands of documents and pre-screen the results to minimize the risks associated with GenAI. This approach stands to drastically reduce the staff labor currently consumed in the processes of collecting, collating, researching, and report writing. This technology has broad applications in a number of industries and domains, from compliance monitoring to threat detection, to AI-enabled consumer facing communications. Guidehouse's unique tool-agnostic approach to analytic solutions means that we are prepared to develop and deploy customized GenAI solutions when, where, and how the client's needs dictate on the infrastructure that makes the most sense for them.

Finally, Guidehouse recognizes that IARPA is looking for a partner to assist them in establishing processes and constraints around Generative AI and LLMs. We understand the power of these technologies and impacts it will have on day-to-day operations. Guidehouse has delivered solutions leveraging GenAI to both external clients and for internal initiatives, as demonstrated on our public facing analytics platform, <https://discover.guidehouse.com/>. We encourage you to create a free account and explore the several related solutions deployed there.