

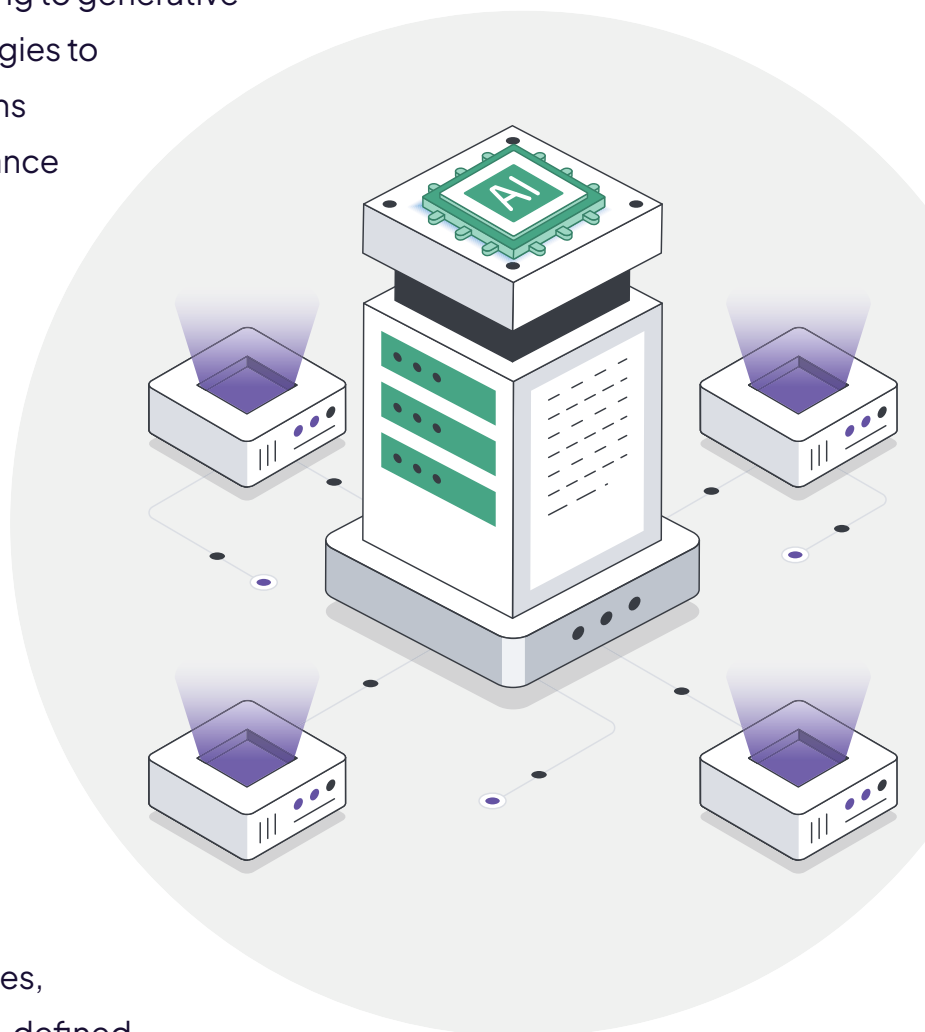
SPOTLIGHT

Establishing Clear Use Cases for GenAI in Integrated Data Systems

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Public agencies are increasingly looking to generative artificial intelligence (GenAI) technologies to transform their integrated data systems (IDSs). GenAI has the potential to enhance knowledge management, streamline operations, and reveal new insights within IDSs. However, it is not a step to be taken lightly, especially for public entities operating under stringent regulatory frameworks and public trust benchmarks.

Balancing GenAI's capabilities with a focus on preventing misuse, inaccuracies, and biases is crucial to effectively leverage this technology. Creating this balance requires comprehensive planning and a robust infrastructure, including clear guidelines, high-quality structured data, and well-defined governance frameworks.



Before assessing their readiness for GenAI implementation, organizations should establish clear use cases. Use cases provide a structured framework to align AI applications with organizational goals, regulatory compliance, and responsible application. They help clarify objectives, assess data and systems impacts, identify potential benefits and challenges, and enable the AI development to meet organizational and community needs. Use cases also facilitate the evaluation of AI readiness; help identify infrastructure gaps; foster collaboration; and provide a foundation for strategic development for responsible AI adoption within well-governed, secure environments.

This brief explores the importance of establishing clear and definitive use cases early in an organization's GenAI journey. It first looks at the characteristics and applications of GenAI. Then it examines example use cases by function and highlights the steps agencies need to take to develop their use cases. Finally, it looks at an actual research use case developed by WestEd.

Although examples of GenAI applications in state government illustrate its potential, GenAI's use in IDSs is still developing. For example, the Washington State Department of Social and Health Services uses GenAI for

simultaneous multilanguage interpretation during client meetings, breaking down language barriers (Washington Technology Solutions, 2024). The California Department of Transportation uses GenAI to improve its traffic pattern analysis, reduce traffic congestion, and enhance incident response and overall traffic management by processing and interpreting complex data (Office of Governor Gavin Newsom, 2025).

Examples of GenAI use in IDSs are just beginning to emerge. The use cases detailed in this brief highlight the potential that carefully managed GenAI tools hold for these systems in several key applications.

Before adopting AI technologies, organizations should consider several factors. Along with developing specific use cases, the Data Integration Support Center (DISC) advises having a clear understanding of the associated risks, governance, benefits, challenges, staffing, and training requirements. Many of these topics are outlined in prior briefs, which can be found on DISC's [AI information page](#). DISC also offers support to public agencies through the AI Readiness Assessment Tool and by facilitating discussions and forming strategies to create a strong foundation for AI implementation.

Understanding the Characteristics and Applications of GenAI

Understanding GenAI's characteristics and applications is essential to construct use cases that support the mission of an IDS. GenAI is a type of AI focused on generating content learned from existing data. Unlike traditional software that follows preprogrammed rules, GenAI can produce original outputs in response to natural language requests.

GenAI Characteristics

GenAI tools share several key features.

CONTEXTUALLY CREATIVE: GenAI produces varied, contextually appropriate responses rather than identical outputs, allowing for creative and nuanced solutions to similar problems.

ADAPTIVE LEARNING: GenAI systems are trained on large datasets and can apply learned patterns to new situations. They can understand context, follow complex

instructions, and adapt their responses based on the specific requirements of each request.

USER FRIENDLY: GenAI tools use natural language interfaces, allowing users to interact through everyday conversation rather than requiring specialized programming knowledge. This capability makes them accessible to staff across different technical skill levels.

GenAI Application Types

When organizations are considering the application of GenAI use cases within IDSs, the use cases can be classified into three tiers, ranging from simple to complex (Stern et al., 2025). These three tiers represent increasing levels of complexity, risk, and potential impact.

	 DIGITAL ASSISTANTS	 PROCESS AUTOMATION	 COMPLEX PROBLEM SOLVING
TIER	1: Human in the Loop Low risk, high human oversight	2: Human on the Loop Medium risk, periodic human oversight	3: Human Over the Loop Higher risk, continuous governance required
DESCRIPTION	GenAI applications that assist with basic tasks such as summarizing content, drafting communications, or answering questions about data. They require specific instructions (prompts) from humans to generate responses and are easily reviewed for accuracy by human staff. Humans review all outputs before use, ensuring quality and appropriateness.	GenAI applications that focus on automating recurring processes such as data loading, data cleaning, data validation, documentation updates, or routine report generation. They can operate autonomously and repeatedly, enhancing efficiency and accuracy without direct human intervention for each task. Humans monitor performance and intervene when needed.	GenAI applications that are designed to address large-scale, complex problems such as predictive analytics, identifying at-risk populations, or optimizing resource allocation across multiple data sources. These applications require robust governance and ongoing oversight to maintain accuracy, fairness, and accountability, while capitalizing on AI's efficiency benefits. They require continuous evaluation for bias, accuracy, and ethical considerations.
EXAMPLES	Help desk chatbots, data query assistance, meeting note summarization, draft report writing	Automated data cleaning, routine report generation, metadata updates, standard documentation creation	Predictive modeling for service needs, cross-system pattern recognition, resource optimization algorithms, risk assessment tools
KEY FEATURE	Direct human review of each output before implementation	Periodic human monitoring with intervention capabilities when performance issues arise	Continuous governance framework with ongoing evaluation for bias, accuracy, and fairness

Example Use Cases for GenAI in IDSs

The following use cases demonstrate practical applications of GenAI within IDSs, organized by the three application tiers. Each use case is designed to help public agencies understand how GenAI can address real operational challenges while supporting their mission and strategic goals.

These potential use cases provide a framework for agencies to envision GenAI implementation within their own context. Rather than prescriptive solutions, they serve as starting points for discussions about how GenAI might add the most value in an organization. Each use case includes the following:

PRIMARY USERS: the key stakeholders who would interact with or benefit from the GenAI application

CHALLENGES: specific operational problems or inefficiencies the use case addresses

BENEFITS: how the GenAI solution creates value and improves outcomes



Digital Assistants

Digital assistant applications focus on facilitating basic tasks by receiving specific instructions (prompts) from humans to generate responses. These responses can be easily reviewed for accuracy by human staff.

USE CASE UNLOCKING DATA INSIGHTS WITH A CHATBOT	
PRIMARY USERS	Public users of IDS dashboards, analytics, and reports
CHALLENGES	Although public users have access to extensive information through IDS dashboards, reports, and publicly available datasets, they often struggle to extract meaningful insights or find answers to specific questions. Despite the abundance of available data, navigating these complex systems and interpreting the information can be challenging, even for experienced users, due to the intricate nature of data presentations and technical language. Users may know the data exist but cannot easily translate the data into actionable answers for their needs. This complexity leads to frustration and inefficiencies, limiting users' ability to leverage the wealth of available information. Additionally, interfaces that are not user friendly may not fully support user engagement or enable efficient exploration of data resources to answer targeted questions.
BENEFITS	An IDS chatbot addresses these challenges by providing an intuitive, natural language interface that simplifies data interactions. By enabling users to interact with dashboards and reports conversationally, the chatbot makes data more accessible and actionable, regardless of users' technical proficiency. This accessibility demystifies complex data, allowing users to quickly access relevant information and extract insights that support decision-making. The solution increases user engagement, fosters greater public participation in data-driven discussions, and maximizes the utility of IDS resources.

USE CASE CODE OPTIMIZATION	
PRIMARY USERS	IDS operators, data scientists, information technology (IT) support staff, researchers
CHALLENGES	A key task of IDSs involves linking and managing data from multiple providers. IDS staff often encounter challenges with debugging code and enhancing query performance, particularly when working with large datasets. These tasks can be time consuming and complex, often requiring significant customization and deep technical expertise. Performance bottlenecks may delay data access and analysis, affecting the overall efficiency of data-driven projects and slowing decision-making processes.
BENEFITS	Implementing GenAI-driven code optimization streamlines the debugging and query performance processes. This approach reduces the need for extensive system customization, saving time and resources typically spent on technical adjustments. As a result, teams can process and analyze data more quickly, leading to more timely insights that enhance the productivity and effectiveness of IDS operations.



Process Automation

Process automation use cases aim to streamline and optimize routine tasks. These solutions may initiate automatically via triggers or require initial human prompts. Although results may need thorough human review, they can significantly improve efficiency; reduce human error; and enable agencies to focus resources on higher level, value-driven activities.

USE CASE REPORT GENERATION	
PRIMARY USERS	IDS operators, researchers
CHALLENGES	IDS organizations frequently face demanding legislative mandates for reports with tight turnaround times, often requiring comprehensive analysis and documentation. Additionally, mandatory state and federal reporting requirements impose strict deadlines that coincide with other operational priorities. These reporting demands require staff to manually aggregate data from multiple sources, perform analysis, and present findings in specific formats while ensuring accuracy and compliance with reporting standards. The pressure of quick turnarounds can lead to rushed work, potential errors, and significant resource strain as staff must divert attention from other critical activities. Without standardized procedures, each report may require custom approaches, further complicating the process and creating bottlenecks that affect both timeliness and quality.
BENEFITS	Automating report generation with GenAI can dramatically reduce the time and effort needed to respond to urgent legislative requests and meet mandatory reporting deadlines. GenAI can rapidly compile and analyze data from multiple sources, apply consistent formatting and analytical approaches, and generate draft reports that meet specific regulatory requirements. This automation ensures greater accuracy and consistency across reports while freeing experienced staff to focus on strategic analysis, quality review, and stakeholder engagement rather than manual data compilation. By streamlining the reporting process, GenAI solutions help organizations respond quickly to legislative demands, maintain compliance with federal and state requirements, and reduce the stress and resource burden associated with tight reporting deadlines.

USE CASE ETL (EXTRACT, TRANSFORM, LOAD) AUTOMATION

PRIMARY USERS IDS operators, IT support staff

CHALLENGES In IDSs, ETL processes are particularly complex due to the need to harmonize data from multiple agencies with different data standards, formats, and collection practices. Traditional ETL requires significant manual effort to map fields across disparate systems, resolve data quality issues, and transform data into consistent formats for analysis. Each data provider may use different coding schemes, variable names, or data structures, requiring custom transformation logic. Manual processes are prone to errors during data mapping and transformation, which can propagate throughout the system and affect data integrity. Additionally, when data providers change their systems or data formats, ETL processes must be manually updated, creating ongoing maintenance burdens. These challenges result in delayed data availability, inconsistent data quality across sources, and substantial resource requirements for technical staff to manage and troubleshoot ETL workflows.

BENEFITS Implementing ETL automation with GenAI streamlines data integration because GenAI can intelligently identify patterns and relationships across different data sources, automatically suggest field mappings, and adapt to format changes. GenAI also can detect data quality issues, recommend or implement cleaning procedures, and apply consistent transformation rules across multiple data providers. In addition, GenAI can learn from previous ETL processes to improve accuracy over time and automatically adjust when data providers modify their systems. This automation significantly reduces manual intervention and human errors, supports faster and more reliable data integration, and enables more robust cross-agency analysis. It also allows technical staff to focus on strategic data architecture decisions rather than routine data processing tasks, improving overall productivity and ensuring more timely availability of integrated data for decision-making.

USE CASE SECURE AI ENVIRONMENT

PRIMARY USERS IDS operators, researchers

CHALLENGES IDSs must carefully balance providing access to sensitive or confidential information for legitimate research and operational purposes with meeting strict requirements to secure data and protect individual privacy. These competing priorities create a fundamental tension that results in the need for data security and privacy protection often limiting the organization's ability to leverage innovative GenAI tools that could significantly enhance its capabilities. Public GenAI platforms and commercial tools typically require data to be transmitted to external servers or used for model training, creating unacceptable privacy risks for sensitive administrative data. Additionally, many GenAI tools lack the security controls, audit trails, and compliance features required for handling government data. These challenges result in organizations being unable to explore GenAI's potential benefits, missing opportunities for improved efficiency, better insights, and enhanced service delivery. Organizations' data also remain underused despite their potential value for evidence-based decision-making.

BENEFITS A secure AI environment enables organizations to employ innovative GenAI tools while maintaining data security and privacy protections. By creating a controlled, isolated environment with robust security measures such as encryption, access controls, identity management, and audit logging, IDSs can safely experiment with and deploy GenAI technologies. This environment ensures that data never leave the secure perimeter, maintains compliance with privacy regulations, and provides the transparency and accountability required for public sector operations. Staff can access advanced GenAI capabilities for data analysis, report generation, and insight discovery without compromising individual privacy or organizational security requirements. This approach transforms the traditional trade-off between innovation and security, allowing IDS organizations to leverage cutting-edge tools while exceeding their data protection obligations and maintaining public trust.

USE CASE METADATA AND DATA DICTIONARY MANAGEMENT

PRIMARY USERS IDS operators, researchers

CHALLENGES Consistently managing metadata and updating data dictionaries is a labor-intensive process and prone to error. These challenges often result in outdated documentation, leading to potential misinterpretations and inefficient data operations. Maintaining metadata and data dictionaries over time requires ongoing resources and expertise, which can be taxing for organizations already facing capacity constraints. This situation can lead to incomplete or outdated metadata and data dictionaries, hindering the ability to effectively use data for analysis and decision-making.

BENEFITS Automating metadata and data dictionary management with GenAI ensures consistent and up-to-date documentation across various systems. This standardization improves data integration and accessibility, facilitating strategic data use and decision-making. By reducing manual labor, organizations can better allocate resources and improve data governance, supporting efficient onboarding and operational effectiveness.



Complex Problem Solving

Use cases within complex problem solving address larger scale, more complicated tasks. These tasks require substantial human oversight and robust governance to ensure accuracy, fairness, and accountability, while optimizing the efficiency and impact of advanced tools.

USE CASE PREDICTIVE ANALYTICS

PRIMARY USERS Researchers, statisticians, psychometricians

CHALLENGES Predictive analytics requires high-quality, structured data to build effective models and demands significant technical expertise to ensure statistical soundness. Organizations may struggle with maintaining real-time data processing capabilities and ensuring forecast accuracy and reliability. Moreover, the potential for bias in predictive models requires careful oversight to avoid skewed outcomes that might affect decision-making and public trust.

BENEFITS Leveraging GenAI for predictive analytics enhances an organization's capability to forecast outcomes and make strategic decisions based on data-driven insights. Real-time data processing enables swift decision-making, which is essential for effectively responding to dynamic situations. GenAI-driven predictive models can uncover trends and patterns beyond traditional analysis, offering a strategic advantage.

USE CASE DATA HARMONIZATION

PRIMARY USERS Data engineers, data analysts, IDS operators, researchers

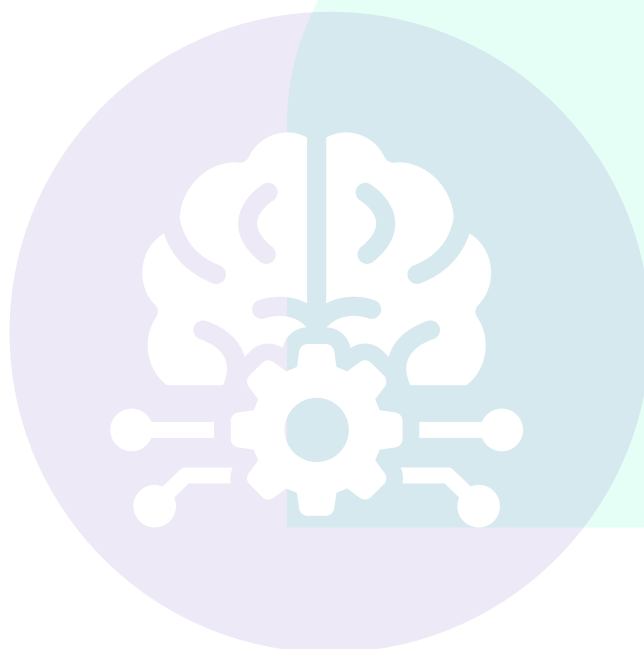
CHALLENGES Integrating data from diverse sources presents complex challenges, such as differing formats, standards, and levels of data quality. These discrepancies can make aligning datasets for thorough analysis difficult, leading to potential inaccuracies and inefficiencies. Data harmonization requires substantial technical expertise and resources to ensure effective dataset comparison and analysis, which can be both resource intensive and time consuming.

BENEFITS GenAI-driven data harmonization automates the integration process and standardizes formats, streamlining the alignment of diverse data sources. This alignment leads to improved data consistency and quality, facilitating more accurate and comprehensive analysis. By reducing manual effort for both IDS staff and data providers, organizations can allocate resources strategically and accelerate the delivery of insights.

USE CASE DATA AGGREGATION AND OTHER DISCLOSURE LIMITATION METHODS**PRIMARY USERS** Data engineers, data analysts, researchers, privacy analysts

CHALLENGES Aggregating data while ensuring privacy and confidentiality poses significant challenges, particularly with sensitive information. There is a risk of unintentional disclosure if data anonymization is not managed correctly. Developing effective disclosure limitation methods requires a careful balance between data accessibility and privacy, which can be complex and necessitate specialized knowledge in data governance and privacy laws.

BENEFITS Implementing GenAI for data aggregation automates anonymization, safeguarding privacy while enabling meaningful insights. GenAI-driven methods enhance data protection by applying techniques such as data masking and differential privacy, reducing breach risks and ensuring regulatory compliance. This approach fosters stakeholder trust in the organization's data handling and supports the responsible use of large datasets for analysis.



Developing Your Use Case

Although DISC is available to provide guided support in developing use cases, organizations have many steps they can take on their own. Use cases provide a structured framework to understand how AI can align with organizational goals, comply with regulations, and ensure responsible use. They help leadership, partners, and staff understand the problem and the proposed solution.

As you begin this process, reflect on the example use cases presented earlier in this brief. Consider how similar challenges might exist within your own IDS and which application tier—digital assistants, process automation, or complex problem solving—aligns best with your organization’s current capabilities and risk tolerance.

1

IDENTIFY THE NEED

Start by clearly defining the specific problem or challenge you intend to address with the GenAI tool. As in the example use cases, identify both the challenges and how the GenAI application will provide solutions. Consider all the staff who will interact with the GenAI application.

2

DEFINE OBJECTIVES

Establish clear objectives to measure success. Determine expected outcomes from the AI implementation and how success will be quantified. Set benchmarks for assessing the solution’s performance.

3

ENGAGE STAKEHOLDERS

Identify all relevant stakeholders, including end-users, decision-makers, and those affected by the GenAI tool. Gather their input to ensure that their needs, expectations, and potential concerns are addressed throughout the development process. Consider your organization’s comfort level with AI technology and existing governance structures when determining which application tier to pursue first.

4

IDENTIFY RESOURCES

Identify the necessary resources and related costs, including staff skills, licensing, appropriate tools, high-quality data, a clear process for human review, and any vendor-related support such as consulting or programming. Consider the specific GenAI skills required, such as expertise in natural language processing or machine learning engineering. Assess whether your current infrastructure and governance frameworks can support your chosen application tier or if additional investments are needed before implementation.

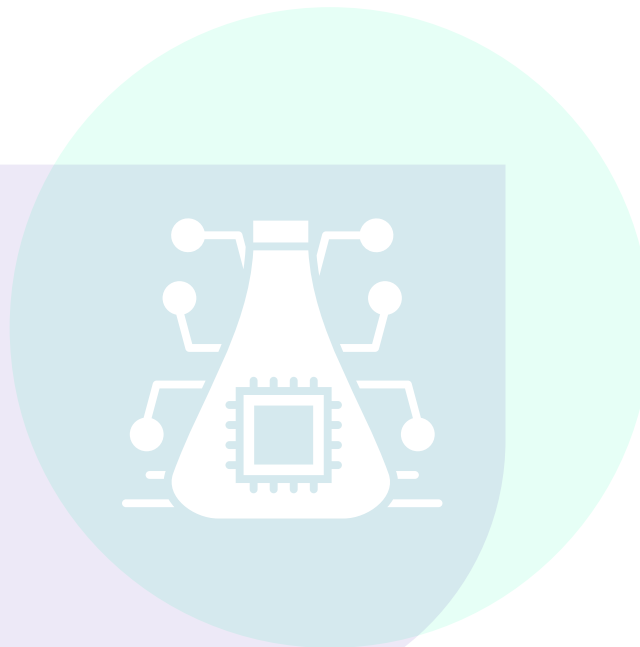
These initial steps will set you on the path to implementing a GenAI application in your IDS. Once these steps are completed and well documented, your agency can begin assessing AI readiness, developing usage guidelines, and designing and testing the solution. DISC is available to assist with further guidance and support.

Use Case Development in Action

USE CASE WESTED'S SECURE AI ENVIRONMENT FOR RESEARCH USE*	
PRIMARY USERS	Research specialists, research associates, data analysts
CHALLENGES	With the increasing popularity of GenAI tools, WestEd's research and data staff expressed a strong interest in using these technologies to improve efficiency and streamline their workflows. However, significant concerns regarding data integrity and security presented hurdles. Issues related to intellectual property, data use and ownership, and ensuring fairness were key concerns for senior leadership, making the adoption of these AI tools complex.
BENEFITS	To address the demand for AI-based tools, WestEd's IT leadership championed the development of a secure AI environment, allowing researchers to safely explore AI capabilities. Established within the Microsoft Azure platform, this environment includes stringent security measures, permitting the use of sensitive data without exposing them to external model training. By adhering to strict security protocols, WestEd successfully safeguarded proprietary documents and enhanced the quality of outputs from large language models, minimizing risks of data leakage or misuse.

*WestEd can provide consulting services to help build and/or host this secure AI environment for your organization, available for a nominal fee upon request.

More detail on this use case is available in "Building a Secure Generative Artificial Intelligence Environment for Research Use."



How DISC Can Help

DISC at WestEd can facilitate productive conversations and assist in the development of an AI strategy for an organization's IDS. DISC offers technical assistance to public agencies free of cost, including the following services:

- training agency leadership and/or staff in GenAI best practices
- providing expertise on the scope and variety of AI tools to support data integration efforts
- developing use cases that leverage AI tools and aligning those use cases to the state's strategic priorities
- conducting neutral, external assessments of the maturity of the IDS and its capacity to support and scale AI technologies
- facilitating structured discussions to develop a foundation for the use of AI in the IDS

For more information on the AI services offered by DISC, visit disc.wested.org/focus-areas/ai/.

Citations

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