

BENCHMARK REPORT  
EXECUTIVE SUMMARY  
by Mark Vigoroso April 2024

# BUILDING RESILIENT AND AGILE SUPPLY CHAINS LEVERAGING DATA, ANALYTICS AND AUTOMATION



RESEARCH PARTNER



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## Insider Perspective

“As COVID depicted, there are disruptions in demand and supply where you need to be flexible, resilient and agile. Some examples we saw, and continue to see, are port congestion requiring longer lead times requiring improved supply planning; fluctuating consumer demands that required improved demand planning.”

– VICE PRESIDENT OF  
INFORMATION TECHNOLOGY  
& SERVICES

**IN 2024, SUPPLY CHAIN** professionals are constantly navigating a myriad of supply chain challenges, ranging from managing diverse product portfolios and predicting fluctuations in demand and supply to complying with regulatory shifts and mitigating geopolitical risks. Amidst these complexities, the enduring impact of the pandemic on the industry emphasizes the critical need for resilient and adaptable supply chains. This research explores how organizations are leveraging data, analytics and automation to build resilient and agile supply chains.

While data, analytics and automation have been integral to supply chain management across industries for decades, the rapid advancement of artificial intelligence (AI) necessitates companies to reevaluate their approach and portfolio to establish a reliable single source of truth for supply chain data, enhancing visibility and enabling advanced analytics, all while maintaining accessibility and user-friendliness.

When SAPinsider researched building resilient supply chains utilizing data, analytics and automation in 2023, we identified a focus on building an integrated planning and analytics capability on a centralized, enriched, and harmonized data foundation, that can support all forms of analytics seamlessly, as the most critical capability on the minds of SAPinsiders. However, at the time, this need seemed hindered by lack of integration capabilities with other systems, further contributing to data fragmentation and complicated planning. To better understand the shift in the technological landscape and its impact on building resilient and agile supply chains leveraging data, analytics and automation, SAPinsider surveyed 133 business, IT and supply chain professionals between January and April 2024 on the challenges, opportunities, and tools or services they have or would like to employ. The survey also sought to understand the requirements and success metrics used in implementing data, analytics and automation solutions, as well as ascertain the significance of cloud capabilities to organizations.

While both resiliency and agility are critical, SAPinsiders recognize that agility alone may not suffice and are currently priori-

tizing resiliency over agility. Approximately 47% of SAPinsiders emphasized the need for resilient supply chains capable of withstanding disruptions, recognizing that stability and recovery are essential components of a robust and proactive supply chain. Conversely, 35% of SAPinsiders emphasize agility, aiming for faster responses to volatility.

In identifying which specific sub-functions for leveraging data, analytics, and automation to prioritize, approximately 60% of respondents are focusing on procurement and supply management, recognizing the critical role these functions play in building resilient supply chains. From there, they are adopting a more balanced approach in their supply chain innovation by similarly prioritizing transportation, warehousing, enterprise asset management, and manufacturing (Figure 1).

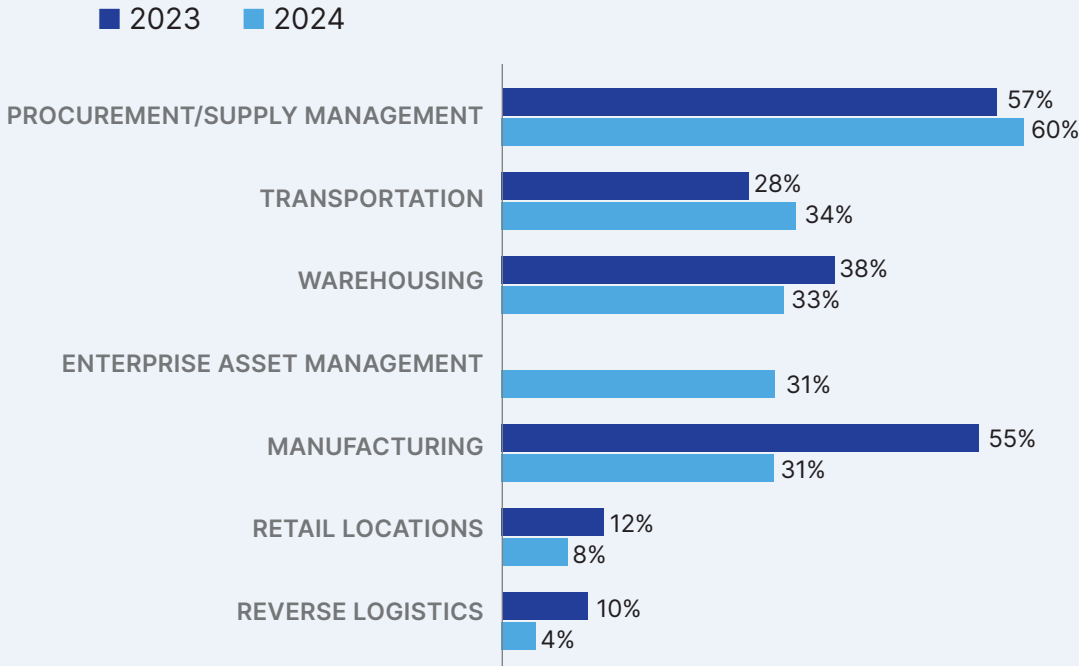
## THE ROADMAP TO RESILIENCY AND AGILITY

When asked to rank three areas in order of importance to respondents’ resiliency and agility roadmap, the results revealed that 74% of SAPinsiders surveyed are prioritizing data management, governance, and automation over analytics and AI (Figure 2). This prioritization aligns with the overarching sentiment of the survey, where concerns about data quality, integrity, and harmonization consistently took precedence.

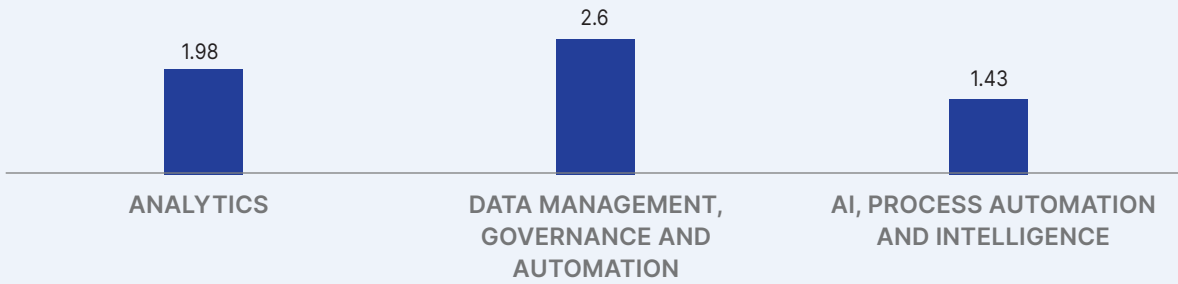
This focus on data management and governance is particularly significant given the changing landscape. Unlike in 2023, we’ve seen a 22% drop in respondents who cite poor integration capabilities with other systems. Instead, almost half of those surveyed identified fragmented data sources and data quality issues as the primary hindrance to optimal use of data, analytics, and automation tools (Figure 3).

Furthermore, the most prominent barrier to transformation investment emerged as disparate data sources spanning multiple cloud vendors and on-premise locations. This highlights a growing recognition among organizations of the importance of cohesive data management and quality control in maximizing the effectiveness of data-driven technologies and initiatives. Yet, the complexity and cost associated

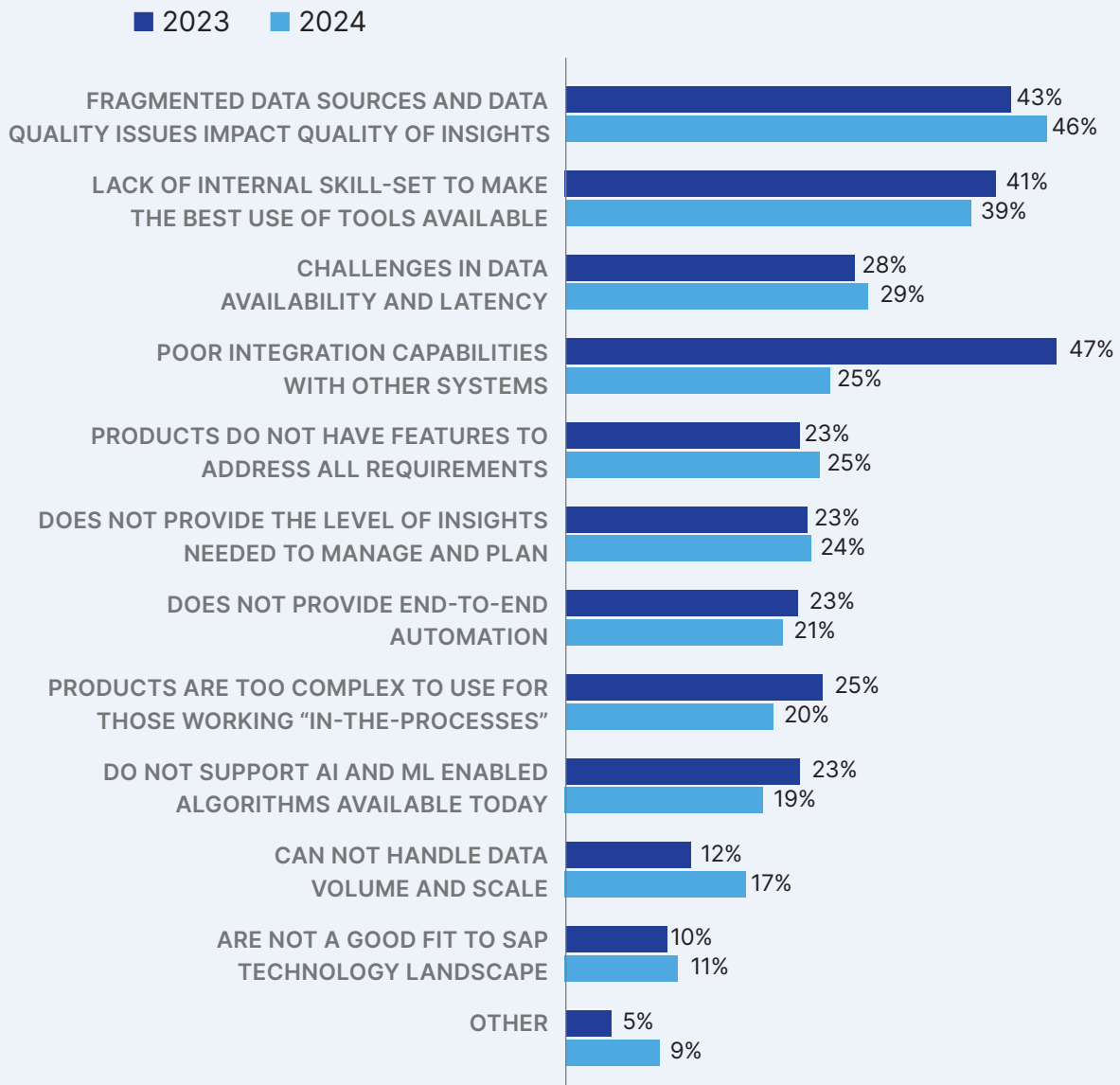
**Figure 1: Priority Sub-Functions for Leveraging Data, Analytics and Automation**



**Figure 2: Prioritization of Key Areas for Resiliency and Agility Roadmap**



**Figure 3: Challenges Hindering Optimal Use of Supply Chain Data, Analytics and Automation Tools**



with tackling these challenges can also deter organizations from making significant investments in transformation efforts. Over half of these respondents also noted the importance of the cloud within their transformation strategies, underscoring the perceived value of cloud-based solutions in addressing these complexities.

Our research identifies a continuing focus on mitigating the rising complexities and risks within supply chains. This includes challenges such as unpredictable demand forecasting, persistent shortages from climate events and geopolitical crises, congestion, and increasing costs. Additionally, external pressures like evolving customer demand in post-Covid recovery, increased pressures for sustainable operations, and talent shortages in supply chain also heighten the imperative for data, analytics and automation transformation within supply chain. Many have also noticed increasing prominence of artificial intelligence (AI) and machine learning (ML) on the corporate agenda, likely driven by the widespread adoption of generative and predictive AI, as well as its potential for a competitive edge when utilized effectively.

To address these driving factors, our research pinpoints two key focus areas: harmonizing data sources and innovating with advanced analytics, AI, and ML. By fostering reliable data and promoting transparency across functions, organizations can better anticipate and respond to disruptions while effectively managing risks. It's also worth noting that the efficacy of AI/ML solutions hinges on harmonized and high-quality data sources.

As SAPinsiders evaluate solutions to achieve these strategic objectives, they prioritize platforms that satisfy monitoring and compliance standards. These platforms must elevate data integrity, yield actionable insights, establish end-to-end visibility, and facilitate process automation. Crucially, they must also predict vital factors such as customer demand, inventory levels, and lead times.

## TECHNOLOGIES FOR DATA, ANALYTICS AND AUTOMATION

Respondents identified several solutions for modernizing their supply chain and analytics portfolio (**Figure 4**). To achieve unified data sources, many are turning to cloud infrastructures to consolidate data from on-premise and other cloud storage options. When asked to select their top three technologies in consideration, 89% of respondents stated that they are interested in adopting cloud data warehouses and data lakes, with another 84% and 78% focusing on data integration and orchestration tools and integrated business planning tools, respectively.

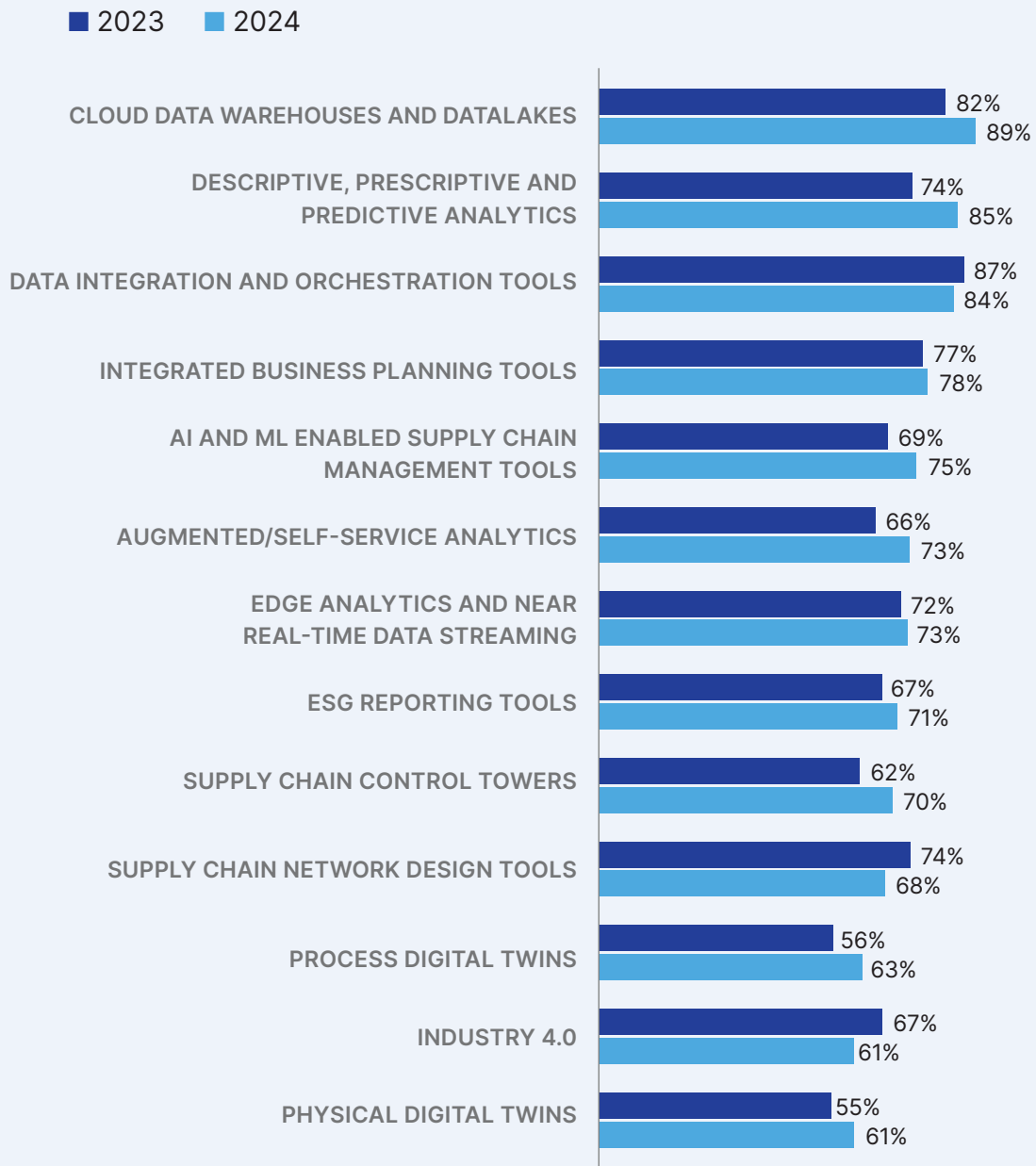
To address their advanced analytics and AI/ML requirements, SAPinsiders are turning towards tools with descriptive, prescriptive, and predictive analytics capabilities (85%). They're also looking at supply chain tools with AI and ML enabled within them (75%) and augmented or self-service analytics (73%).

## Insider Perspective

**“One challenge we have is storing consistent data and information. We’ve got a whole host of data fields that may be unique to specific industries. We need to be able to capture them at the vendor master level because it’s generic and so that we can report on capturing that information. We want to make sure that we’ve got repeatability and consistency so that no matter who you ask the question to, you get the same answer every time.”**

**– MANAGER, PROCUREMENT SYSTEMS**

**Figure 4: Technology Adoption**



More specifically, respondents are actively evaluating a diverse range of data management solutions to address their evolving needs. On the on-premise front, popular choices include SAP HANA and Microsoft SQL Server, renowned for their robustness and scalability in handling complex data environments. In the cloud domain, Microsoft Azure stands out as a preferred platform for cloud-based data management, offering a comprehensive suite of services for data storage, processing, and analytics.

Additionally, Power BI is gaining traction as a versatile tool for organizations seeking generic data visualization, analytics, and automation capabilities. Its intuitive interface and user-friendly features

## Insider Perspective

“We have a solid foundation in place with the SAP ecosystem components we have deployed. We’ll continue to optimize those processes, data and capabilities. We’ll see where we can further leverage AI to help ‘move the needle’ in decision making and improved metrics.”

– VICE PRESIDENT OF  
INFORMATION TECHNOLOGY  
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make it accessible for employees across various skill levels, reducing the learning curve and facilitating quicker adoption.

Our study discovered several other findings regarding how SAPinsider organizations approach their data, analytics, and automation strategies within supply chain:

- 73% of respondents emphasized the critical importance of the cloud in their strategies for data, analytics, and automation within the supply chain. They highlighted the cloud’s role in offering scalable, flexible, cost-efficient, and innovative solutions for data management.
- Regarding success criteria for solution implementations, there has been a notable shift in priorities among respondents. While the availability of actionable data and insights was previously paramount in 2023, it has since declined to fifth place in 2024. Enhanced data quality and integrity have emerged as the primary considerations, alongside disruption impact prediction capabilities, the establishment of single source of truth repositories, and the improvement of process quality.

## REQUIRED ACTIONS

Based on the survey responses, organizations should consider the following actions for building robust data and analytics capabilities in their supply chains:

- **Prioritize data management and governance.** With almost three quarters (74%) of SAPinsiders prioritizing data management, governance, and automation over analytics and AI, organizations should focus on establishing a reliable single source of truth for supply chain data. This includes harmonizing data sources, ensuring data quality, and implementing robust governance frameworks to enhance visibility and enable advanced analytics.
- **Include artificial intelligence and machine learning initiatives on the improvement roadmap.** Despite AI, process automation, and intelligence ranking third on respondents’ resiliency and agility roadmap, the increasing sophistication and advancement of these tools necessitates their integration for organizations to maintain competitiveness and efficiency. Adopting these advanced technologies can significantly reduce manual workloads, enhance accuracy, and accelerate processes, thereby driving operational excellence.
- **Consider investing in cloud data infrastructures.** Recognizing the pivotal role of cloud technology in transforming supply chain analytics and automation, organizations should consider investing in cloud data warehouses and data lakes. By leveraging cloud-based solutions, organizations can achieve scalability to accommodate growing data volumes, flexibility to adapt to changing business needs, and cost-efficiency through reduced infrastructure overheads.



## DRIVERS

- Significant increase in supply chain complexities and associated risks (57%)
- Increasing prominence of AI/ML on the corporate agenda (46%)
- Rapidly evolving customer expectations and customer demand (38%)
- Increasing talent shortages in supply chain domain (35%)
- Pressure to run more sustainable supply chains in a responsible manner (35%)
- Imperative to create and support new capabilities and operating models (32%)



## ACTIONS

- Build resilient supply chains that can help mitigate disruptions and risks (47%)
- Build in-house innovation capabilities and train employees on skills that can help generate innovation (45%)
- Capture customer demand accurately and with minimum latency and fulfill customer demand on time, in-full (44%)
- Develop agile supply chains that can respond to disruptions and volatility faster (35%)
- Minimize information latency and fragmentation in end-to-end supply chain (27%)
- Develop a supply chain specific talent and reskilling strategy (27%)
- Design circular supply chains that minimize carbon footprint, are transparent and socially responsible (24%)



## REQUIREMENTS

- Monitoring and reporting compliance (81%)
- Supply chain data quality enhancement and harmonization (79%)
- Building end-to-end visibility across the supply chain (79%)
- Generate actionable insights from data in a timely and accurate manner (79%)
- Ability to predict leveraging data and analytics (74%)
- Process automation to improve process productivity and quality (74%)
- Consistent data usage experience across many devices and channels (71%)
- Minimize data latency across the supply chain (70%)
- Process visibility through process mining and automation (69%)
- Capturing customer demand across channels and fulfilling cross-channel demand optimally (67%)



## TECHNOLOGIES

- Cloud Data Warehouses and Datalakes (89%)
- Descriptive, Prescriptive and Predictive analytics (85%)
- Data Integration and Orchestration tools (84%)
- Integrated Business Planning Tools (78%)
- AI and ML Enabled Supply Chain Management Tools (75%)
- Augmented/Self-Service Analytics (73%)
- Edge Analytics and Near Real-Time data streaming (73%)
- ESG Reporting Tools (71%)
- Supply Chain Control Towers (70%)
- Supply Chain Network Design Tools (68%)
- Process Digital Twins (63%)
- Physical Digital Twins (61%)
- Industry 4.0 (61%)



# Appendix: The Dart™ Methodology

SAPinsider has rewritten the rules of research to provide actionable deliverables from its fact-based approach. The DART methodology serves as the very foundation on which SAPinsider educates end users to act, creates market awareness, drives demand, empowers sales forces, and validates return on investments. It is no wonder that organizations worldwide turn to SAPinsider for research with results.

## THE DART METHODOLOGY PROVIDES PRACTICAL INSIGHTS, INCLUDING:

<b>DRIVERS</b>	These are macro-level events that are affecting an organization. They can be both external and internal, and they require the implementation of strategic plans, people, processes, and systems.
<b>ACTIONS</b>	These are strategies that companies can implement to address the effects of drivers on the business. These are the integration of people, processes, and technology. These should be business-based actions first, but they should fully leverage technology-enabled solutions to be relevant for our focus.
<b>REQUIREMENTS</b>	These are business and process-level requirements that support the strategies. These tend to be end-to-end for a business process.
<b>TECHNOLOGY</b>	These are technology and systems-related requirements that enable the business requirements and support the company's overall strategies. The requirements must consider the current technology architecture and provide for the adoption of new and innovative technology-enabled capabilities.

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