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Act quickly, change course, bounce back. The need for business speed, agility, and resiliency is suddenly paramount for everyone in today’s uncertain financial climate. Digital transformation was supposed to deliver these capabilities, but early in 2020, when the global lockdown began, every supposed digital transformation initiative was put to the test.

Within days, every company’s digital business was either proven or found wanting when faced with new virtual challenges. Digitally solid companies were prepared with customer and employee engagement capabilities. They had data on hand and analytics applied to quickly make the right decisions. These companies are not just surviving; they are thriving with data-driven strategies.

Data-Driven Strategy Success
Digital strategies already transformed the retail industry with market simulation, personalized marketing, and new distribution models. Other data-driven organizations created new business models by digitally linking customers and sellers. Over 76% of EMA end-user survey respondents indicated they were adopting data-driven strategies.¹ New entrants to these disruptive markets are asking:

“How can we create our own disruption with data and analytical agility?”

These success stories drive not only market disruption and competitive advantage with existing and new revenue streams, but also corporate value for investors and shareholders.

¹ “Data Lakes for Business, Big Data 2018 End-User Research Results”

Artificial Intelligence and Automation in Operations
Another driver for organizations moving toward data-intensive strategies is the early success of machine learning algorithms and artificial intelligence techniques in business operations. There are substantial opportunities for organizations to capture and analyze streaming information from IoT-connected devices and to significantly impact an enterprise’s bottom line. Predictive maintenance for connected fleet vehicles can lower operational costs. Increased insights from customer experience can create new insights for R&D and product management. Real-time understanding of manufacturing quality reduces rework and material waste. Visibility into unforeseen supply chain inventory-level patterns allows for uninterrupted operations and eliminates unexpected costs.

Digital Experience in Customer Engagement
Modern, digitally-aware organizations also have smartphone apps and online presence to engage customers. Digital experiences allow customers to easily consume information, make purchases, monitor deliveries, and enjoy their new purchases to the fullest. Traditional enterprises are already integrating these apps with their brick-and-mortar operations to enable on-demand ordering and same-day, onsite fulfillment. Digital enterprises are buying brick-and-mortar operations to enable same-day delivery or onsite fulfillment.
OPPORTUNITY COST OF DATA-DRIVEN INITIATIVES

For some companies, the allure and value of data-driven initiatives seem undeniable, if not unavoidable. Organizations that already adopted data-driven strategies are going to find, establish, and maintain competitive advantage over traditional rivals in competing marketplaces. They will develop new markets and opportunities that traditional enterprises will have difficulty capitalizing. Yet, opportunity costs come with the value of data-driven initiatives.

Few organizations can effectively construct and operate the supporting environments that data-driven strategies demand. Digitally-born organizations have certain advantages in their technology-oriented cultures and presence of digitally-native data sources. Whether it is in terms of modern data center infrastructure for on-premises deployments, or virtual private clouds, or utilizing public cloud resources, the CIOs and IT departments of data-driven organizations are oriented toward supporting, deploying, and staffing complex data landscapes. Many traditional companies, and even some startups in Internet-focused markets, have difficulty handling the data necessary for data-driven strategies.

Even for organizations that can manage data collection and storage, there are issues with the proper utilization of the data. It is one thing to collect a mass of data from IoT devices or mobile apps; it is another to prepare and correlate the data to compare the actions of a customer on a smartphone with their brick-and-mortar purchase history. This management, curation, and operational execution is crucial to making the proper targeted offers to customers and prospects at the correct time.

Finally, as data is collected and correlated, it needs to be curated as an asset. Understanding data quality and the association of data to relevant customer, product, or location domains is part of managing customer relationships and product portfolios. Creating enterprise catalogs of the data and metadata across a landscape can be a significant challenge for organizations whose primary goal is manufacturing or supply chain distribution. Yet, this is a key component in the ability of organizations to evaluate and value their data as an asset, meet requirements for internal risk controls, and meet compliance for governmental regulation.

Top Pain Points of “Information-Driven”

Considering data and information are not without pitfalls and pain points, organizations need to be mindful of these specific topics:

- Information Chaos
- Data Platform Bloat
- Insight Delivery
- Cloud Migration
- Data Privacy and Security
- Data Governance
- Artificial Intelligence
- Landscape Orchestration

This document describes each of these topics and provides short-term and long-term solutions to manage the risks of each.
Data-driven organizations strive to collect and connect data across data landscapes that span internal and external sources of information. On the data collection side of things, they excel. For example, there is information on consumers from internal enterprise applications, such as point of sale systems, cloud-based customer relationship management solutions, third-party credit rating services, and fine-grained information from mobile and online apps. Each of these provides an aspect of the habits of existing customers and potential prospects. For business customers, applications like ordering, payment, and fulfillment platforms provide internal process visibility. Internal and external credit platforms provide critical information on handling risk decisions.

However, on the connection side of this equation, there is a significant disconnect when an organization attempts to bring this information together. Natural silos exist between datasets that limit the ability of organizations to link this information. Internal views of customers with external credit assessments require common identifiers. Also, linking information from traditional sources, such as enterprise resource planning, with new sources, such as mobile and online activities, can be difficult.

Information chaos is further compounded when data is stored in multiple cloud providers, in different cloud data platforms, with different contracts, different access methods, and different access SLAs. Cloud chaos becomes even more of an issue now that half of all data is stored in the cloud.² The “noise” that separates the vital information from the mass of data surrounding it can be insurmountable at times.


² “Data Lakes for Business, Big Data 2018 End-User Research Results”
DATA PLATFORM BLOAT: MANAGING LANDSCAPE SPRAWL

With the expansion of data sources, there is also an expansion of the different types of platforms on which data is stored, managed, and processed. New digital business models and the push toward real time test the limits of legacy platforms and drive the need for modern data platforms. Eighty-five percent of EMA end-user survey respondents indicated they have 2-8 different types of platforms in their next-generation data management environment.³

For example, an insight-driven organization might run critical applications on operational databases and their mobile or internet apps on NoSQL distributed databases. Analytics and business intelligence programs require a combination of analytic databases, data warehouse platforms, and big data platforms. Because of cost constraints, IT leaders are moving data into object storage or deploying multi-model platforms for consolidation. In order to facilitate intelligent responses to real-time engagement, search platforms speed the discovery of insight and streaming platforms become the data nervous systems for both integration and analytics. In-memory databases are changing the entire emerging data landscape with multi-use capabilities. Emerging platforms address specialized use cases, like graph databases for analyzing networks of networks and complex ecosystems like markets or the human body.

Every time an organization adds a new platform, cost and complexity increase exponentially. To further complicate data management, a majority of data is now being processed in the cloud. Data integration and synchronization challenges emerge with data spread between on-premises and cloud platforms. In addition, some cloud vendors have added so many services to their offerings that it is extremely confusing to understand and navigate the intricacies of their environment.

To combat the complexity of platform expansion, EMA research showed that 37% of participants are planning to consolidate and reduce the number of platforms in their ecosystem. Multi-model platforms like in-memory databases are the #1 choice for consolidation platforms, with 42% indicating this direction. To validate this consolidation strategy, 99% of respondents said they would likely utilize multi-use platforms for consolidation, with almost half of the respondents indicating they are highly likely to consider their use.⁴

For more information, visit http://www.sap.com/hanacloud.

³ “Modernization and the Operation of Hybrid Data Ecosystems”
⁴ Ibid.

SHORT-TERM SOLUTION

The first instinct is to move directly to consolidation. However, it is important to understand the benefits of modern data platforms and implement them when there is a good business case. Furthermore, it makes sense to prioritize new cloud technologies where business value is already built into the platform.

LONGER-TERM SOLUTION

Recent advances in cloud technology have simplified implementation and improved time to market. Move to cloud solutions where business value is already built-in and multiple technology services have been bundled into a single solution. However, even in a consolidation environment, it is essential to implement strategies to connect multiple platforms for interoperability and synchronization.
However, the question remains: Is this insight producing action that leads to the creation of value? It is the last mile, from intelligence to value creation, that remains obscure.

Taking action remains difficult because most organizations do not have the resources to answer all the questions being asked by the business in a timely manner. The time it takes to find, prepare, analyze, and visualize data consumes every available data engineering and data analyst resource. This challenge of preparing and maintaining data is multiplied greatly by the recent uptick in the use of AI and ML.

Another barrier to action stems from the historical need to separate insight from business process. Some gains have been made to embed intelligence in business processes, but most of these solutions require human intervention. The immediacy of digital engagement and digital workplaces simply cannot wait for a person to see insight, decide to act on it, and then act.

For more information, visit https://www.sap.com/products/cloud-analytics.htm.

SHORT-TERM SOLUTION
Increasing the flow of insight in organizations is vital to the proliferation of data-driven decisions. Using AI-enabled data preparation and business intelligence platforms automates repetitive manual tasks and frees valuable resources to work on innovative data-driven initiatives. Analytic augmentation also unearths insight not discoverable by human means, providing additional potential for value creation.

LONGER-TERM SOLUTION
Artificial intelligence and machine learning can be applied to the entire information supply chain and to a broad set of business processes. Utilize modern AIOps and MLOps platforms to operationalize predictive and preventative analytics. In addition, most digital business processes can now be automated with robotic process automation platforms. Automation of insight and business process will become the new value creation engine for digital experiences.
Data privacy and security have gained international attention with recent hacking incidents and government regulations like the General Data Protection Regulation (GDPR) and California Consumer Privacy Act (CCPA). Compromising customer trust can destroy reputations and destroy companies. Massive amounts of data and real-time engagement make it difficult to identify, mask, and protect personally identifiable information (PII). More than thirty-three percent of EMA end-user survey respondents indicated that data privacy and masking techniques were important to their security practices. In addition, the main security policy concern of EMA end-user survey respondents was to establish a comprehensive strategy for data protection.

With enormous amounts of trusted information at risk, data-driven organizations need to ensure their data is secure from loss, theft, or inappropriate access. Most organizations lack the skilled resources and funds necessary to secure their data. For example, EMA research revealed that only 9% of participants are securing a significant portion of their data in a unified management console.

To address this issue, many of the experienced cloud vendors have intensified their privacy and security offerings to exceed what can be done in many on-premises data centers. In addition, artificial intelligence and machine learning are being used to identify and anonymize PII. For security, advanced analytics and deep learning continue to provide exponentially better protection for data than previous generational technology.

For more information, visit https://www.sap.com/products/hana/features/security.html.

SHORT-TERM SOLUTION
For privacy, ensure that PII identification, masking, and auditability are all in place for both cloud and on-premises data. For security, analyze and track all data access points and begin using security analytics to assess both risks and attacks for stronger data protection. Make the move from batch or infrequent applications of privacy and security to the application of protections and anonymization in real time to enable self-service apps and analytics.

LONGER-TERM SOLUTION
For privacy, start working toward AI-enabled, automated PII identification, masking, and anonymization. For security, adopt a single data access and security layer similar to those of largescale cloud providers, or move to a cloud provider that has both security and privacy capabilities built into their service offering. The ultimate goal is a unified platform for the security of all data.

5 “Charting the Expanding Horizons of Big Data”
6 “Modernization and the Operation of Hybrid Data Ecosystems”
DATA GOVERNANCE: MOVING FROM TACTICAL TO BUSINESS VALUE

In previous eras, data governance majored on technical standards and minored on business outcomes. It was tactical, not strategic. Most IT leaders have dabbled in data governance, putting point solutions in place, but few have implemented prioritized programs tied to business outcomes. The emergence of digital disruption changed the way organizations must think about data, now seeing it as a strategic asset for innovation and market disruption.

Most leadership teams have made the shift to strategic thinking about data. Seventy-three percent of EMA end-user survey respondents indicated they were adopting data governance strategies. Almost 30% said data governance was vital to their business. However, many continue to struggle with basic data governance challenges like data consistency, certification, active use of master data, and data valuation. The task of managing massive data was already overwhelming to most organizations, even the most mature. The task of governing data is even more daunting.

The management of data as a strategic asset requires visibility at the CxO level. CIOs, CTOs, and chief data officers (CDOs) must define a data strategy that is aligned to short-term and long-term business goals. In addition, the entire C-suite, including CMO, CFO, CRO, and CHRO, must be able to understand the current and potential value of data, along with the potential risk, in order to effectively do their jobs and achieve exceptional results.

For more information, visit http://www.sap.com/datastrategy.

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SHORT-TERM SOLUTION

Providing CxO-level visibility into data value and risk is the first step along the path to moving an organization from technical data governance to a strategy focused on delivering business value and achieving business outcomes. This step enables data-savvy executives to prioritize data governance projects based on potential value creation, manage data assets as an investment portfolio, and continually improve value creation capabilities.

LONGER-TERM SOLUTION

Long-term data governance is an effort that needs to be distributed across the organization as widely as information is utilized. Team members, from customer care and fulfillment warehouses, marketing directors, and finance analysts, all have information and expertise to contribute. Expanding and operationalizing data governance and the active use of metadata will inevitably require an investment in AI-enabled, real-time, automated data governance.

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7 “Data Lakes for Business, Big Data 2018 End-User Research Results”
ARTIFICIAL INTELLIGENCE: DOING MORE WITH LESS

As the use of data and analytics penetrates deeper into employee, customer, and partner organizations, the number of users grows exponentially. As a result, most IT organizations are unable to keep up with demand. Both data and business analysts are constantly being asked to do more with less. In EMA research, 65% of respondents indicated that the need for additional resources is the main driver behind the use of AI-enabled analytics and data management.²

The second big challenge in the digital age is time constraint. More organizations need smart responses to real-time customer engagement and immediate action for complex supply chain issues. The digital world produces more data and requires more insight to be delivered within minutes or seconds of when that data is produced. Everything is moving faster. Fifty-two percent of EMA respondents indicated that the need to save time is a main driver behind the use of AI-enabled analytics and data management platforms.³

Leaders who are guiding their organizations on a journey toward the data-driven enterprise struggle to keep up with the hunger for more intelligence. The use of artificial intelligence (AI) and machine learning (ML) in data and analytics platforms is a game-changer. Organizations constrained by limitations of time, cost, and resources will see a breakthrough with new, AI-enabled capabilities across the entire information supply chain.


² “Innovation in the Use of Artificial Intelligence and Machine Learning for Business Intelligence”
³ Ibid.

SHORT-TERM SOLUTION

Beginning with AI-enabled business intelligence (BI) tools is a top priority, especially given the direct impact of BI on business decisions and outcomes. Expect the highest value to come from automated insight, where machine learning algorithms scour data and automatically deliver new insight to users based on their context.

LONGER-TERM SOLUTION

Implement platforms in which AI enablement for all or a significant part of the information supply chain is already integrated and bundled together. The natural place for this to happen is on the cloud. AI enablement and automation already exist for BI, data integration, analytics, data platforms, and metadata services like data cataloguing, master data, and data preparation.
As companies modernize to pursue insight-driven strategies, it becomes vital to connect and orchestrate data and platforms via data pipelines. Manual coding and processes inhibit an organization’s ability to rapidly develop and deploy analytic applications at a rate necessary for digital interactions.

Organizations struggle trying to force traditional platforms like data integration, messaging, and application integration to embrace the digital shift. Others have adopted new platforms like data wrangling, big data integration, integration platform as a service (iPaaS), and cloud integration platforms in their attempt to modernize. Few of these new solutions are broad enough for enterprise requirements.

Since many organizations have tried to implement data pipelines manually, several challenges remain: too much time spent on break and fix, resource shortages for manual coding, and scarcity of data engineering resources. The trend is toward DataOps and data pipeline automation platforms that consolidate multiple integration platforms, operate simultaneously on-premises and in the cloud, and abstract away underlying complexity.

Data pipeline automation platforms play a critical role in connecting data and driving interoperability. The use of artificial intelligence and machine learning, along with rich metadata, is ushering in a new era of data services, hyperspeed, and the automation of complex, multidirectional data pipelines.

ABOUT OUR SPONSOR: SAP

As the Experience Company powered by the Intelligent Enterprise, SAP is the market leader in enterprise application software, helping companies of all sizes and in all industries run at their best: 77% of the world’s transaction revenue touches an SAP® system. Our machine learning, Internet of Things (IoT), and advanced analytics technologies help turn customers’ businesses into intelligent enterprises. SAP helps give people and organizations deep business insight and fosters collaboration that helps them stay ahead of their competition. We simplify technology for companies so they can consume our software the way they want—without disruption. Our end-to-end suite of applications and services enables more than 440,000 business and public customers to operate profitably, adapt continuously, and make a difference. With a global network of customers, partners, employees, and thought leaders, SAP helps the world run better and improve people’s lives.

SAP offers SAP HANA, SAP HANA Cloud, and SAP S/4HANA, which are in-memory computing platforms that store and process large datasets with fast performance. SAP Data Warehouse Cloud is the first enterprise-ready data warehouse in the cloud that unites all your data sources into one solution, maintaining the security, trust, and semantic richness of your information. SAP S/4HANA Cloud is a software as a service solution that provides SAP enterprise applications in a scalable and easy to manage cloud-based environment with enterprise-class security. The company also provides SAP Cloud Platform, an in-memory platform as a service to build, run, and extend business applications in a public cloud-based environment. SAP also has SAP Analytics Cloud, which is a single cloud analytics solution that augments the value of business intelligence (BI) and enterprise planning. The SAP Digital Boardroom allows company executives and management teams to visually access company data in real time.

SAP Data Intelligence delivers data-driven innovation across distributed landscapes, complex data types, and processing engines. SAP Master Data Governance builds a comprehensive system of master data to streamline business processes and gain a single, trusted view of master data across the value chain. SAP Information Steward establishes the trust and understanding of your information assets to anticipate risk and drive better business outcomes. SAP Smart Data Integration, SAP Smart Data Quality, and SAP Data Services collect, connect, and transform data into a trusted, ever-ready resource for data-driven applications.

Together, these solutions function as a gateway for all enterprise data. Delivered in the cloud, they offer fast results. Built-in governance and data security mean business users and IT can trust their data. These solutions from SAP’s Business Technology Platform make data of any size and shape available to people, algorithms, and data-driven applications.

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Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help EMA’s clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals, and IT vendors at www.enterprisemanagement.com or blogs.enterprisemanagement.com. You can also follow EMA on Twitter, Facebook, or LinkedIn.

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