The Digital Wave – How It Impacts Data Management

POWERFUL INSIGHTS

Issue

Just as companies were starting to believe they had a handle on their internal data management and the governance of structured data, a new technology wave in the form of digitization is sweeping the globe, rendering carefully crafted frameworks obsolete. This digital wave, fueled by massive quantities of unstructured and uncurated data being generated by social media, mobile devices and the cloud, has been impacting data management for the last few years. However, the rise of the Internet of Things (IoT), augmented reality and artificial intelligence has now compounded the impact.

The result? Companies face a new and dynamic digital agenda that is disrupting their data management by forcing them to consider the broader opportunities and risks of unstructured data arriving in waves from beyond their walls, and thus outside of individual corporate or government control.

This data is a potential gold mine: It holds great promise for delivering insights that organizations in every industry segment are eager to attain in order to gain or increase their competitive advantage. Of course, such data also creates risks that organizations must identify and address effectively.

In this paper, we summarize the challenges and opportunities presented by this new digital agenda. We also offer a snapshot of the keys to aligning the people, processes and technology inside the organization to create a robust, secure and scalable data management infrastructure. Such infrastructure can help companies face the future with confidence by meeting the increasing demands of master data management, data quality and data governance in this new era of digital transformation.

The New Digital Agenda

Numerous well-documented trends are fundamentally changing the way businesses operate today, as well as the way consumers interact with them. Examples include but certainly are not limited to:

- Connected medical devices, telehealth and consumer-driven healthcare

- Omnichannel, or "all of the above," consumer choices in retail, consumer goods, banking and insurance transactions

- The Internet of Things, including machine-to-machine (M2M) integration and sensor technology in manufacturing, logistics, agriculture, telecom, oil and gas, and utilities, among other sectors

- Gamification – the introduction of game-like metrics such as rules, competition, prizes or points-earning – by an increasing number of banking, financial services and insurance companies, especially in Europe

- Enhanced, customized consumerism, such as the use of facial recognition and biometrics to create personalized shopping experiences based on prior shopping behavior and increasingly sophisticated predictive analytics

- Digital marketing targeted to specific consumers based on their unique digital profiles and online behavior

- Big data – namely, the sheer volume of information that needs to be processed – demands a fundamentally new database structure and a new generation of bandwidth, data extraction and analysis tools. Organizations also need personnel capable of designing, sourcing and implementing the technology required to capitalize on big data.

Data Challenges Introduced by Digital

These trends hold great promise. But to capitalize on them, organizations likely need to rework their data management frameworks to accommodate the unprecedented volume of data from social media, and unconventional sources such as radio frequency identification (RFID) tags, smart meters, global positioning systems (GPS) and M2M.

Since much of the promise is personalized or informed service, there is also a need to understand the implications to both the provider and collector/processor of the

information regarding the proper handling of the data, specifically concerning privacy laws and security expectations.[1] In particular, the lack of standards in governing unstructured data arising out of IoT devices is fast becoming a matter of grave concern. Consider that among the many challenges, this unstructured data usually arrives in different forms, with differing levels of accuracy, security and quality, and from a variety of owners, exposing the organization to new risks and regulations.[2]

To classify and manage this data effectively and in compliance with all applicable laws and regulations, significant changes in data management frameworks are likely required. An orderly process is essential to ensure that people, processes and technology within the organization are aligned to support the three pillars of data management infrastructure:

1. Master data management
2. Data quality
3. Data governance

Banks Making Change

Financial service providers have embraced the new digital agenda and provide a good case study to others who want to follow a similar path.

Although banking customers have long been able to conduct transactions online, there are still many transactions, such as opening a new account, that require customers to physically sign certain documents. When customers walk into a bank, or at any other point of interface, they are required to verify their identity and provide details or a username and password for further verification.

In the fully digital future, identity resolution may be achieved with retinal scans or image recognition rather than with documentation. The customer will be photographed at a point of entry and the image will be matched with the one in the bank's database, so that when the customer reaches the teller window, the auto-assigned teller will have the relevant information ready. This type of digitally sophisticated customer experience will become key in terms of lifetime customer value, loyalty and retention.[3]

In addition, the bank of tomorrow is likely to become paperless as physical signatures are replaced by digital signatures, and paper checks are replaced by digitally signed e-checks.

A solid data-management strategy will be required to achieve this vision. Some of the changes that will be required include the ability to:

- Handle, store and process digital data (such as images, fingerprints, retinal scans, digital signatures and social media data) beyond the conventional demographic data

- Handle and store large volumes of data and quickly scan/search through it

- De-duplicate, match and merge digital data using new techniques

- Integrate data in real time

Managing the Shift in an Evolving Digital World

First of all, organizations that have invested the time, talent and resources to mature their data management ecosystems to their current state have not wasted their efforts. The desired future state is governed by the same basic principles of data management. Thus, while changes and evolution are required, there is no need to discard current data management structures entirely. It is merely the data itself and the management tools, training and techniques that need to evolve to connect the dots amid today's digital transformation.

Specific changes that likely are needed – all involving a combination of people, processes and technology – include the following:

- **Infrastructure**: Instead of traditional relational databases, the organization may need a big data platform, which can manage a large volume of structured and unstructured data. While many organizations have such platforms in place, others that have immersed themselves in the IoT and other digital services are just getting started.

- **Techniques**: Identity resolution, de-duplication and matching must evolve to include fuzzy logic, pattern matching and image recognition.

- **Mechanisms**: Data governance must cover data coming from social media and third-party sources, address the data's use and the appropriate security and privacy (overlaying Generally Accepted Privacy Principles and a privacy steward, if the data is regulated), and differentiate signal from noise.

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[1] This paper does not focus on security and privacy, but the protection of data is an integral part of big data management and should be considered in the design of data management frameworks.

[2] "Mission impossible? Data governance process takes on 'big data'," by Roger Du Mars, TechTarget, August 2012: http://searchdatamanagement.techtarget.com/feature/Mission-impossible-Data-governance-process-takes-on-big-data.

[3] "Bricks and Clicks – Consumer Preferences on Retail Banking and Payments," Protiviti, October 2015: www.protiviti.com/en-US/Documents/Resource-Guides/2015-Consumer-Banking-Online-Payments-Survey-Protiviti.pdf.

- **Ownership and Governance**: The organization's chief data officer (CDO) must create scalable enterprise information architecture and ensure that utilization and monetization are increased and that data analytics are yielding accurate and enriched business insights.

- **Standards**: New standards in terms of governance and management probably need to be defined by bodies like IEEE to bring some method into this madness.

Getting Started: The Keys to Digital Transformation

Digital transformation will require conscious and cost-effective organizational decisions. Key activities should include:

- **Ensuring alignment of the organization's digital vision with its data management strategy**: The vision, and the strategy based upon it, must be understood clearly by all key functions in the organization.

- **Assessment of data management maturity**: The current state of the organization's data management process, operating model and tools must be assessed for maturity of the framework, so that gaps can be identified and bridged.

- **Phased transformation**: Changes with large impacts on the organization should be implemented in phases. This approach minimizes the risk of failure and optimizes chances of success. Lessons learned at each phase can

be corrected in subsequent phases, and a road map for change should be documented in alignment with business objectives and strategy.

- **Informed choice of tools**: Technology plays a key role in digital transformation, so the organization should evaluate and manage both incumbent and new technology partners. Niche technology partners can bridge gaps until the digital market reaches optimal maturity.

- **Leadership focus**: The new digital agenda reinforces the need for a distinct, permanent focus on data and its related management strategy through the CDO, allowing the chief information officer to remain focused on application and infrastructure development, rationalization, optimization, security and integration. It is also forcing the role of the CDO to evolve from chief data officer to chief digital officer.

Return on Digital Investment

Time is of the essence for organizations to begin fulfilling the digital agenda, which cannot be achieved without an effective data management framework in place. Since a change of this magnitude involves time, money and risk, it is important for organizations to conduct a proper assessment from the onset and create a business case supported by an implementation road map. The result will be a positive return on digital agenda investments.

PROVEN DELIVERY

How Protiviti Can Help

One size does not fit all.

Most organizations want to improve how they understand, organize and leverage their data assets. This includes utilizing data to solve current and emerging business challenges, while also managing existing data and reporting infrastructures.

Many areas of data asset management – from governance and business intelligence to master data management (MDM) and analytics support – pose significant challenges for CIOs and IT executives. Further, big data is introducing new information sources to organizations – often times from outside company walls.

Understanding the context, quality and business value of this information requires strict governance. Analytics is a key capability for satisfying increased regulations and to ensure

business decisions are based on the right information, at the right time and in the right context.

We recognize today's data challenges and opportunities. Our experts approach them from a pragmatic "one size does not fit all" perspective. Our teams and solutions are tailored specifically to bring both the right technology and business expertise to each project.

Globalization, competition, regulations and economic pressures will always be constants – wrangling and deciphering your data doesn't have to be. Our experts offer deep compliance and regulatory knowledge that – when combined with our technical acumen – bring great value to our clients. Our Business Intelligence offerings are designed to help enhance business value through more efficient collection, distribution and usage of information.

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