WHITE PAPER

Agility in Data Management

ALTIMETRIK®

ALTIMETRIK®

Contents

Overview

The importance of data in achieving successful business outcomes cannot be emphasized enough in this digital era. Businesses in recent times have embarked on digital transformation as they strive to keep existing customers happy while creating opportunities for new ones. It is worth noting that investments in data related concepts have soared, making data concepts such as data analytics, machine learning, interpretation of structured and unstructured data highly prevalent as these enable fast decision making for business agility.

With digital transformation, data and technology are leveraged by organizations to deliver innovative omni-channel experiences that customers demand for in the digital era. It is safe to mention that same applies to Agile transformation, however, not every organization is successful in implementing Agile. One of the key areas that businesses encounter challenges with agile adoption is data management. This whitepaper highlights focus areas for agility in data management.

Introduction

The Agile revolution initiated by a group of renowned developers in the software development industry two decades ago is here to stay. Today, over 80% of software development organizations have adopted Agile. Most of these businesses have experienced significant increase in customer satisfaction and bottom line because of the customer centric and data driven approach of Agile. With this said, the adoption of Agile framework in certain areas of an organization can be challenging. Implementing Agile principles and practices in data management may require extra effort and creativity due to data work structure which is slightly different from that of application development.

According to the Data Management Body of Knowledge, data management is described as "the development, execution and supervision of plans, policies, programs and practices that control, protect, deliver and enhance the value of data and information assets". In the data management process, business benefits, user interaction and engagements are not as apparent as they are in application development, this is indeed a challenge for Agile adoption. This major challenge can be attributed to the following:

- Not defining and articulating the benefits of data
- Maintaining data silos that is devoid of holistic organizational view
- Striving for perfection during data modelling/design/data definition phase
- Challenges in creating cross functional teams (involving data scientists, data engineers, business-information owners, developers, and quality-control specialists).
- Shifting from legacy to new age tools, infrastructure, technology, and automation
- Aligning agile practices with data work structure

Data is the cornerstone for business strategies and initiatives intended by organizations to yield positive ROI which Agile can help achieve quicker if well implemented. It is critical to understand that culture change is a fundamental aspect of an Agile process and each organization has its own unique culture and challenges. Therefore, organizations should articulate the problems and then figure out the best possible way Agile principles and practices can be adopted to solve the problem. Businesses can adopt this approach when implementing Agile in data management for better outcomes.

Solution

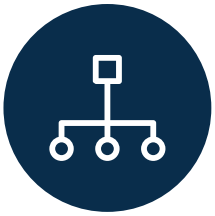
A good starting point would be to highlight what agility means in data management. **This can be described as the act of collecting, organizing, studying, and acting upon data quickly and easily.** It mainly refers to a quick, active system that works fast and delivers accurate results. Organizations should use Agile values and principles as guidance to implement a more Agile approach to data management. To be successful in achieving data agility, an organization needs to address the following:

Governance with Clear Vision and Outcome-based Metrics

Many organizations often fail to quantify the potential value to be gained from investments in data-migration capabilities and tools. Hence, without a clear vision and outcome-based metrics to guide strategies and decisions, data-transformation initiatives may not gain traction or may lose direction.

Along with the measurement of KPIs (SLA/OLA) regarding data availability, security, quality, recovery, and restoration needs, organizations should also establish outcome-based metrics according to the vision of how data can be the differentiator for businesses.

Vision and outcome-based metrics will help the teams understand expectations clearly and will help in prioritization of work at each step to keep it on track for value-based delivery.



Holistic Organizational View and System Thinking on Data Management

Traditionally, business information collected from the myriad systems located in different business units and functions in a company are stored within their silos of the units, and data migration, management and accessibility efforts are focused on local needs and concerns.

There should be a business-driven approach to data migration and management. Under this approach, organizations should create a master list of possible features based on business use cases and opportunities for new or enhanced products and processes by conducting value stream identification and mapping. Engaging data owners, customers, and stakeholders throughout the process will help the teams in better understanding of the usage and priority. Based on the business case or feature priority, inventory of the different types of data elements associated should be identified across a range of business domains relevant to this business and aligned to flow of value without limiting to specific domain. The optimization of not only data but the underlying processes should be considered with a system-thinking approach to optimize or simplify the whole.

Intentional Architecture and Emergent Design for Data Modelling/Design

Like any Agile development, data sources need to be good enough for the immediate user story/feature at hand. The old saying "perfect is the enemy of good" clearly applies in the data management domain. Otherwise, too much time is lost by the team in the delivery process and opportunities are squandered, while development teams are forced to wait on data management teams to create (near) perfect data models, structures, and semantics before being allowed to move forward. Traditional data professionals mistakenly assume that production databases are difficult to evolve, and as a result strive to get their designs right the first time to avoid painful and time taking database changes in the future.

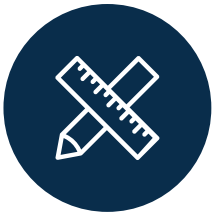
Agile data management methods have proven this assumption to be wrong. With the evolution of many new age organizations, their production databases have evolved. It's not necessary to strive for perfect detailed models/structures up front. Instead, have just enough up-front thinking to get going in the right direction and then evolve implementation (including data sources) over time as the understanding of stakeholder needs evolve.

The Scaled Agile Framework (SAFe) suggests that intentional architecture should be kept as the guiding principle while the emergent design evolves from the immediate need.

Cross-functional Data Management Team

Traditional data management teams are structured by organizations as specialized teams such as information architects, data modelers, database administrators, server administrators etc., focused on technical and infrastructure aspects without the view of the business.

Although specialists are very skilled in a specific aspect of the overall process, the problem is that we need a lot of specialists to perform anything of value and as a result the overall workflow tends to be error prone, slow, and expensive without focus on value. Hence, key is to create cross functional self-sufficient teams involving data scientists, data engineers, business-information owners, developers, and quality-control specialists. Initially, focused skilling or boot camps may be needed to create T-skilling/E-skilling culture so that the teams can become persistent and would be able to tune themselves to various needs of data migration, data transformation or data analytics needs, delivering value collaboratively.



New Age Tools, Infrastructure, Technology, and Automation

Traditional data management would rely on overnight batch processes for ETL (Extract, Transform, Load) and validation/data quality checks.

Applying strategies such as Acceptance Test-Driven Development (ATDD) are quickly becoming the norm for exploring and capturing detailed requirements and design specifications respectively, and this process can be enhanced by adopting continuous integration (CI) and continuous deployment (CD) technologies and practices. These strategies have their roots in software development, but they are also being applied in the data realm and are contributing to improving overall data quality and decreasing the time to safely deploy database updates into production.

Extreme automation is becoming common in the data warehouse (DW) and business intelligence (BI) environment to evolve from batch processing to full real-time processing across the entirety of data infrastructure. Data lakes may be used as a promising tool to get information quickly to the end user. Moreover, proactive identification of anomalies is enabled by the evolution of AI and ML and their implementation on the data quality check and governance.

Aligning Agile Practices with Data Work Structure

There are two aspects to data management, one is database for application development which entails setting up database and data elements for UI while the other, data warehousing, involves batch processing for ETL. The work structure in both aspects is different and this is where organizations encounter challenges the most while adopting Agile in data management.

The application development aspect is straight forward but the data warehousing aspect requires some creativity. The question is – what is creativity in this situation? Creativity requires an Agile mindset that will enable the organization to analyze work structures and determine the framework that can deliver the desired outcome.

In a situation like data warehousing where UI is not available, it is important to identify who the internal customer is and clearly define what value means to this customer. The goal would then be to deliver the right value at a sustainable pace to the customer with constant interactions.

Furthermore, the framework adopted by an organization may not necessarily be best suited for both aspects of data management. The creativity in this case will be to figure out what extra steps should be taken to ensure that the adopted framework delivers value for application development and data warehousing. Alternatively, different frameworks can be adopted for both if required.

One thing to be mindful of is that, irrespective of the Agile framework that is adopted by an organization, the existence of an Agile mindset is what delivers the best outcomes.

Benefits

Agility in data management helps organizations realize immense benefits in certain key areas as mentioned below:

- Customer Experience
- Better and Faster Decision-making
- Operational Efficiency
- Business Resilience
- Improving the Speed of Digital Transformation

Customer Experience

Engaging data owners, customers, and stakeholders early, establishing prioritization based on customer needs, getting early feedback from customers/stakeholders, and collaborating closely with them results in better customer experience and increases the chances of success.
With agility in data management and focus on customer centricity, gathering user data from web analytics, customer feedback, and customer research form provides key inputs for digital ethnographic analysis and generate key insights for data driven product management teams, thereby rolling out more engaging and relevant features for the customers.

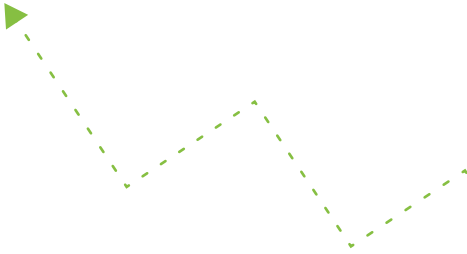
Better and Faster Decision-making

Agility in data management is the foundation block for bringing agility within an organization's data-driven decision-making framework. It empowers business users with self-service analytics, business intelligence and reporting based on their feedback and real consumption need. This also helps organizations to do descriptive analytics through dashboards and reports, diagnostic and predictive analytics to get insights, and prescriptive and actionable analytics to make decisions and trigger actions.

Operational Efficiency

With the introduction of agility in data management, gradually, the mindset change also takes place. The teams start viewing the overall business process, instead of viewing data in silos. Refining processes with the application of system thinking increases overall operational efficiency which helps to achieve the following:

- Creating collaborative environment
- Reengineering data platforms/infra based on business processes
- Continuous improvement and automation
- Better quality data
- More responsiveness to user need of analytics



Business Resilience

Taking an agile approach to data management will have a positive ripple effect in an organization; agility leads to higher data quality which leads to more precise analytics and then to better, focused, data-driven business decisions. Moving away from the culture of having data in organizational silos, helps in capitalizing on the value of data, improving data security and disaster recovery plans.

Improving the Speed of Digital Transformation

In a transformation journey, we can move as fast as the slowest part of the system/organization. Traditionally data management is the area which slows down the overall transformation. With agility in data management, cross functional, persistent agile teams get equipped with right processes and tools to deliver at a faster pace, in smaller iterations with a view on the holistic customer need. This brings about broader cultural shift across the organization and fast tracks digital transformation. It helps businesses move fast and quickly adapt to the needs of the customers and provide powerful digital experiences.

Conclusion

Agility in data management opens a significant opportunity for organizations to realize immediate value from frequent release of minimum viable data-management solutions. Different business functions can seize these emerging opportunities more quickly and can help the IT organization prioritize data and digital transformation initiatives. However, this requires redefining some of the organizational structures and mindset shift by leadership. To propel a business to leadership position in today's market, an organization needs to embrace the culture of agility in data management in a structured way and make some organizational changes based on agile values and principles with leadership support. In addition, investment in automation, new age tooling, and empowerment of people will add much value to the process.

It is critical to identify the key role players on a Data Agile team and encourage them to have frequent interactions with the internal customers for effective delivery of value. An understanding of the end goal will enable the team to better structure and sequence work to deliver value with minimal challenges. Irrespective of the section of the organization that is being transformed, Agile principles and practices to adopt remain same. However, the frameworks to be adopted may defer based on the work type.

Overall, the challenges with Agile adoption in data management can be mitigated with clear vision and outcome-based metrics. The adoption of a holistic approach of system thinking for an organizational view will help breakdown data silos and yield better business outcomes. In addition, intentional architecture and emergent design for data modelling/design will add value. Furthermore, having cross-functional data management team and closing the skills gaps will enable the delivery of expected results at a sustainable pace. Lastly, aligning agile practices with data work structure with an agile mindset will deliver the best business outcomes.

ALTIMETRIK®

About Altimetrik

Altimetrik is a data and digital engineering services company focused on delivering business outcomes with an agile, product-oriented approach. Our digital business methodology provides a blueprint to develop, scale, and launch new products to market faster. Our team of 5,500+ practitioners with software, data, cloud engineering skills help create a culture of innovation and agility that optimizes team performance, modernizes technology, and builds new business models. As a strategic partner and catalyst, Altimetrik quickly delivers results without disruption to the business.

www.altimetrik.com