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DATA MANAGEMENT: IN-DEPTH GUIDE [2018 UPDATE]

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Leading tech companies such as EMC (<https://www.emc.com/leadership/digital-universe/2014iview/executive-summary.htm>) predict exponential data growth with available data doubling every 2 years.

(<http://blog.appliedai.com/wp-content/uploads/2018/05/data-growth.jpg>)

Source: Patrick Cheesman

With this increase in volume comes an increase in need to determine a way to manage it. Subsequently a wealth of data management techniques, tools, vendors, careers, have emerged to support this need.

To better help your business achieve effective data management, it is necessary to first understand what exactly is data management and how it can become beneficial for your organization.

What is Data Management?

Data has a lifecycle that requires careful management from the day it is created until the day it is no longer in user.

By managing this data properly, the risks are greatly decreased and the usability and quality of the data is greatly increased.

Ultimately these two things together lead to a better and more profitable business no matter the industry or topic.

Some of the biggest focus points in data management include:

Data quality: Availability and usability of data for its desired purpose. Maintaining data quality is not a one-time effort, but instead requires regular 'maintenance' at logical times in the cycle.

Data access: Being able to access and retrieve data from its current location.

Data governance: Having data that is aligned with the greater goals of the business. Outlines the processes for determining data owners, their roles and responsibilities and how they work with data users. Clarifies the role of compliance in data management. For example, due to regulatory limitations some data can only be analyzed after anonymization and aggregation.

Data integration: Different steps and methods for combining different types of data.

Master data management (MDM): Defining, unifying, and managing the data that is essential across an organization.

There are a wide range of tools available to support all of the above and more for industries with data volumes that are both small and large. One example of this can be seen with ETL tools, (<https://blog.appliedai.com/etl-tools/>) which ‘extract’ incoming data from multiple sources, ‘transform’ it into the required format, and then ‘load’ it into its final destination, often a data warehouse.

Advantages of Effective Data Management

Aside from the intrinsic benefits associated with data management in terms of factors such as cleanliness and availability, there are a **growing number of benefits that can be felt across the business.**

Some of the biggest advantages include:

- Better and faster decision making owing to higher quality data and a single version of truth
- Easier achievement of compliance and governance standards
- Long term preservation of data for a longer historical perspective
- More efficient sharing and access generally within a web based or cloud environment
- Synchronization of data
- Minimized security and fraud risks
- New lines of business
- An improved customer buying experience
- Ease in change management
- A better use of internal resources in terms of employees and tangible goods
- Improved visibility and transparency

Image source: Avaali

Integrating Data Management in Your Business

Understanding the benefits of data management is a great place to start as it will help you decide from beginning with a clear mind what benefits you aim to achieve. There are a few additional steps that can be taken to help integrate better data management into your business.

Start by **deciding if a more extensive data management process is really right for your business.** The best way to do so is by determining whether or not you have a need, pain, or problem that could be solved with data. One such type of problem would be in data governance where there are disruptive forces that can lead to data problems and challenges in demonstrating compliance. Some additional problems that can be solved with data management include:

- Information security
- IT/systems modernization
- Strategic enablement
- Consolidation

After determining the problem that requires solving, it is necessary to **build a small model to act as a proof of concept behind your idea.** This should be small, measurable, and controlled, and helps to prove the value of your solution.

Once you have determined a solution to your problem that needs to be solved, the next step will be to get the executive approval that is necessary in order to proceed. **The most effective way to do this is to connect a ‘data’ problem to a ‘business’ problem in order to clearly demonstrate the value.** Some of the most common challenges incurred include:

- Data being seen as an IT issue alone
- Overall organizational silos
- Unclear ROI

Data management will often require organizational change in terms of internal team members, plus any consultants or vendors that may play essential roles in not only the integration but ongoing support of processes. Some additional roles that will become involved with data management (and its later analysis) include:

Image source: IBM

By having all of these different tasks and roles in mind from the start, it can be easier to demonstrate the value of data management in addition to creating an effective solution.

The Impact on Data Science and AI

Data science is the field of collecting, modeling, and interpreting data in order to make predictions. Data scientists work with the data using different tools and formats to reach a certain conclusion, and understandably, the data they are working with is key to finding these conclusions. Subsequently, having a **well executed data management solution is key to their success.**

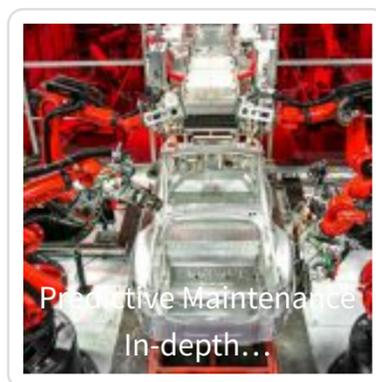
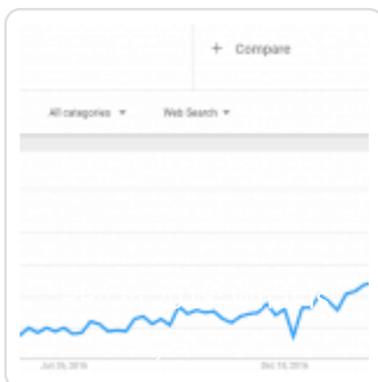
AI has largely become recognized as one of the biggest changes that we are part of with the ‘digital transformation’. However, before organizations can get the most from the latest in AI technologies, they must first have an effective BI solution. This is because **AI is wholly dependent on the quality of data that it receives**, and without proper data management, the quality of BI and related data will make it that much more difficult for AI to do its ‘job’.

These two integral fields in technology and their place in the future demonstrates the need to begin making changes to data processes that will be sustainable for changes to come.

Want to see more advanced technologies that will continue to benefit from effective data management? Be sure to check out our list of 1000+ AI and technology vendors (<https://appliedai.com/vendors/1>) with products and solutions to fit just about every need. Interested in learning more on the topic? Visit our blog (<https://blog.appliedai.com/>) where you can find out more about data, ETL, AI, and much more.

Featured Image Source (<http://www.datanao.com/cloud-master-data-management-big-data-strategy>)

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