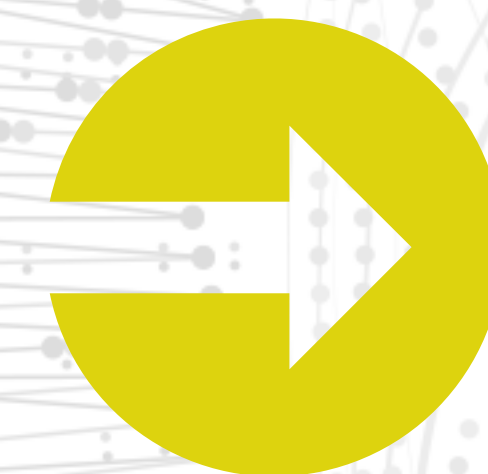


DATAOPS.

**The key to deriving
better business value!**



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INTRODUCTION

In the digital era, data is the new oil. Big data is one of the hottest technology trends which holds the potential to transform the existing business models, create new models and to redefine the customer experience. Implementation of Big data technologies enables organizations to collect, store manage and process data to derive the most relevant business insights at the right time. The vast amount of data getting collected through multichannel and multisource are opening up a wealth of opportunities for the global organizations. However, storing, managing and analyzing data to open up a new world of opportunities or optimizing the existing business is not an easy task. Many organizations are still passing through the state of infancy when it comes to implementing big data technologies and making the worthy usage data analytics and real-time insight generation out of the vast amount of data they collect and store. Here comes the relevance of a new concept DataOps an automated, process-oriented methodology that helps in improving the quality of the data analytics efforts in organizations. The word DataOps resembles the word 'DevOps' which focusses on the agile model of iterative project management methodology. Streamlined with this concept, DataOps brings the much-needed agility of the big data analytics processes.



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DATAOPS IMPACT & RELEVANCE

In a world of Big Data implementation, we have different teams grappling with a variety of data flowing fast into “data lakes” and the business users waiting to process it and derive out the business value from it. During this intense process, for getting the right things at the right place, there should be a proper understanding of who owns which part of the data. To achieve this, every organization requires a framework, a practice, discipline, deliberation, and collaboration of different teams with the edge of machine learning to predict and prescribe solutions with minimal human intervention. This has led to the coining of the word “DataOps” which in short is bringing about **“that collaboration between teams through an agreed framework with the common business goal of discovering and realizing the business value from the Data.”**

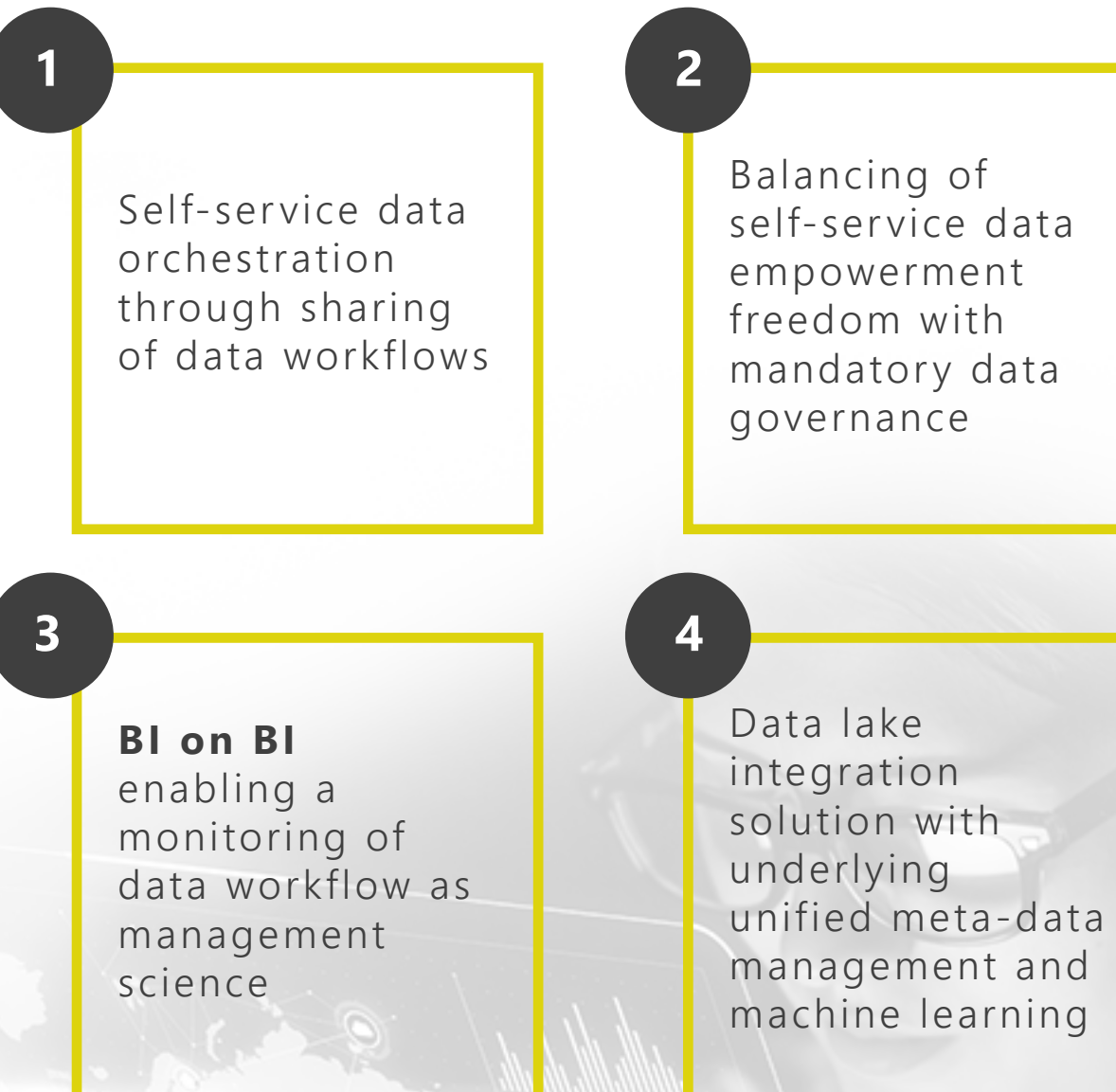
DataOps is like DevOps which is most adopted in the world of Agile Product Development where, the Development teams do the IT operations however through tools, processes and collaboration framework. DevOps brings in the process of “code to infrastructure.” In DataOps such collaboration happens through similar process, and framework. However, the major difference is that unlike that in DevOps, there are a few tools and solutions that would help in achieving DataOps, and these are still evolving. Each tool and solution is tied to that single framework of collaboration, and they possess different perspectives. These perspectives are mainly on how to:

Better collaborate to derive business value from the data

Monitor the implementation and reporting

Broker the data between systems and teams

There are different aspects or problems of Big Data Analytics, that DataOps tries to solve that are listed below is a gist of it.



In short, DataOps brings in the maturity to a data-driven organization to realize the business value of data, through agile, faster and collaborative way.



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The below picture depicts if it's time for the organization to adopt DataOps framework.

	THE WILLING ORGANIZATION	THE HESITANT ADOPTER	THE DATA DISTRESSED ORGANIZATION
CHARACTERISTICS	<div>Begining of the journey</div> <div>Believes in the power of analytics, but overwhelmed with how to get started</div>	<div>Begining/middle of the journey</div> <div>Analytics visionaries want to invest more heavily in analytics, but lack organizational support</div>	<div>Begining/middle of the journey</div> <div>Organization wants to develop increasingly sophisticated analytics, but is stymied by an inability to get the underlying data in order</div>
WHAT TO DO	<div>CHART A CLEAR PATH</div> <div>Explore data to help inform the organization's vision for analytics, and to chart a step-by-step path to achieve that vision</div>	<div>USE PROTOTYPES TO OVERCOME DOUBT</div> <div>Think big but start small, using prototypes to prove the value of analytics to end users and help overcome doubt</div>	<div>BRING THE STAKEHOLDERS TOGETHER</div> <div>Collaborate and build relationships between IT and analysts to develop data that can be used by both</div>

The below section explains different layers of the diagrams.

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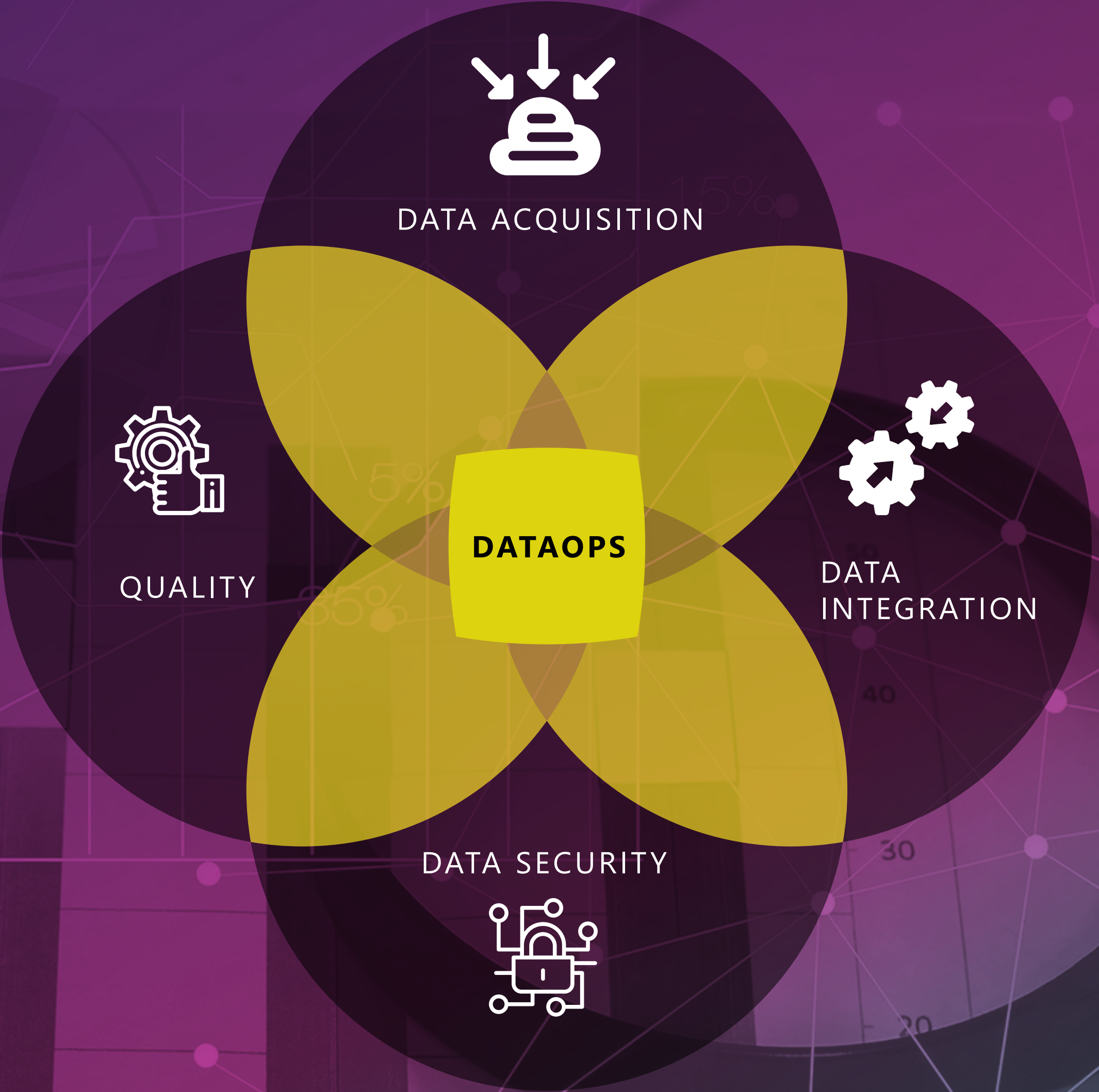
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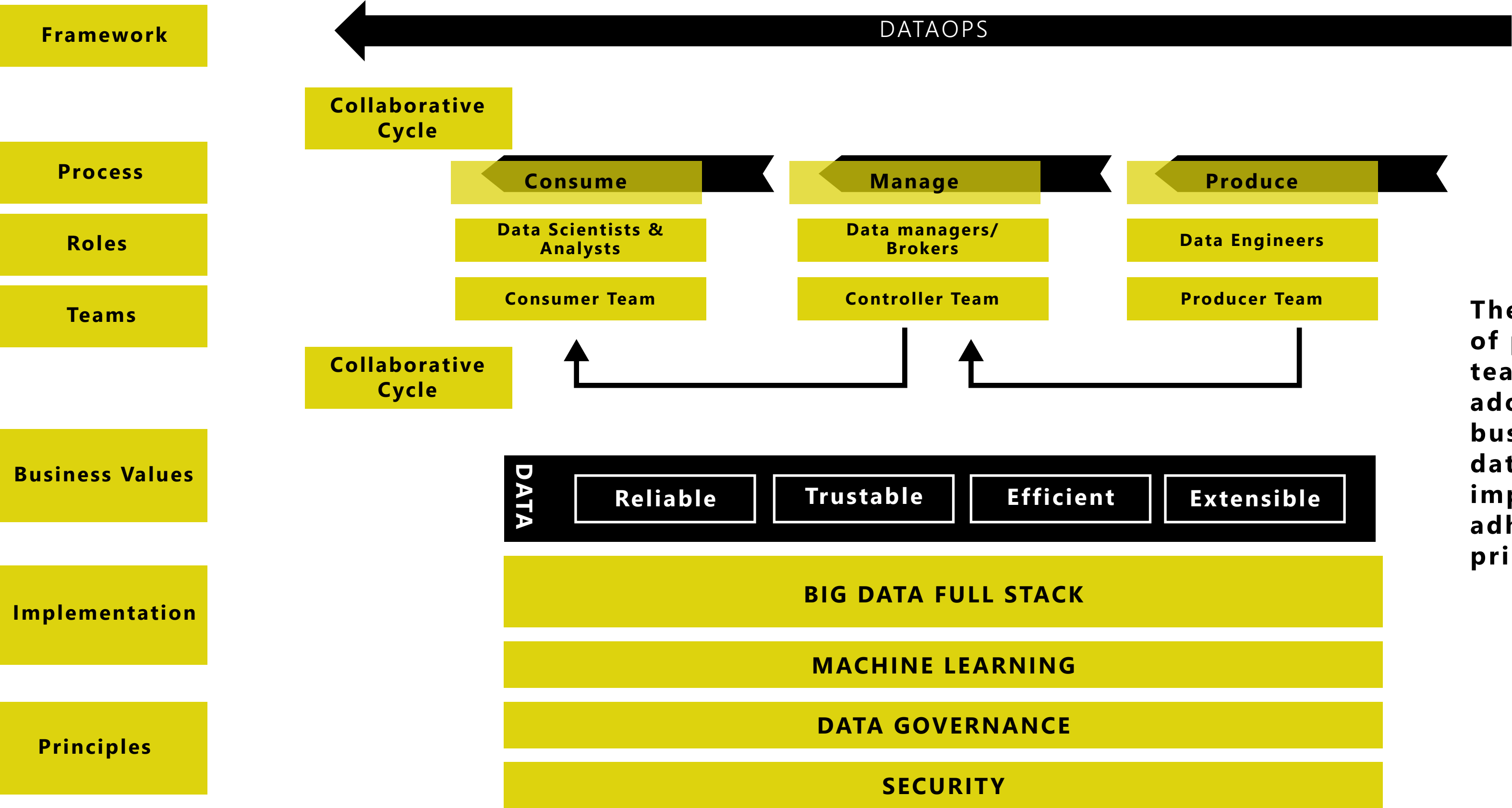
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The framework consists of process, roles, and teams that should be adopted for driving business value off the data through the implementation while adhering to all principles.

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PRINCIPLES

The primary objective of DataOps is to provide trustable, efficient data insights for actionable business decisions. To achieve the objective, the DataOps team should adhere to the principles of data governance and security of the organization. The data flowing from the source systems through different pipelines and workflows should have the integrity, and it needs to be secured. Any high-value data falling in into inappropriate hands and incorrect references for business value could dent the trust on the system which provides insights. Data Governance framework with strong security principles will bring that trust and reliability to the big data implementations.

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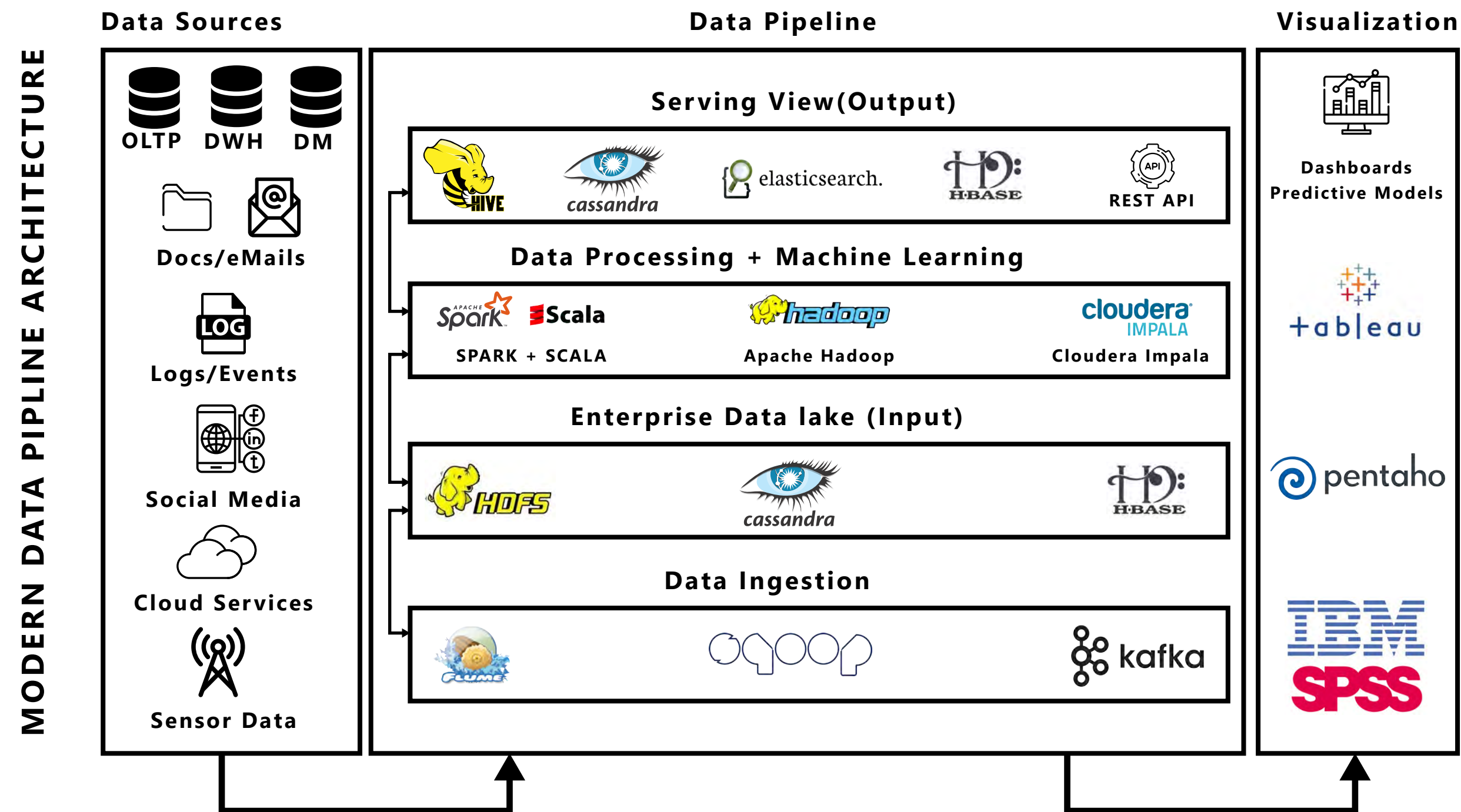
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IMPLEMENTATION

The Big Data implementation stack is usually complex starting from data ingestion all through the delivery of actionable info-sights. An ideal implementation consists of an Ingestion layer, Data Lake; Data Processing intermixed with Machine Learning, Deep Learning algorithms and with the top layer providing visualization of business analytics. All these require multiple technologies and products. A sample representation of the Big Data full stack is as shown below.



Big Data Full Stack Representation

In DataOps a layer of Machine Learning outside of the Big Data implementation helps in identifying the issues that could arise from the failure of the data pipelines, workflows, or any other issues that might arise in any of the layers. The ML not only identify the issues, but also provides resolution for a predicted issue that might arise.

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BUSINESS VALUES

The layer of business value represents that data which is built on different data source systems, processed, and presented to the business users. This data must be and is reliable, trusted, extensible, and efficient with coverage of security.

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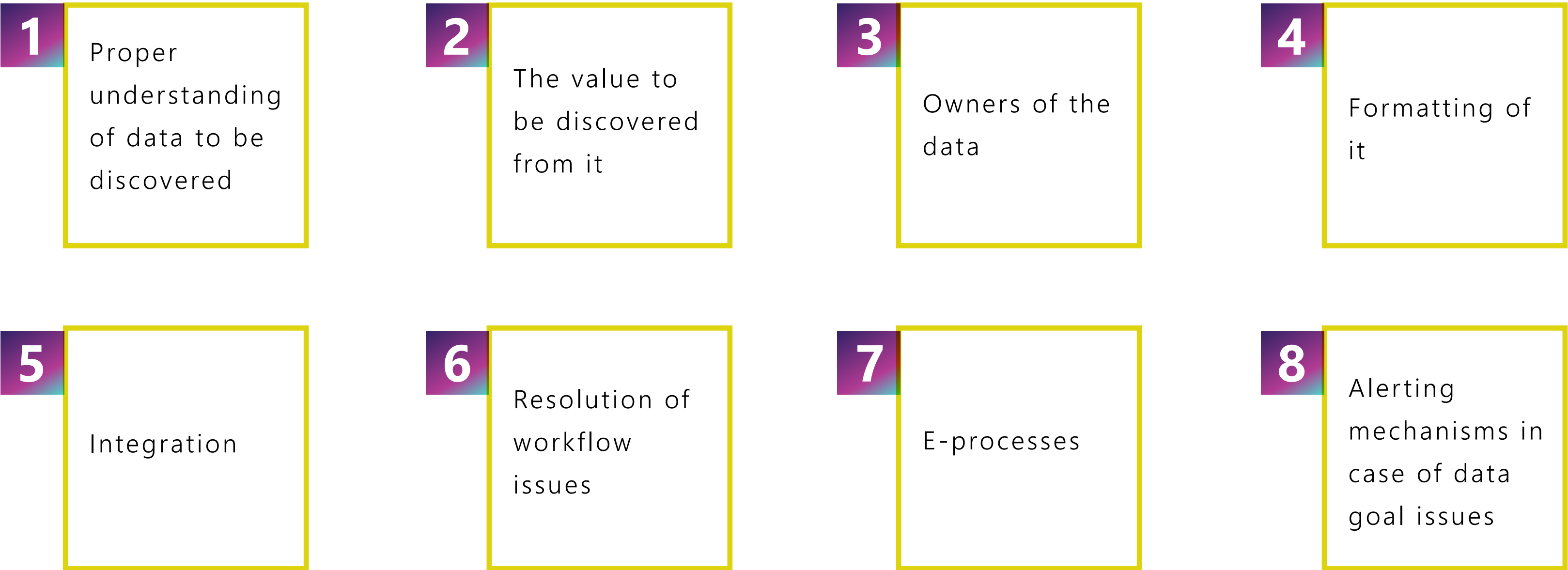
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The Big Data implementation goes through a cycle of producing data, controlling data and finally consumption of data. Different teams are involved in the entire process who build Big Data stack solution starting from ingestion of data, cleansing-transformation of data, and final consumption of actionable insights. All these teams must do sufficient planning and own the assignments to work in tandem and produce a common business goal, which involves:



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THE ROLES involved in DATAOPS

1 TEAMS

PRODUCERS

The producer teams consist of data engineering team who work through building the pipelines from ingestion through transformations. This is the team which understands and identifies right data sources primarily, and collaborate with the others.

CONTROLLERS

The data controllers are the data managers or also known as data brokers who handle the entire data management starting from the flow, data lineage tracking, through securing per set data governance framework, and rules, standards of the organization.

CONSUMERS

The data consumers are the teams who understand the business value of data deeper, than the above teams, and are responsible for bringing that value from the identified data sources.

2 ROLES

Each of the teams has different roles, followed by responsibilities for each of the roles identified in the team.

The producer team essentially consists of Data Engineers who build the system, the data managers or broker team have Database Administrators, Database Management Team, and the data consumers have Data Scientists and Data Analysts.

All the above teams are guided by a Chief Data Officer, and Chief Analytics Officer who have direct lineage with the Chief Information Officer.



3 COLLABORATION

The above teams with different roles work in an agile, and collaborative disciplined process to address business-goal.



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WHY? DATAOPS

There are many reasons on why DataOps should be weaved into a Data-Driven Business Insights. Here go a few key benefits of DataOps that would help organizations in achieving a higher ROI and attaining Data Science Maturity and enable them to produce high business achievable goals.

Reduce data to business goals (GTM)

DataOps is about “collaborative way of achieving business goals,” and if it is adopted appropriately, it will reduce conflicts on what and who will have or gain accessibility of right to data. It will also increase monetization of data through data democracy than bureaucracy.

Improve operational efficiency of implementations

DataOps also provides the framework for building artificial intelligence to monitor and notify any incidents in the implementation infrastructure, components, and workflows. This brings in efficiency to the operational pieces because of lesser human intervention and provides visibility to workflow processes state with respective roles, and owners for any task.



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As we have defined earlier, DataOps is a framework or practice that needs to be adopted by teams, systems to reach a common goal. Today, in many organizations, this framework is implemented through different ways, a solution, a platform, a product but serving different purposes. There are a few platforms like Qubole, which provide a solution to automate the implementation monitoring, notifications, and assignment of issues to teams and roles. There are also a few others like DataKitchen which have an end-to-end platform that provides the solutions right from data recognition through data-driven business value realization. Incorporation of the DevOps concept into Big Data and Analytics implementations is still evolving, and the results of this change are yet to unfold completely regarding various aspects of big data implementation including Process, Technology, and the People. However, given the advancement happening in this field and the mounting interest that organizations are showing over this innovative concept, let us be sure that a discipline like DataOps would catalyze a revolutionary change in the way data is utilized, and this will bring in a new genre of digitally transformed and stable data-driven organizations.



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ABOUT HAPPIEST MINDS

Happiest Minds, the Mindful IT Company, applies agile methodologies to enable digital transformation for enterprises and technology providers by delivering seamless customer experience, business efficiency and actionable insights. We leverage a spectrum of disruptive technologies such as: Big Data Analytics, AI & Cognitive Computing, Internet of Things, Cloud, Security, SDN-NFV, RPA, Blockchain, etc. Positioned as “Born Digital . Born Agile”, our capabilities spans across product engineering, digital business solutions, infrastructure management and security services. We deliver these services across industry sectors such as retail, consumer packaged goods, edutech, e-commerce, banking, insurance, hi-tech, engineering R&D, manufacturing, automotive and travel/transportation/hospitality.

Headquartered in Bangalore, India; Happiest Minds has operations in USA, UK, The Netherlands, Australia and Middle East.

Write to us at
business@happiestminds.com



www.happiestminds.com

