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Whitepaper

# Constructing Master Data Management Solution Applying **Data Mesh** Principles

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# Overview

Master Data Management (MDM) is one of the vital elements of modern business organization, and it continues to enjoy a sweet spot in the technology stack of not being an unmatured newbie, but still considered a niche. MDM has survived many technology shifts in the software world. This paper tries to address the changes we are seeing in the core and peripheral of the MDM technology landscape, challenges arising out of the demanding needs of customers and attempt to solve some of those by applying principles of Data Mesh.

# Intended Audience

The intended audience for this paper is C-Suite Executives, Enterprise Architects, MDM Solution Architect, Data Security and Compliance Officers, Business Process Managers, IT Program Managers and Developers. This paper is intended to help understand the following –

How MDM fits in the purview of Data Mesh for C-Suite Executives

What new problems can be addressed for C-Suite Executives and Enterprise/MDM Architects

What are the various architectural styles available for Architects and Developers

What kind of business and data process changes will this entail for Business Process Managers and Enterprise Architects

What kind of team structure (and related skillset) will be needed for IT Program Managers and Developers

How data exchange needs to happen, change in the ownership model for Security and Compliance Officers, etc.

# Common Challenges In Traditional MDM

Traditional MDM has been doing well and is able to support various strategic initiatives such as:



However, with an increase in customer touchpoints, consumers becoming more demanding, services becoming more personalized and options of cloud-based services, a new pattern has emerged wherein traditional MDM has been falling kind of short of expectations.



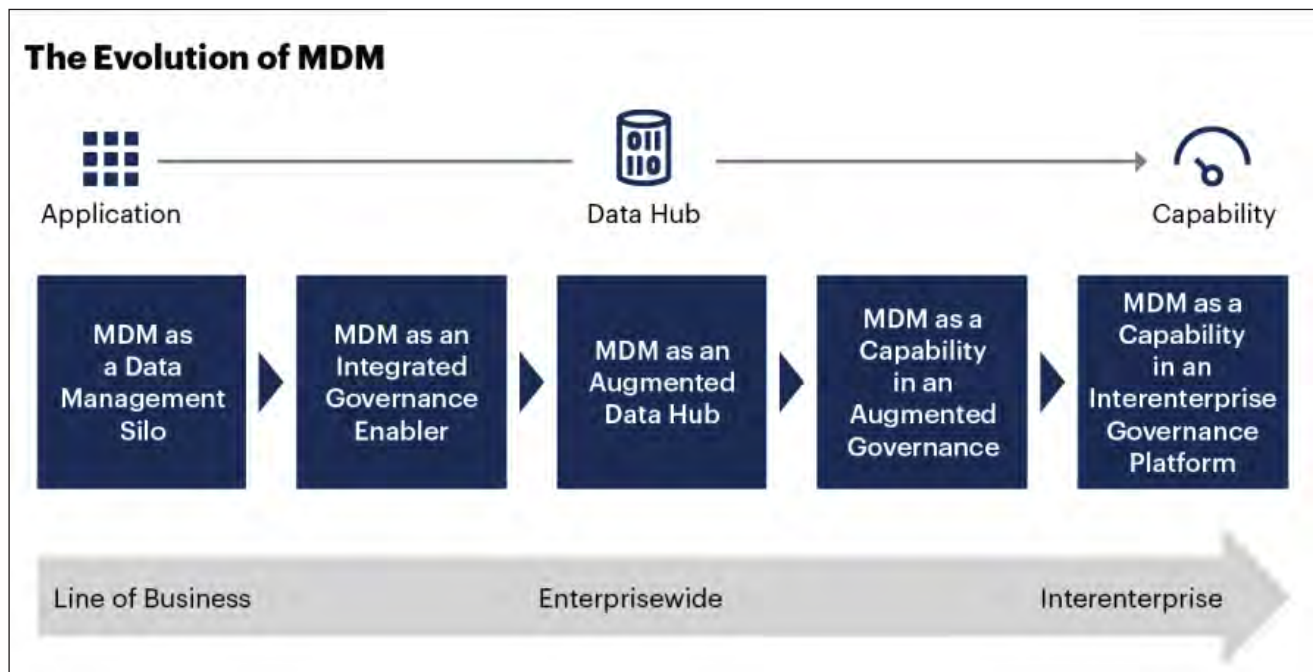
*Gartner Reports quotes in its Magic Quadrant report of Dec'2021 that **"Through 2025, more than 75% of MDM programs will fail to meet business expectations because of failure to connect with MDM value to business value"** and **"By 2025, 50% of data and analytics leaders will leverage augmented MDM and active metadata to automate governance policies for master data models, hierarchies and definitions"**.*

*Gartner also quotes in its paper named 'The State of Master Data Management' that **"By 2025, 50% of CDOs will achieve digital acceleration goals using augmented data management practices across MDM, data hubs, data quality, and integration"** and **"By 2025, 50% of data and analytics leaders will leverage augmented MDM and active metadata to automate governance policies for master data models, hierarchies and definitions."***

We are also seeing a trend from both MDM and CRM players to grow beyond what was seen as a traditional way of doing MDM/CRP and having considerable alignment towards a particular function (marketing). This technology known as CDP was mentioned as an emerging technology in the paper published by Forrester in June 2019. Though it is a discussion for some other day, but it drives home the point that the MDM landscape is changing based on consumer needs, and different players are trying to gain a share of the pie.

Gartner also mentions that advancements in technology like AI/ML, graph databases, etc. are reducing constraints imposed on MDM programs by legacy technology and human-driven governance processes. These technologies are a response to businesses demanding MDM insights from a greater volume and diversity of data than ever before. MDM stakeholder needs across the digital realm, particularly in support of customer and product experiences, require data and analytics leaders to modernize their MDM programs for peak efficiency and scale.

Such evolutionary market forces are already causing a shift in the MDM marketplace, towards a focus on more integrated solutions that support a wide array of capabilities.



Source: Gartner

Figure 1 - Evolution of MDM

In line with leading analysts' reports, we have also been hearing some of the repetitive problems:



**Not able to support varied (and at times conflicting) definitions** of master across different consumer personas.



**Limited or no support for different views** of the same customer based on who is the end data consumer persona.



It is a time-consuming and **non-agile process** given the number of stakeholders involved, the **painstaking lengthy process of decision making** and the political nature of MDM programs.



Technology team members are forced to settle on a **limited/singleton technology** set even if they are aware that different technological/software components will best suit different business needs.



**Lack of business-driven approach**, MDM being still perceived more as a Technical Program; A wrong theory to start with but firmed up by the fact that most of MDM KPIs measured are related to data quality.



Quality of incoming data is not of a good standard and **central engineering with minimal business knowledge** is asked to build MDM solution. Source systems do not have the ownership of creating single version truth and hence they are not open to making any progressive changes at their end.

# Data Mesh Principles and How It Addresses These New Mdm-related Challenges

## What is Data Mesh

Data Mesh is a sociotechnical approach introduced by ThoughtWorks to build a domain-driven data architecture that decomposes data around the business domain and focuses on creating data as a product (Daap) by team that are closer to the origin of the data.



Figure 2 - Data Mesh Principles

## How Data Mesh Will Address the Problems

Let us understand how Data Mesh Principles help address common challenges in traditional MDM that we mentioned above:



Data Mesh is based on the core principle of **“Domain Driven Design”**. Such domain represents an important concept (section) of the business (and not the whole), and it lends itself to cater to different definitions of master (customer, product) as per the domain needs. E.g., National Level Managers might have a different definition of Customers as compared to global executives and raw materials might have different features as compared to a finished product.



**“Data as a Product”** will establish product thinking ability within the organization. So far, data & analytics was looked as a by-product and features like reusability, shareability, and accessibility were limited. Data products improve internal data consumption and monetization. Ex- vendor master data product will be produced/managed within supply chain domain, registered in central catalog, and consumed by the finance domain to create vendor invoicing report.



**“Federated Computational Governance”** provides shared responsibility between domains and central IT with well-defined domain-level ownership. This reduces the decision making and conflict resolution time bringing more agility to the entire program.



**“Self-Serve Infrastructure”** emphasize enabling technology to create a better data product. This will help MDM solution gain the needed speed in terms of technology as each of the domains be free to use the tools/technology of choice as long as the final product is adhering to global standards.



Below are the key tenets of what MDM looked like in erstwhile era and what it will lend itself to in the Data Mesh world.

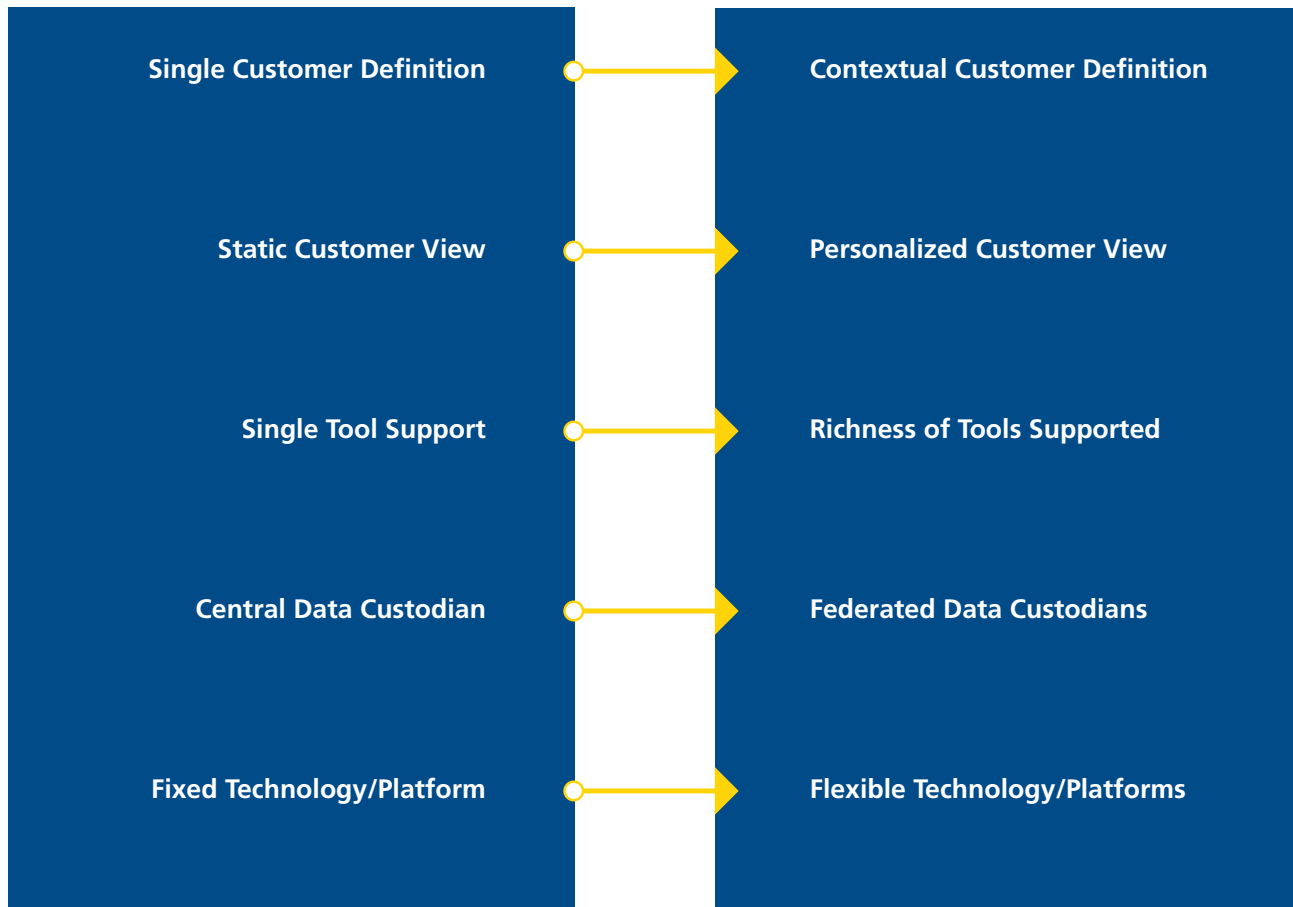


Figure 3 - Facets of MDM in Traditional vs that in Data Mesh

## How Data Mesh and MDM Contribute to Digitalization

The pandemic has accelerated digital transformation in many sectors such as Finance, Insurance, Retail, etc., as customers preferred online channels. This made businesses ensure that all domains (business functions) communicate with each other to provide unified view of the customer profiles (all services, ticketing details, recommended products, etc.). Data Mesh speed up this transformation by streamlining an organization's domain-level operations in respective track, integrating all the domains/business functions at the enterprise level creating a mesh, and enabling services to access and share the trusted data product delivering value to the customer. Even governments are seen embracing digitization in a big way. A few examples could be 3D printing, making vaccination certificates available over the web, addressing public grievances, etc.

An indicative example will be the telecommunication industry – mobile plans, Cable TV subscriptions, Broadband, etc. that represents different departments and have different processes and data lifecycles. These departments can be thought of as Domains in Data Mesh. Now having a customer MDM will enable better discounts (a loyal customer having multiple services from the same vendor can be offered better offers), customer service (having a view of what device and services are present at a site enables better service e.g., having a broadband device might make additional devices redundant for Cable TV subscriptions). If one were to look carefully at the grain of customer – mobile plans are typically at an individual B2C customer level, whereas for Cable TVs and Broadband it is rarely at an individual customer level, but rather it is at a household level.

It is not impossible to handle such cases in the traditional way of doing MDM but having said that we believe the use case is more aligned to a distributed implementation strategy; wherein MDM from within the mobile plan forms one of the inputs to the Cable TV and Broadband data mesh domains. It is also possible to have other implementations as it is not guaranteed that a household will have all services, and even if it does it might be from a different service provider.

# Implementation Styles of MDM in Data Mesh

We have identified three design patterns as to how MDM can be implemented within a Data Mesh. The primary driver or distinguishing factor of these patterns is 'with whom the onus of mastering data lies.

## Pattern 1: Domain-specific MDM

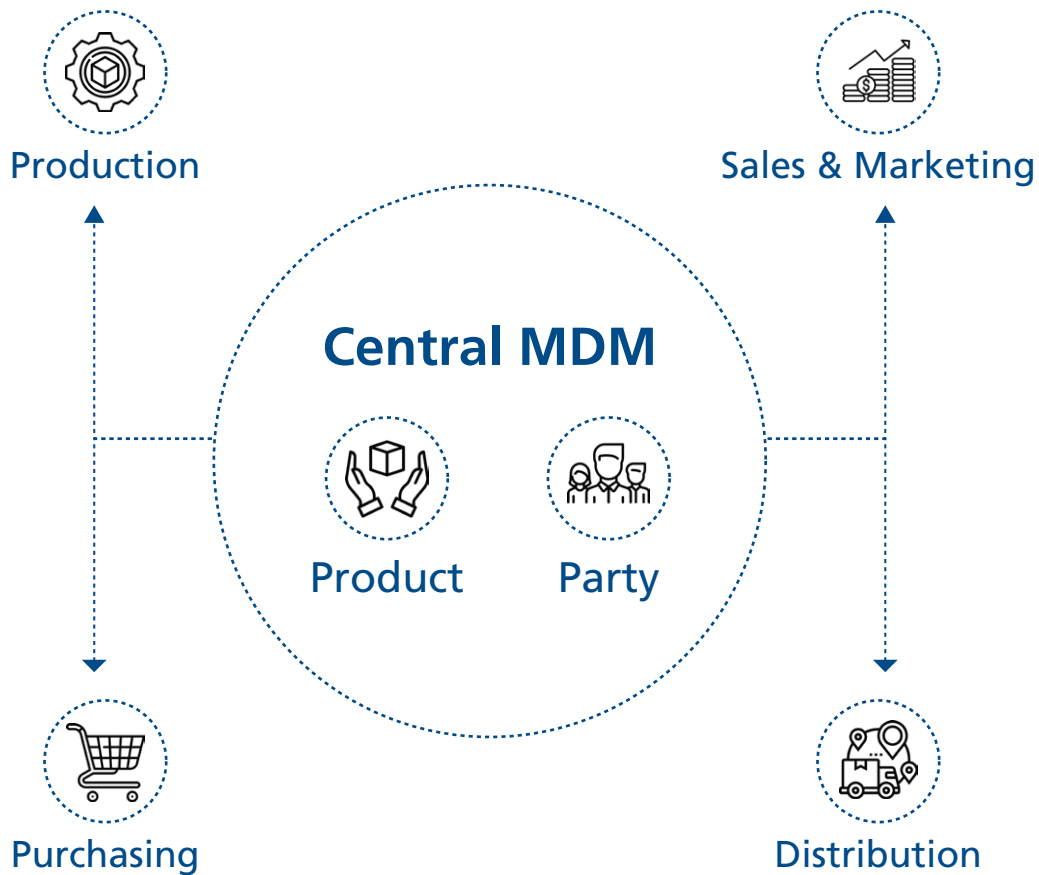


Figure 4 - MDM in Traditional Approach

The above picture represents the regular business functions of Procurement/Purchasing, Production, Sales & Marketing, and Distribution. In the traditional approach, the technology team would have settled with two masters – Product and Party. Different domains will have different business processes and different methods in terms of maintaining/classifying data elements, and this becomes difficult to achieve in a traditional model.

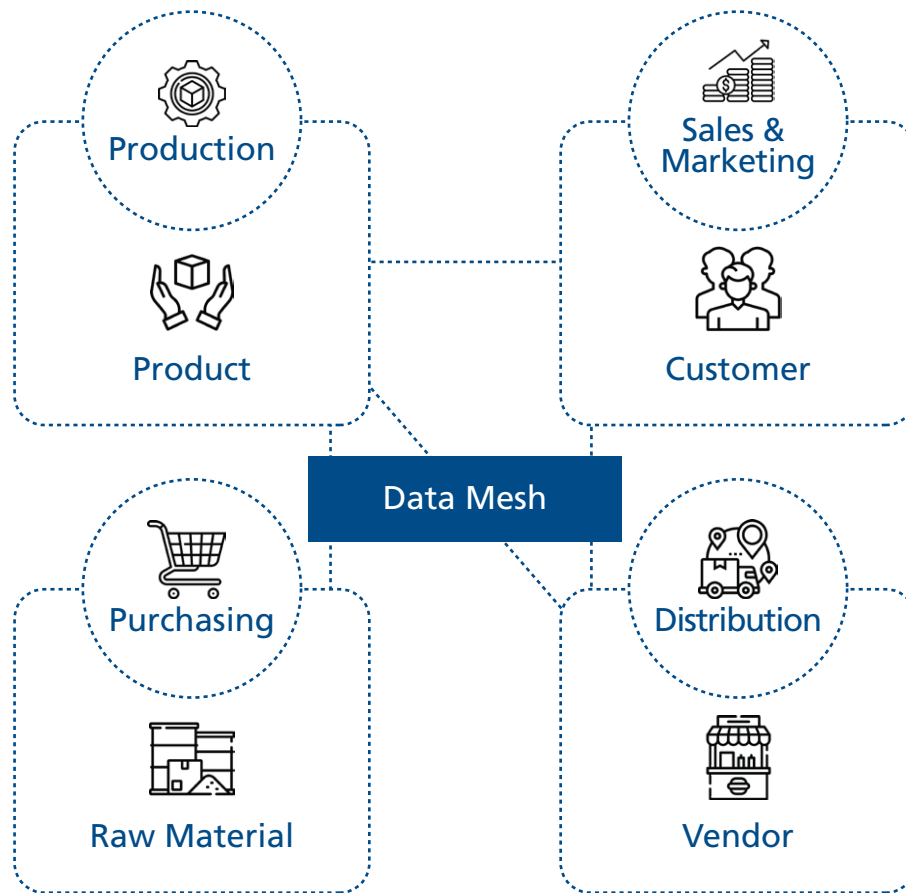


Figure 5 - Domain Specific MDM

As shown in the above diagram, Data Mesh enables the business to have a domain driven view of data. E.g., Procurement mostly deals with Raw Material whose definition and business processes are different than a finished product coming from Production line. On similar lines, vendor MDM is more aligned to Distribution (Supply Chain) whereas Customer is more relatable for Sales and Marketing division. Here each of the MDM domains like Material Master, Product Master are more aligned and representative of the actual business processes, since it is the domain who is having the onus of generating and maintaining such master data. Such data can be exchanged with other domains using various technological interventions, one such being – APIs.

## Pattern2: Federated MDM

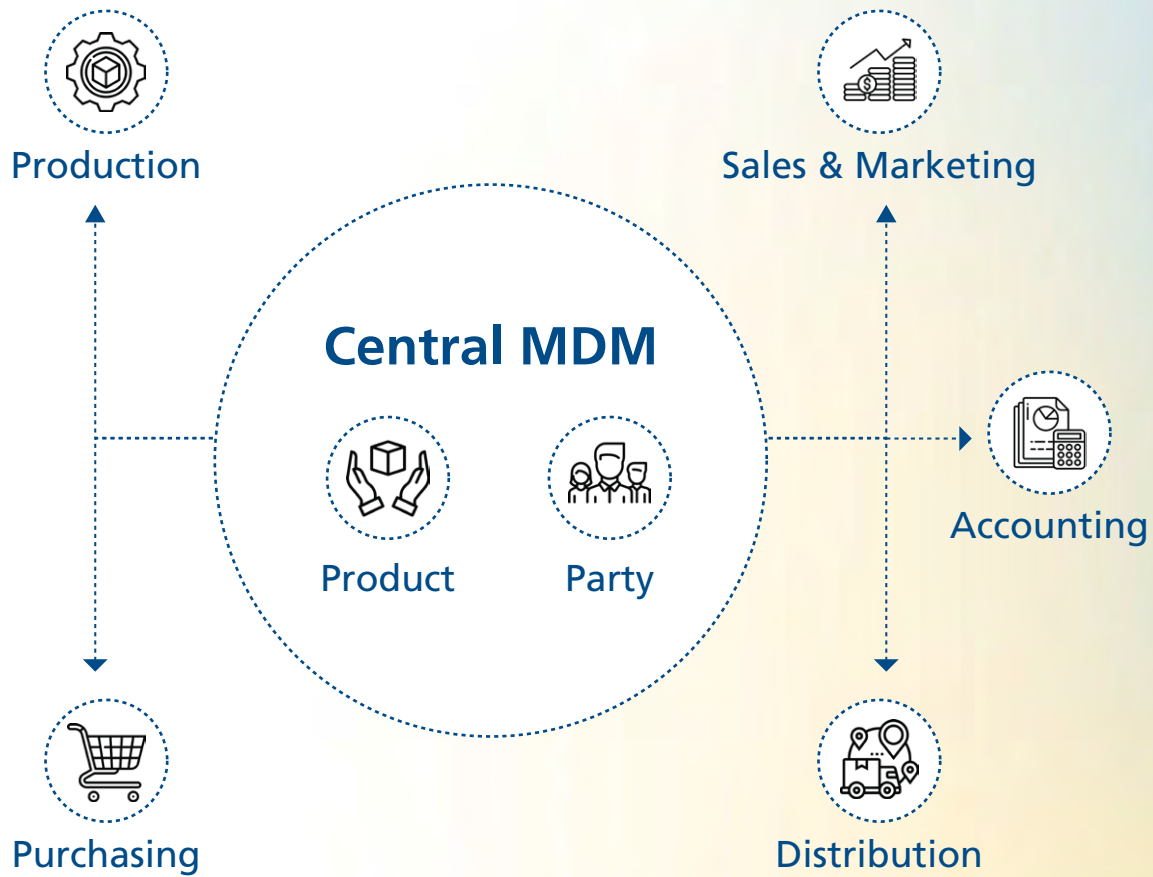


Figure 6 - MDM in Traditional Approach

There are scenarios that based on the context, the definition of master data might vary. For e.g., a Sales personnel might be referring a Lead as a Customer whereas, for accounting division, a customer will imply someone with whom a financial transaction is done.

This simple definition will have more nuances like:



### Relevant attributes

During lead generation in Marketing, typical details of customer might not be available or partially available within the landscape, and it might have to limit to non-traditional attributes like Session Ids, Cookie Ids, MAC Address, etc.



### Type of enrichment data

With regards to third-party data/services with whom these domains would like to purchase data. E.g., Accounting might like to exchange data from services which can help check credit worthiness of the customer whereas Sales and Marketing might like to get data from eCommerce portals and other data aggregators like ZoomInfo.



### Best Suitable Tool

Marketing may call for specialized software like (Customer Data Platform) CDP as compared to MDM, whereas on the other hand, in Accounting Team by the virtue of Invoicing, regular attributes of customer will be available like Name, Billing Address, Shipping Address, Phone, Email, etc. and a more traditional MDM software might be suited for broader support of use cases.

Addressing all the above challenges, the same example in Data Mesh may look as below:

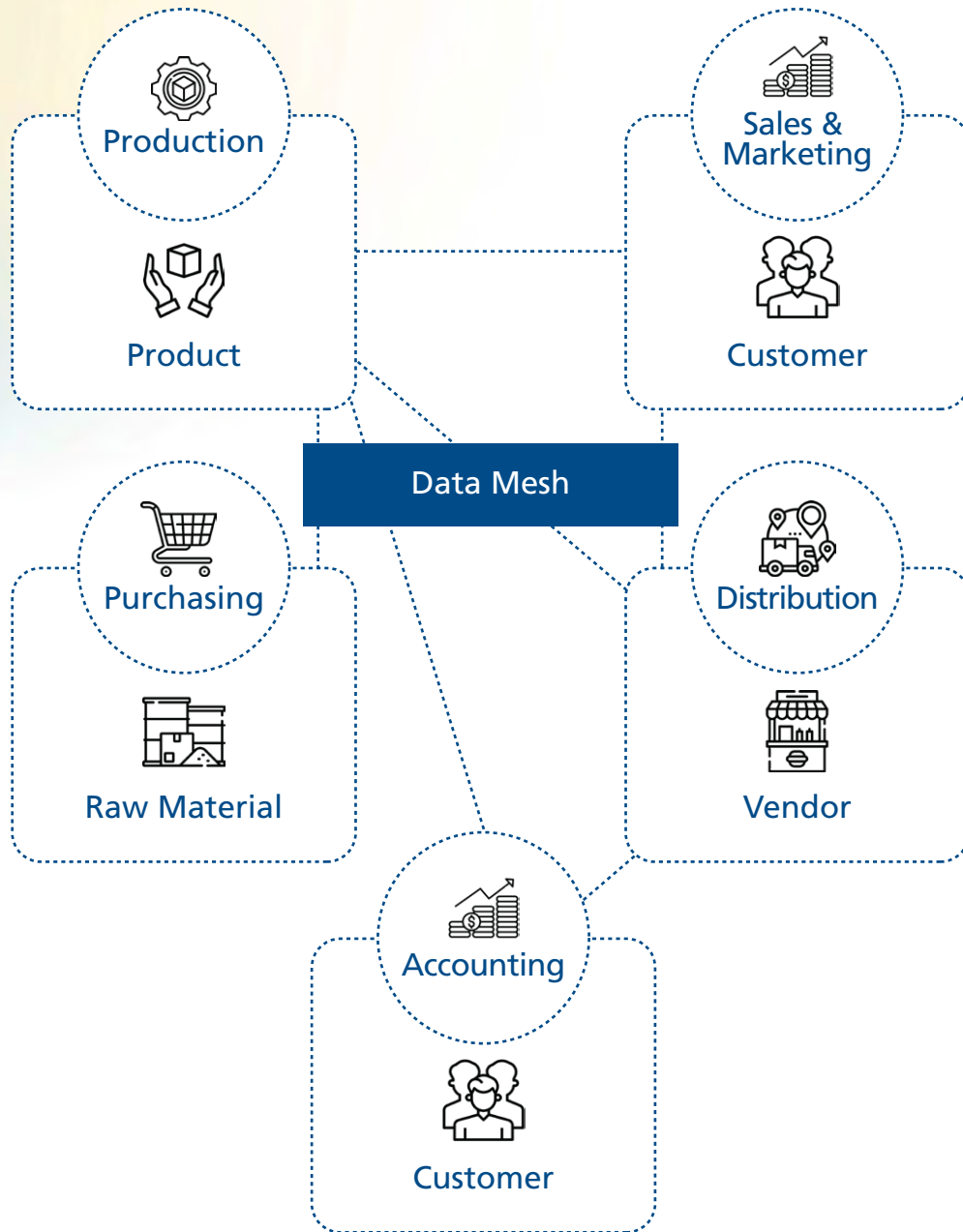


Figure 7 - Federated MDM, addressing domain nuances

## Pattern3: Collaborative MDM

Referring same traditional example

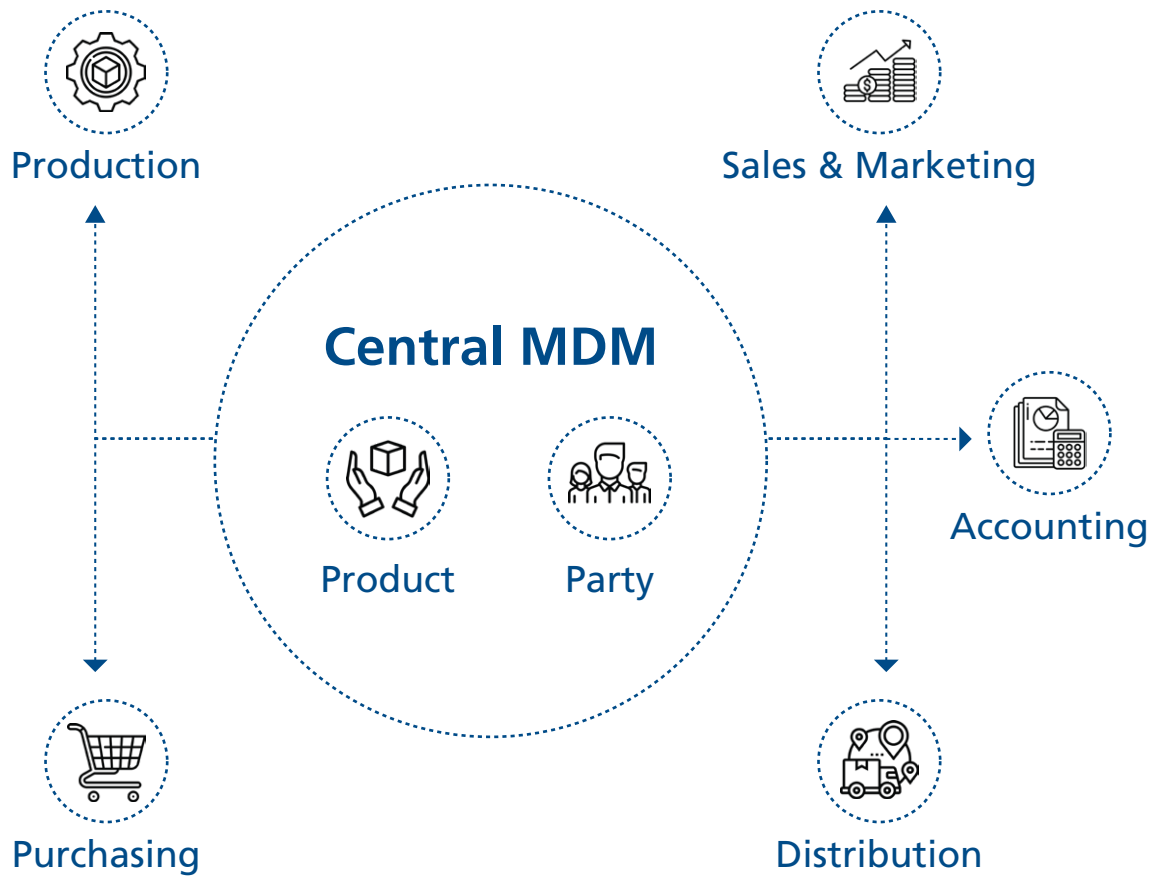


Figure 8 - MDM in Traditional Approach



Two or more domains can collaborate to create a common master data definition as shown below:

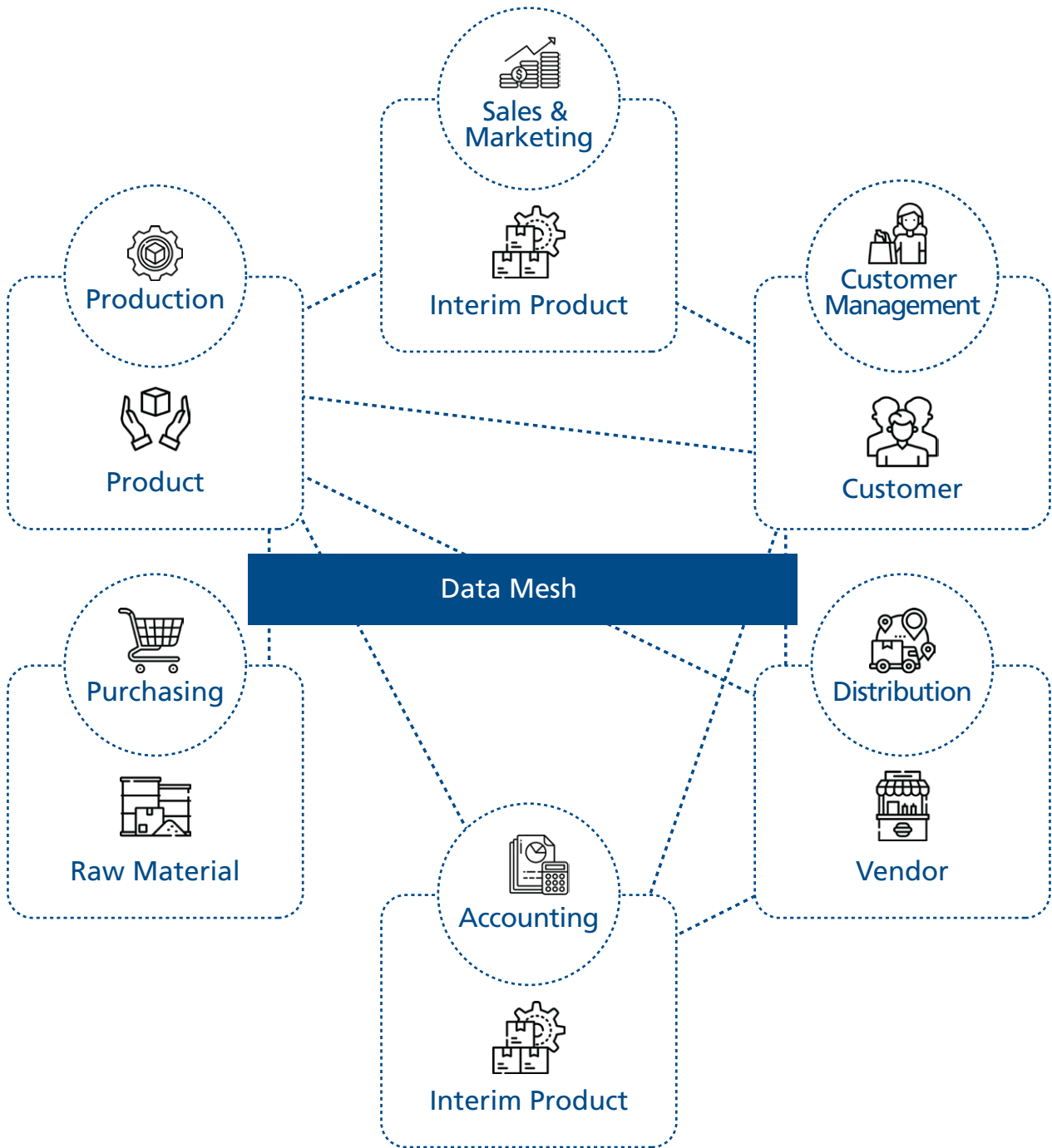


Figure 9 - Collaborative MDM, with domain dedicated to specific MDM domains

In this pattern, a separate domain is created to handle Customer Management concerns. This is where each of the data domains is responsible for providing good quality of data. Such a situation might be the case wherein it is felt that Customer Management is a very important area needing a separate domain of its own.

In addition to this, the industry can also come across the hybrid implementation of any two or more of the above-mentioned styles.

Comparing the three patterns, below is a high-level overview of when to choose what pattern:

	<b>Domain-specific MDM</b>	<b>Federated MDM</b>	<b>Collaborative MDM</b>
<b>Interdependency between LOBs</b>	<p><b>No Dependency</b></p> <p>LOB is a single source of origin for master data and no dependence on other domain/LOBs to manage master data.</p>	<p><b>Low dependency</b></p> <p>LOB may or may not be the single source of origin, however, need to manage master data within the domain/LOB in the best way suited for its functioning.</p>	<p><b>High Dependency</b></p> <p>LOB is not the single source of origin and needs to collaborate with other LOBs to manage master data.</p>
<b>Technology Architecture alignment to Data Mesh principles</b>	<p><b>High Alignment</b></p> <p>MDM is imbibed within each of the Data Mesh domain</p>	<p><b>High Alignment</b></p> <p>Master domain exists across Data Mesh Domains</p>	<p><b>Moderate to Low Alignment</b></p> <p>MDM is created as a domain that is more tech aligned rather than business aligned</p>

## Versions of the golden record

### Businesses need aligned to single version

MDM as an end Data Product is not duplicated and each Data Mesh domain (or each LOB) specializes in furnishing a specific MDM domain. This is consumed as it is by other domains/LOBs.

### Businesses need to align to multiple versions

Different Data Products available w.r.t to Master based on alignment to Individual Data Mesh Domain/ LOBs.

### Businesses need to align to single version

MDM as an end Data Product is not duplicated and two or more collaborate to master the data product although not centrally. Providing interim data products such as providing data applying DQ checks will be performed within individual domain/LOB.

## Sense of ownership

### High Ownership in practice

MDM is owned and managed within the scope of individual Data Mesh domains and hence high ownership required to create, update and maintain the golden record.

### Moderate Ownership in practice

Shared responsibility between individual data mesh domains.

### Low Ownership in practice

MDM is centrally managed and owned, the nearest neighbour to traditional implementation.

Data Mesh gives priority to business needs via domain-driven approach and technology become a supporting pillar. Hence, our preferred approach is domain-specific MDM as it aligns with Data Mesh principles, which have been rated highly in other areas of comparison. Federated MDM will make more sense in areas where the same master data has got different meanings aligned to individual business domains, and Collaborative MDM will make more sense in scenarios wherein certain Master Data Elements need to be shared across considerable number of Data Mesh Domains i.e., each domain will have some contribution towards creating a record copy.

# Dimensions To Building MDM Data Products

An MDM program is looked via dimensions of People, Process, Technology, and Governance to strategize key interventions and changes such programs entails. Using these dimensions, let us compare how these various elements are compared in Data Mesh landscape vs traditional MDM.

## People

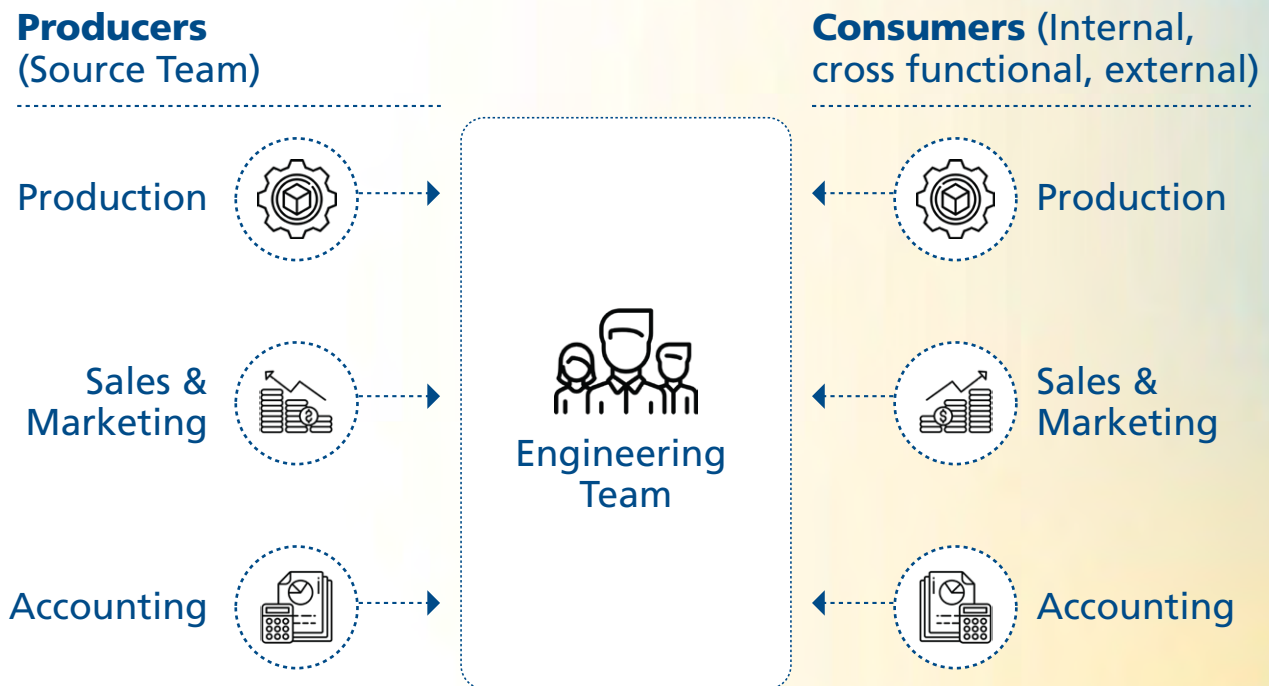


Figure 10 - Team Structure in Traditional approach

The engineering team in traditional model, as shown in above diagram is a central team implementing MDM catering to the needs of all functional team in a generic framework. Here the teams are segregated as data producers (functional team), technology team (engineering team). And data consumers with very less interdependency that results technology team to work in silos.

## External, Cross functional Consumers

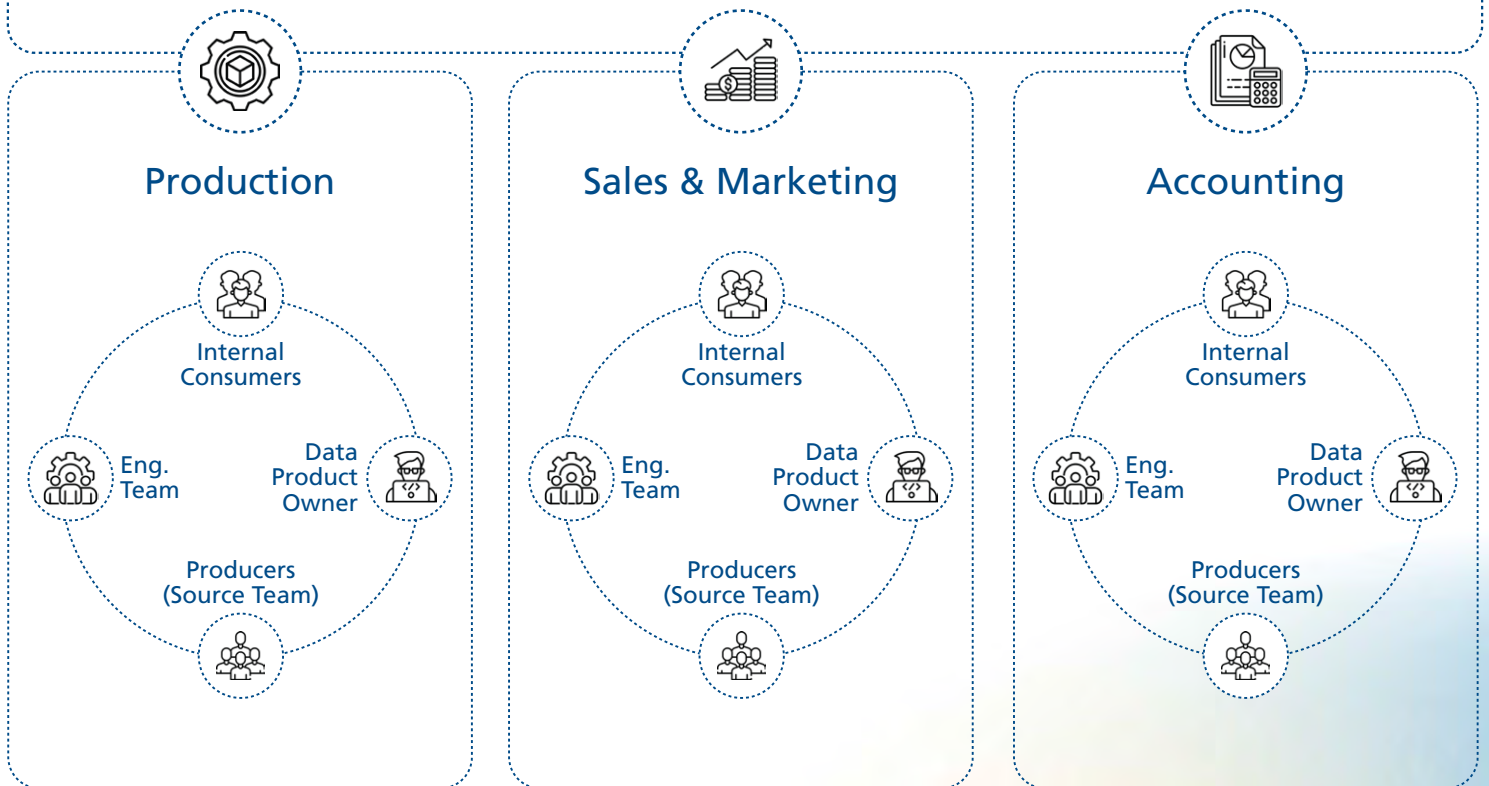


Figure 11 - Team Restructuring in Data Mesh

Whereas, in above diagram, we can see team structure in the to-be Data Mesh state as compared to that of traditional model promoting collaboration & ownership. Certain roles from the traditional implementation structure moves inside the domain e.g., Engineering Team members. New roles evolves in the to be state like Data Product Owner.

Below are some of the key players we envision who will play an important role in to-be state.



### **Data product owner**

To manage the product starting from ideation till building continuous improvement of end product's quality & usage.



### **Data producer team**

Business, Application/System SMEs from the business/function domain.



### **Engineering team**

Experienced Architects, Designers, Engineering and QA Team (MDM, ETL and DQ etc.) working collaboratively with product owner.



### **Federated data governance team**

Personas within domains who manages the policies and standards around master data product.



### **Consumers**

Internal consumers within business domain, cross functional/other domains and/or external to organization.

## Process

Below diagram shows the comparison of how traditional processes in MDM compares with the opportunities in Data Mesh.

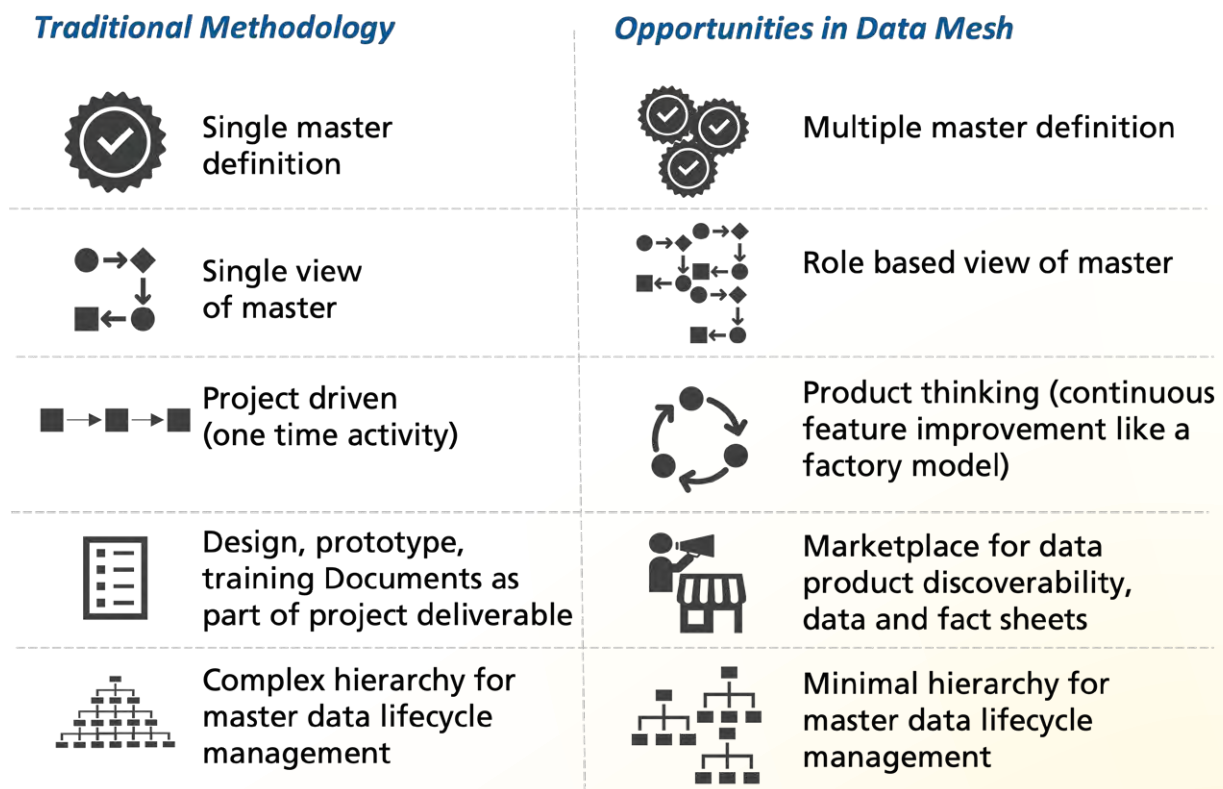


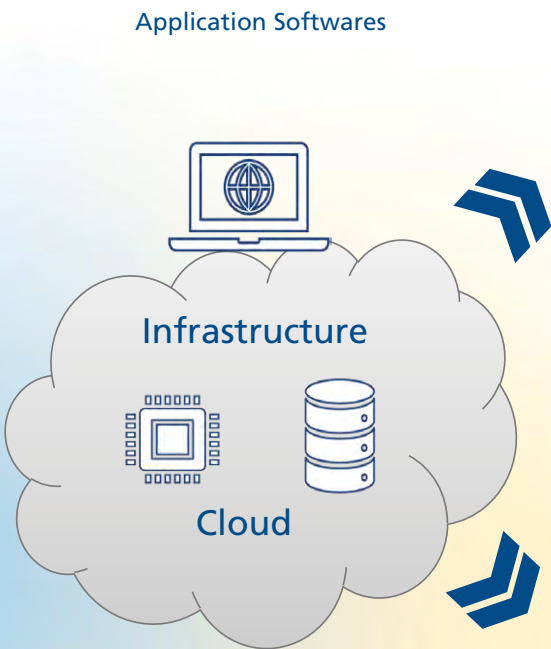
Figure 12 - MDM Process in Traditional vs Data Mesh approach

In new way of implementing MDM aligned to Data Mesh principles, following are some of the key highlights-

- The to be architecture supports several definitions of MDM Master aligned to the business domains/sub-domains.
- In this model hierarchy of decision making is relatively flat (of lesser depth) as compared to traditional methodology, which improves the agility of overall program.
- It benefits from the product thinking approach, since the end goal is to make data as saleable as any other physical product, it undergoes rigorous testing, prototyping, marketing etc.
- Like selling physical products in an eCommerce portal, MDM Data Products are supported via Marketplace for discoverability and shopping. This ensures that the final MDM Data product have certain rich features which makes it easy for consumers to understand and shop for the data product e.g., rich description of Data Products, supported with samples, rich visuals, presence of shopping cart and association with payment gateways, etc.

# Technology

## Traditional Methodology



## Opportunities in Data Mesh

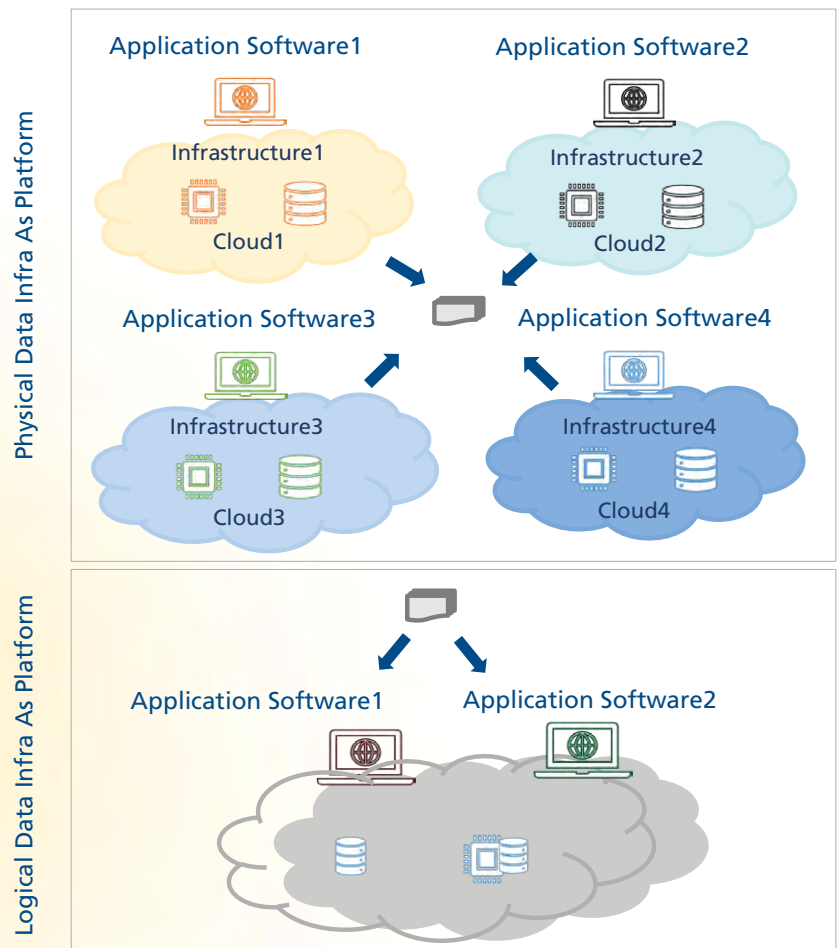


Figure 13 - Technological Shifts in Traditional vs Data Mesh approach



Finally in terms of technology also, following changes/(opportunities) are key highlight-



Each domain has the flexibility to choose application software of their choice, which are more aligned towards the business domain need.



There can be logical segregation of software/hardware components even if physically they might be hosted on same infrastructure.



Each domain has the flexibility of selecting the type of hyper scalers and/or providers of on-prem system.



It provides flexibility of choosing hardware which might be more aligned towards business need e.g., systems having more GPUs as compared to CPUs and vice versa, systems supported with high compute power as compared to memory installed and vice versa etc.

## Governance

Below diagram represents the shift from Centralized Governance in the traditional styles to a Federated Computational Governance style in the to be state.

### Moving away from central model



### To federated computation model



Production



Central Governance



Sales & Marketing  
(Business/Functional Unit Specific)



Accounting

Figure 14 - Moving from Central to Federated Computational Governance

In this model, certain elements of governance remain central while a considerable share of governance gets federated that is owned by individual domains. Elements of governance which are central are as follows –

- Exchange mechanism of data across domains
- Approved set of tools and technology, third-party data licenses, etc.
- Blueprints for onboarding new master data domains
- Aspects of data monetization
- Master data product registry, usage, and lineage
- Common reference data like date, country, state, currency, etc.
- And Central Governance Council (people) who will manage above mechanisms

And elements of Data Governance which gets federated are as below –

- Business and validation rules
- Definition of master data
- Business process management
- Choice of tools from centrally approved tool set
- User experience screens
- Security and RBA access management
- Audit and history
- Release management and data lineage
- Business function specific reference data management
- And the people part comprising of product owner and domain level stewardship (data owners, custodians, etc.)

Finally connecting all four dimensions-

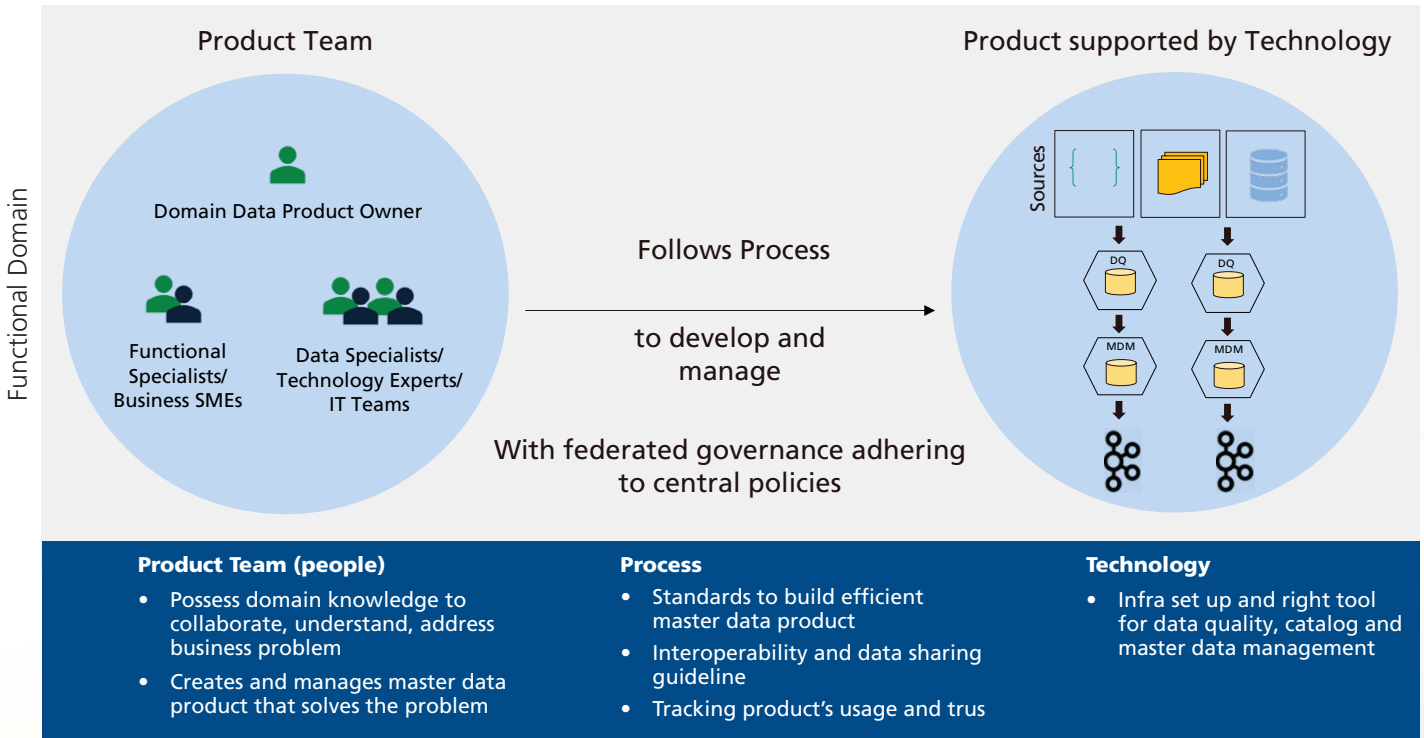


Figure 15 – Domain Centric People, Process, Technology and Governance

People	Process	Technology	Governance
<p>They possess domain knowledge to collaborate, understand &amp; address business problem</p> <hr/> <p>They create and manage master data product that solves the problem more from a business outcome perspective than a technical data management approach</p>	<p>Rules &amp; standards to build &amp; manage master data product</p> <hr/> <p>Well-defined interoperability and data sharing guidelines</p> <hr/> <p>KPIs to track product's usage, trust &amp; security</p>	<p>Configuring Infra set up and tool for data quality, catalog, and master data management</p>	<p>Federated ownership and governance process, with certain governance elements still adhering to central policies</p>

# High Level Reference Architecture

Combining elements of people, process, technology, and data governance along with the recommended approach of the implementation styles, we present the below reference architecture diagram for MDM implementation within Data Mesh, wherein each of the domain is responsible for generating Master Data as an end data1 product.

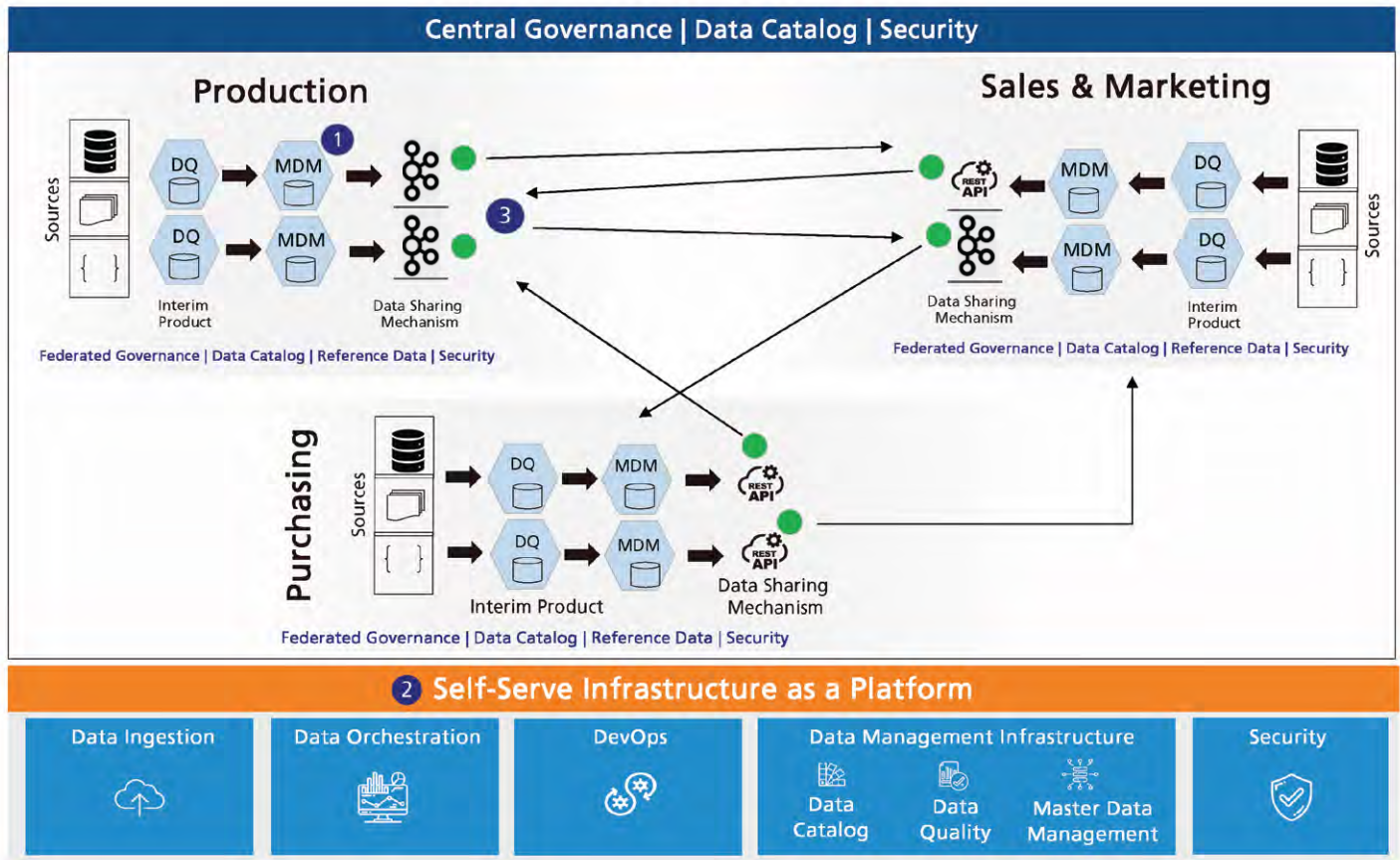


Figure 16 - Reference Architecture for Implementing MDM in Data Mesh

The key tenets of the above architecture are as follows-

## Creation of MDM Data Products

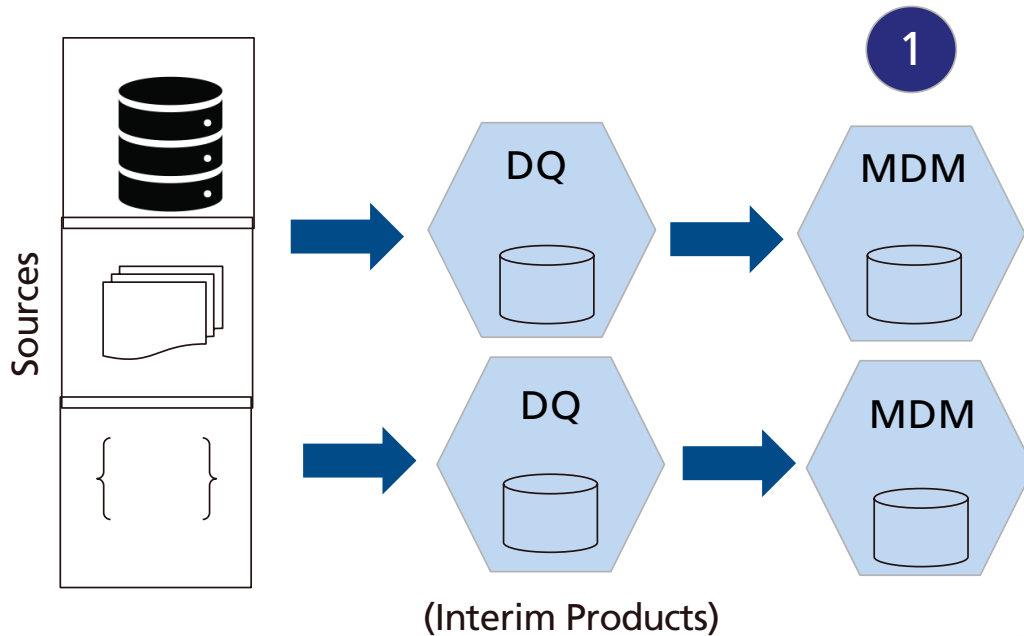


Figure 17 – Data Products based on MDM

Aligning to principles of good data products, here following will apply -

- Facets of MDM development (Ingestion, DQ, MDM, DG, Consumption) will be managed within business unit, aligning to Central Standards as deemed necessary.
- Framework-driven approach will be adopted – e.g., Metadata-driven Validation Rules, Encryption/Decryption frameworks for Credentials stored in property files, etc.
- Self-serve approach to data management – Expose DQ Rules as a Service via Intuitive GUI to Business Users/Power Users.
- Certain Reference Data Elements (like Confirmed Dimensions) to be managed centrally and broadcasted to necessary business function or having federated management or such reference data.
- Central logging for tracing back full lineage of data and processes.
- Monitoring of consumption patterns and refactoring architecture/design accordingly.
- Data products made available in central marketplace for ease of discovery, and consumption facilitated in form of shopping carts.

## Self-Serve Infrastructure

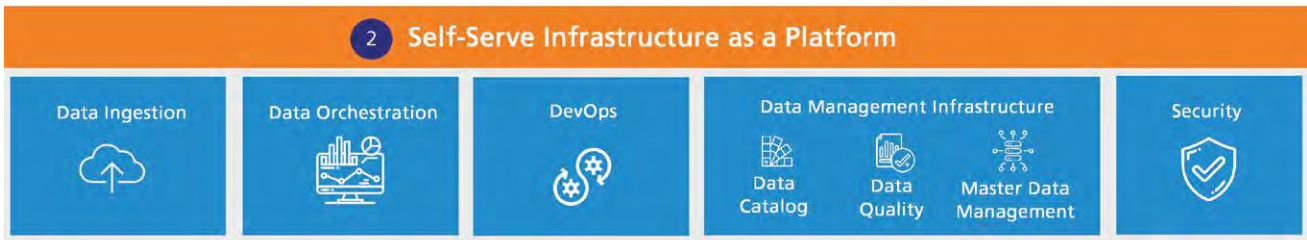


Figure 18 – Self Serve Infrastructure

In adherence to the principle of Self-Serve Infrastructure, following benefits can be derived –

- Options to choose from cloud hyper-scalers/on-prem platform and creating segregations at domain/sub-domain level by the virtue of subscriptions, accounts, active directory, resource group, etc.
- Installation and configuration of necessary software, applications and pushing as custom machine images on the chosen platform.
- Containerizing of applications for shareability and scalability
- Hosted solutions by product vendors
- Variety of Licensing options – Pay-As-You-Go/On-Demand, BYOL (Bring Your Own License), Reserved, Bidding-based, etc.
- Wide range of services over Cloud – Storage, Compute and Network.
- Server-based or serverless options based on usage patterns.

## Data Sharing and Interoperability

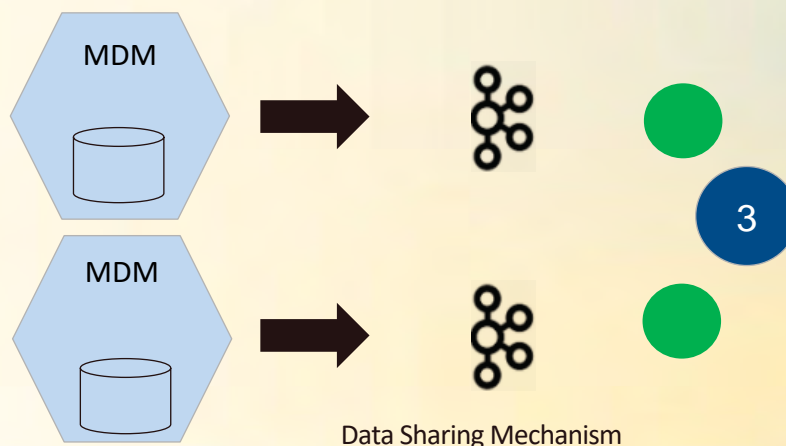
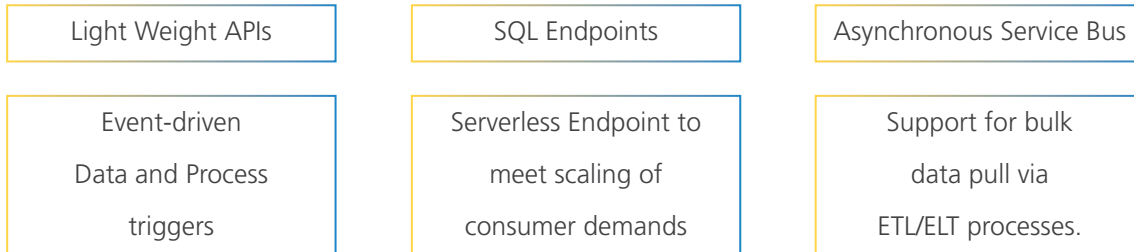


Figure 19 - Data Sharing of MDM Data Products

Aligning to the interoperability principle of Data Mesh, end data products will have the following properties-

Various methodologies for exposing MDM Data Products-

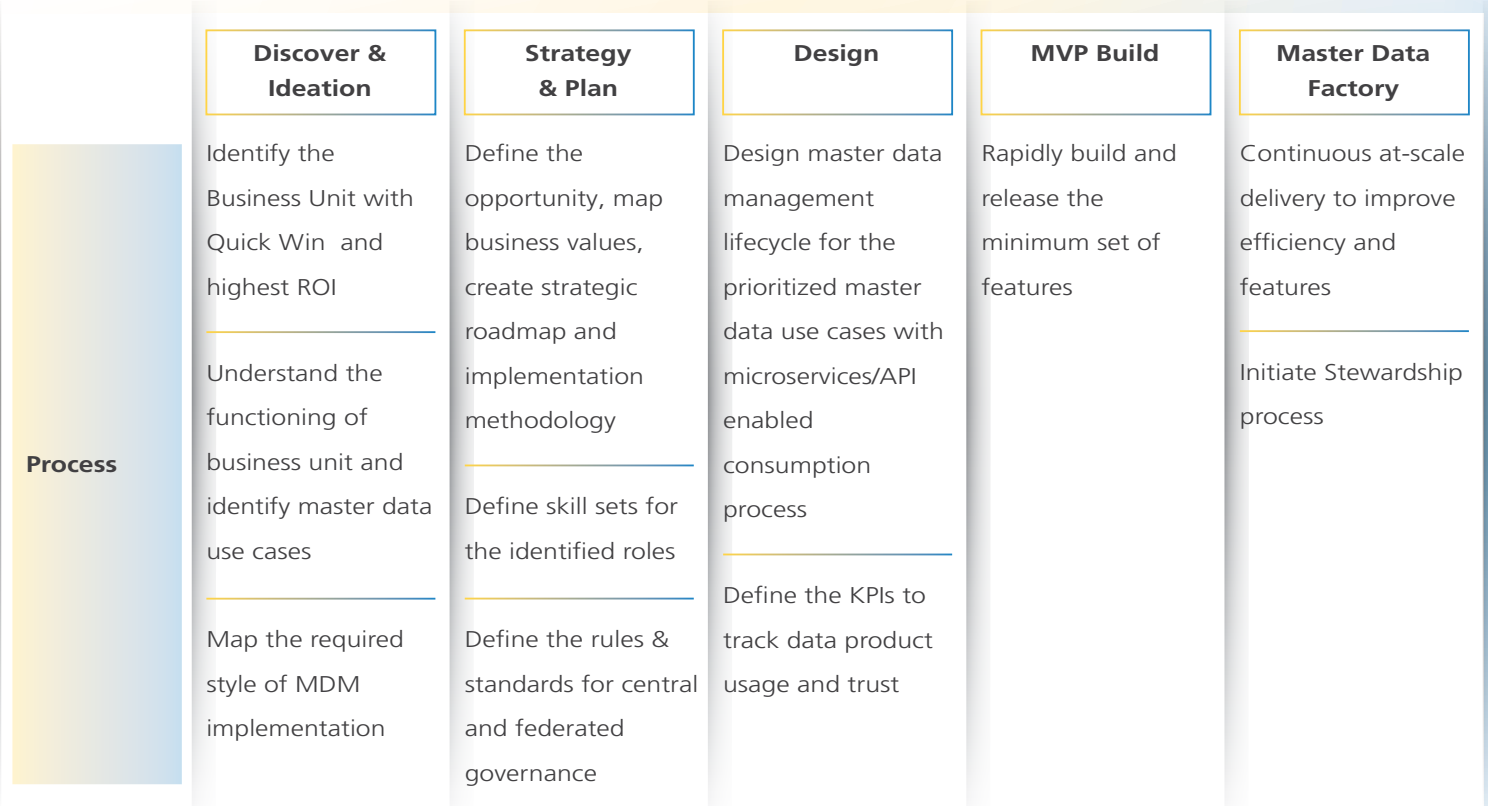


Coarse grain APIs (fine grain if needed only) for data product consumption

Throttling for producer systems (MDM Data Product) from getting overwhelmed

## Framework to Build MDM on Data Mesh Principles

Before getting started to build/enhance MDM based on data mesh principles, the current state and future business needs at organization level and Line of Business (LOBs/functional units) level should be studied. Below framework will guide an organization to start their journey, prepare an MVP and finally build scalable model for managing their master data. This framework focuses more on business outcome then data management.



<p><b>Technology</b></p>	<p>Study the end-to-end System landscape</p> <hr/> <p>Assess current tools &amp; technology</p>	<p>Finalize technology for MDM implementation, microservices, governance and project management</p>	<p>Infra set up and tool Deployment</p> <hr/> <p>Detail end to end solution architecture</p>	<p>Code deployment</p>	<p>Bring agility via Dev-ops</p>
<p><b>People</b></p>	<p>Identify data product owner with product thinking idea having good business &amp; technical knowledge</p> <hr/> <p>Identify functional and technical roles required to build business domain specific MDM</p>	<p>Set up central governance team with ownership of infra and tool</p> <hr/> <p>Define Federated data governance operating model to own the data &amp; process of the identified business unit</p> <hr/> <p>Define Communication plan for collaboration within federated governance and, between central &amp; federated governance</p> <hr/> <p>Initiate team onboarding process as per roadmap plan</p>	<p>Collaborate to consolidate and enhance product feature</p>	<p>Collaborate for MDM data product development and testing</p> <hr/> <p>Operationalize federated governance</p> <hr/> <p>MVP release approval &amp; central registry master data product for other dependent team/business unit/applications to consume</p>	<p>Federated governance tracking master data quality and publishing the updates</p> <hr/> <p>Performing stewardship</p> <hr/> <p>Interfaces for federated governance to approve data sharing agreement</p>



## Guidelines for Customers with Existing MDM

As mentioned above there are three styles of reference architecture, here we try to give high level steps of migration to “domain-driven MDM” pattern wherein each of the domain implements MDM within its own context and boundaries. It is no brainer that almost all matured and large-scale enterprises will have some form of MDM already existing as part of technology landscape. For those customers we see two-fold changes in form of guidelines as to what high level steps will need to be followed while aligning to Data Mesh Principles.

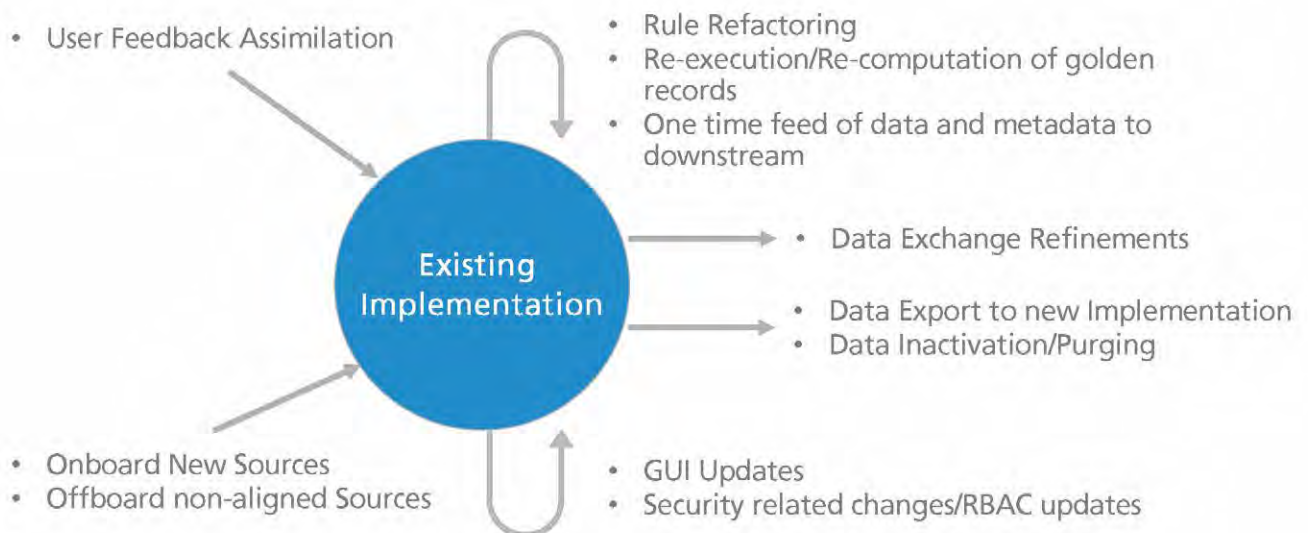


Figure 20 - Changes to Existing Implementation

It will make sense to evaluate the existing MDM and align it to a domain where it makes the most business sense and (or) changes are minimal. Having said that still there will need to be changes made in form of following steps-



While existing MDM implementation was aligned to the closest business domain possible, and hence, moved within the purview of data mesh domain/LOB, there will be domains which will call for new implementation of MDM projects. For those domains, following will be necessary to be done-

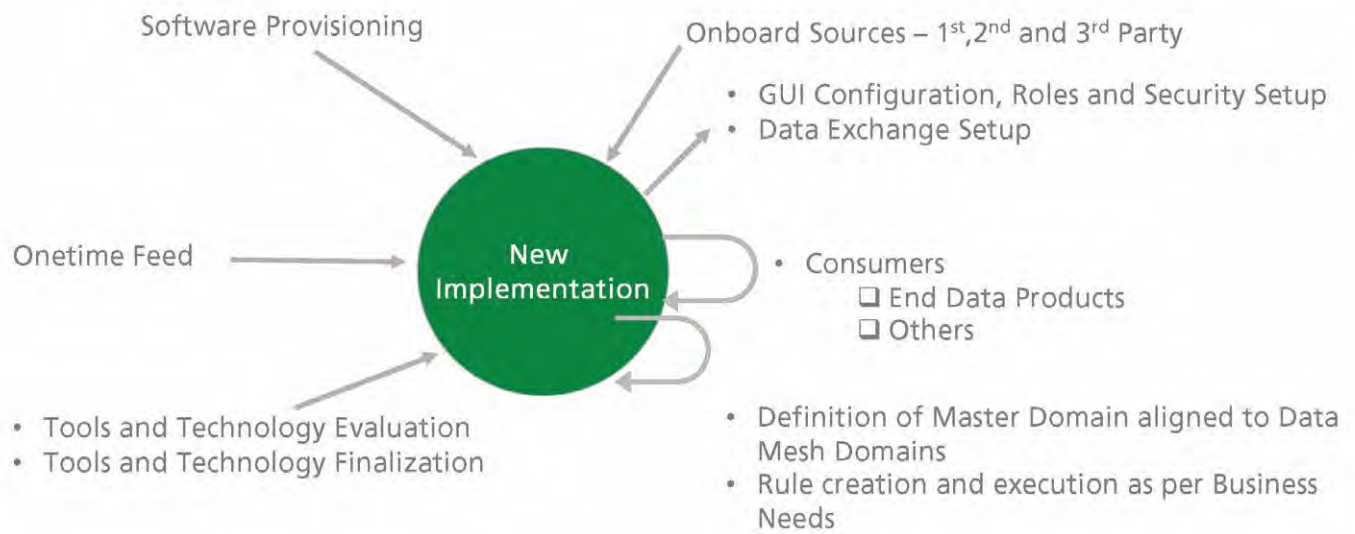
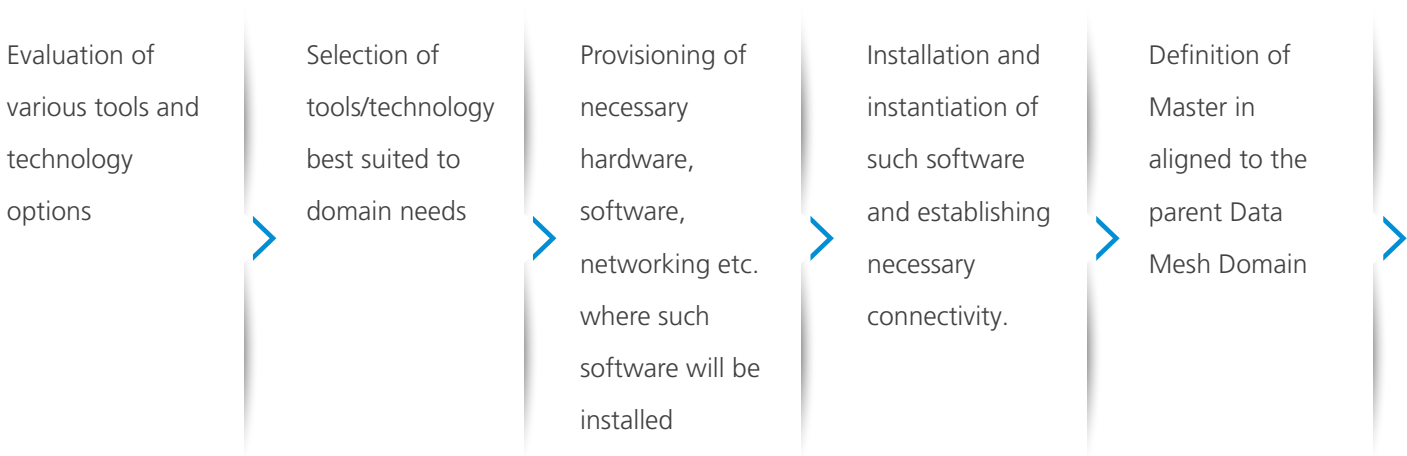
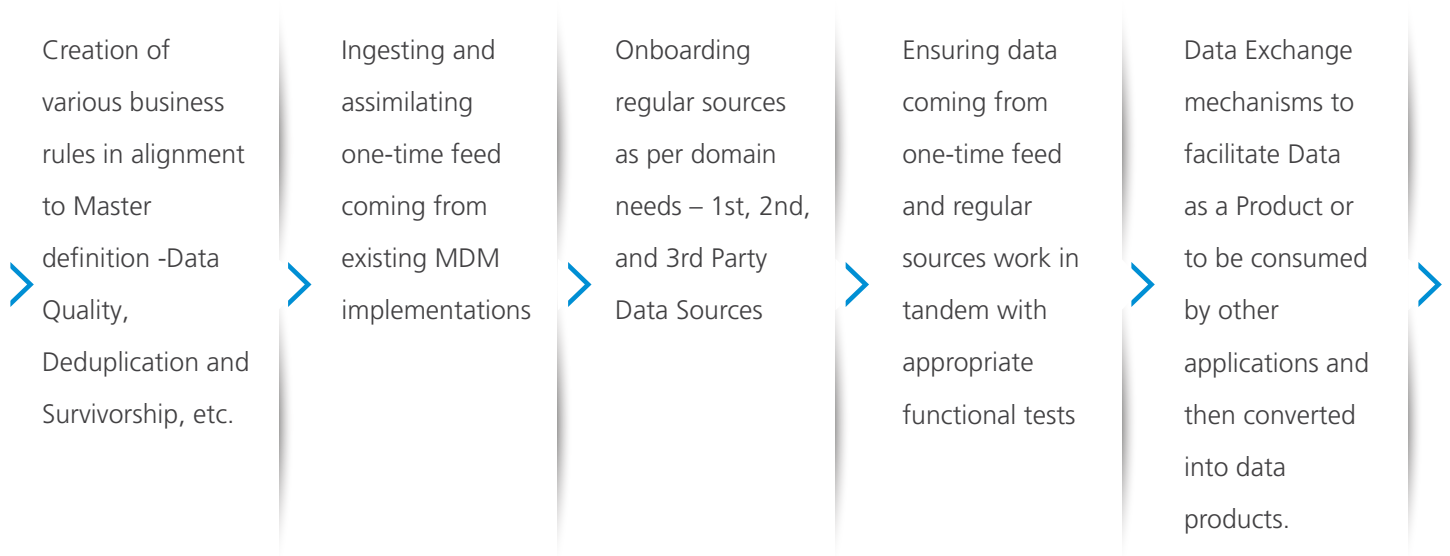


Figure 21 - New MDM Implementation





➤ Configuration of GUI, Setup of Role-based security, creating necessary Workflow as part of Data Governance.

While the above steps are for those clients wherein each domain lends to the creation of MDM within its purview, there are also cases wherein central MDM (collaborative MDM pattern) will be needed and each of the domains will be responsible for providing quality data (in form of data products) to such central implementation.

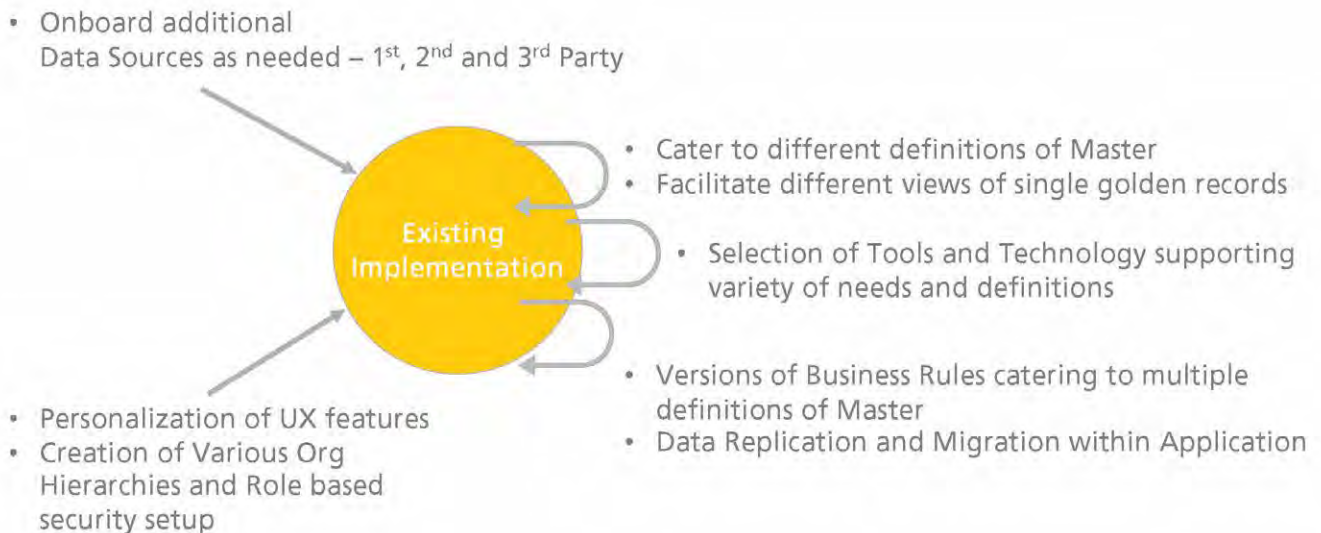
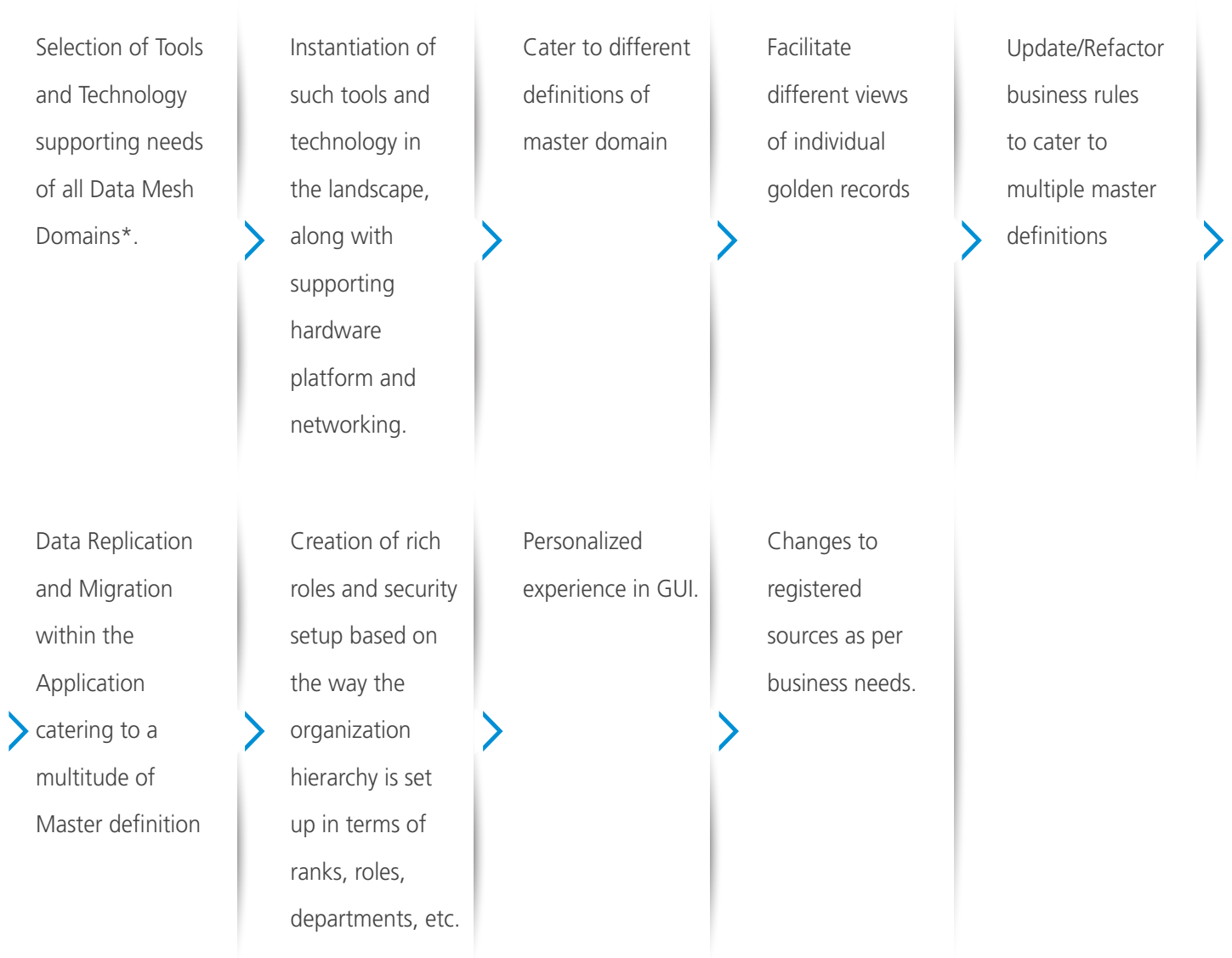


Figure 22 - Central MDM Implementation

During such styles of implementations, the following steps need to be followed-



\* Tools and Technology selected should be able to support different definitions and views of the Master Domain

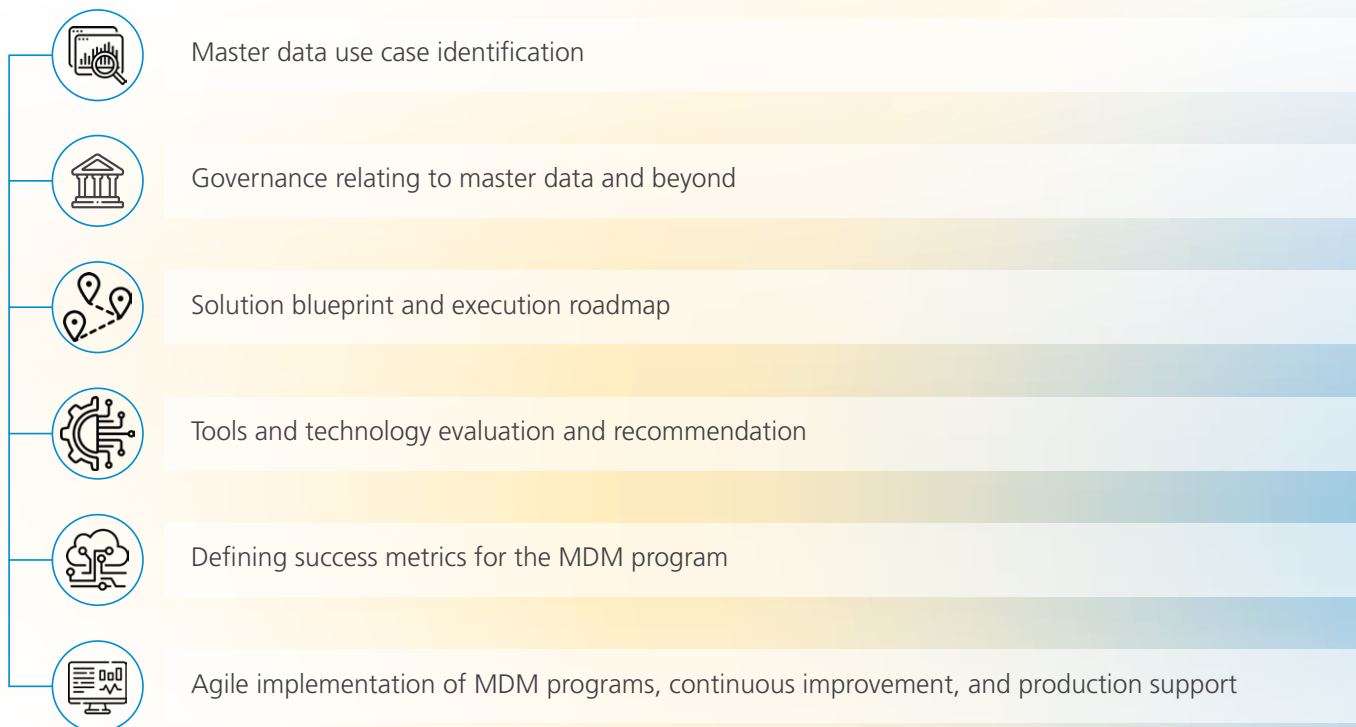
# Summary

Data Mesh is advocating organizing a business as per domains and designing processes around the same, whereas traditional MDM encourages bringing data to a central location and then following steps of data quality and de-duplication routines. We drew parallels from other technology shifts in IT, e.g., even Big Data technology leads to the creation of duplicates by the virtue of replication.

However, businesses went ahead to adopt new generation technologies like Big Data (having issues with multiple versions of data due to replication, etc.), and Cloud (having issues with security, etc.) and developed methodologies to solve the new problems posed using say Vector State machines. It was imperative and beneficial for Industries to reap the benefits of big data rather than shying away citing technological issues. On a similar note, we are very optimistic that MDM vendors will also lend solutions to such technology shifts. To conclude, Data Mesh is a shift in how we look at master data-related business challenges and bring agility to solving them based on its domain-driven architecture. We also believe that it is reasonable to have a certain level of duplicates if the business purpose is solved without violating the core principles of MDM.

# How LTIMindtree Can Help

LTIMindtree is a market leader when it comes to Data Strategy and Architecture Capabilities. It has dedicated CoE (Center of Excellence) catering to various Data Management needs and Data Mesh in general. LTIMindtree brings with it a rich knowledge of prior MDM strategy consulting and delivery experience be it On-Prem, Cloud-hosted, COTS, or Custom Implementations. It leverages various frameworks and accelerators to help Organizations in their MDM journey. Coming to MDM, LTIMindtree helps the organization with the following-



LTIMindtree has got specialized towers when it comes to data consulting, delivery excellence, etc. who work cohesively towards client goals.

# Glossary

## Abbreviation

API  
BU  
DaaP  
DG  
DQ  
ELT  
ETL  
GUI  
IT  
KPIs  
LOB  
MDM  
MVP  
QA  
ROI

## Full Form

Application Programming Interface  
Business Unit  
Data As A Product  
Data Governance  
Data Quality  
Extract, Load & Transform  
Extract, Transform & Load  
Graphical User Interface  
Information Technology  
Key Performing Indicators  
Lines Of Business  
Master Data Management  
Minimum Viable Product  
Quality Assurance  
Return Of Investment



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# About the Authors



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Kallol Dutta leads the Data Architecture and Strategy group within LTIMindtree. He is backed with rich experience spanning more than two decades over various industries and geographies. He has spearheaded several successful data consulting engagements for Fortune 100 clients. He is passionate about applying data solutions across industries and help clients derive value out of such strategic initiatives. His core competence are Data Architecture and Analytics, Data Management and Governance, Cloud Solutions, Data Privacy and Strategic Consulting.



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Rohit Bajaj works as a Data Architect under the Data Architecture and Strategy team. He is passionate about applying data solutions and reusable design patterns to solve business problems. He has got around 15 years of experience in the field of IT and his areas of core competence are Master Data Management, Data Quality and Data Migration. He has successfully led Consulting and Delivery initiatives for Fortune 500 clients.



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Ranjini Balakrishnan works as a Data Strategist under the Data Architecture and Strategy team. She has got 14 years of experience in data analytics strategy consulting, end-to-end implementation and technology consulting for Data warehousing and BI solution. She has successfully delivered data transformation & visualization projects for various mid to large organization.

**LTIMindtree** is a global technology consulting and digital solutions company that enables enterprises across industries to reimagine business models, accelerate innovation, and maximize growth by harnessing digital technologies. As a digital transformation partner to more than 750 clients, LTIMindtree brings extensive domain and technology expertise to help drive superior competitive differentiation, customer experiences, and business outcomes in a converging world. Powered by nearly 90,000 talented and entrepreneurial professionals across more than 30 countries, LTIMindtree — a Larsen & Toubro Group company — combines the industry-acclaimed strengths of erstwhile Larsen and Toubro Infotech and Mindtree in solving the most complex business challenges and delivering transformation at scale. For more information, please visit [www.ltimindtree.com](http://www.ltimindtree.com).