



Master Data Management (MDM) & PLM – Enterprise Product Management

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Globalization, Innovation, Cost competitiveness and Sustainability bringing increased focus on Product data

Globalization and localization of Products

“Product Data” mutates to meet local business and IT needs

Mergers, Acquisitions and Divestitures

Continuous and ongoing activity of Product Data synchronization .Understanding of “What Product Data is” is different across organizations

Multidisciplinary View of Products

Constant increase in complexity of information needed to comprehensively understand product data.

Evolving Biz needs increasing the scope of product data elements

Continuously evolving business needs on “Product Data”.

Future proof IT at lower TCO

Scalable robust IT infrastructure built on new gen IT strategies . Standardization and Harmonization of IT systems and services

Organizations are constantly thriving to address their challenges in managing and sharing Product Data

Complex Product data, fragmented across the organization

Looking beyond CAD & Documents and tackling the Complex Part/BoM /Change relationships

Increased software intensity in products

Expanding functional footprint (Simulation, Digital Mfg Data, Compliance and Quality Data)

Product Data, today is federated and exists in disconnected multiple systems resulting in data ownership, governance and security issues

Lack of Data / process synchronization leading to

Usage of old and duplicate product data

Long cycle times for data reconciliation

Ever increasing mergers & acquisitions leading to growing complexity in product data diversity and relationships

Available Product Data is not trustworthy for decision making

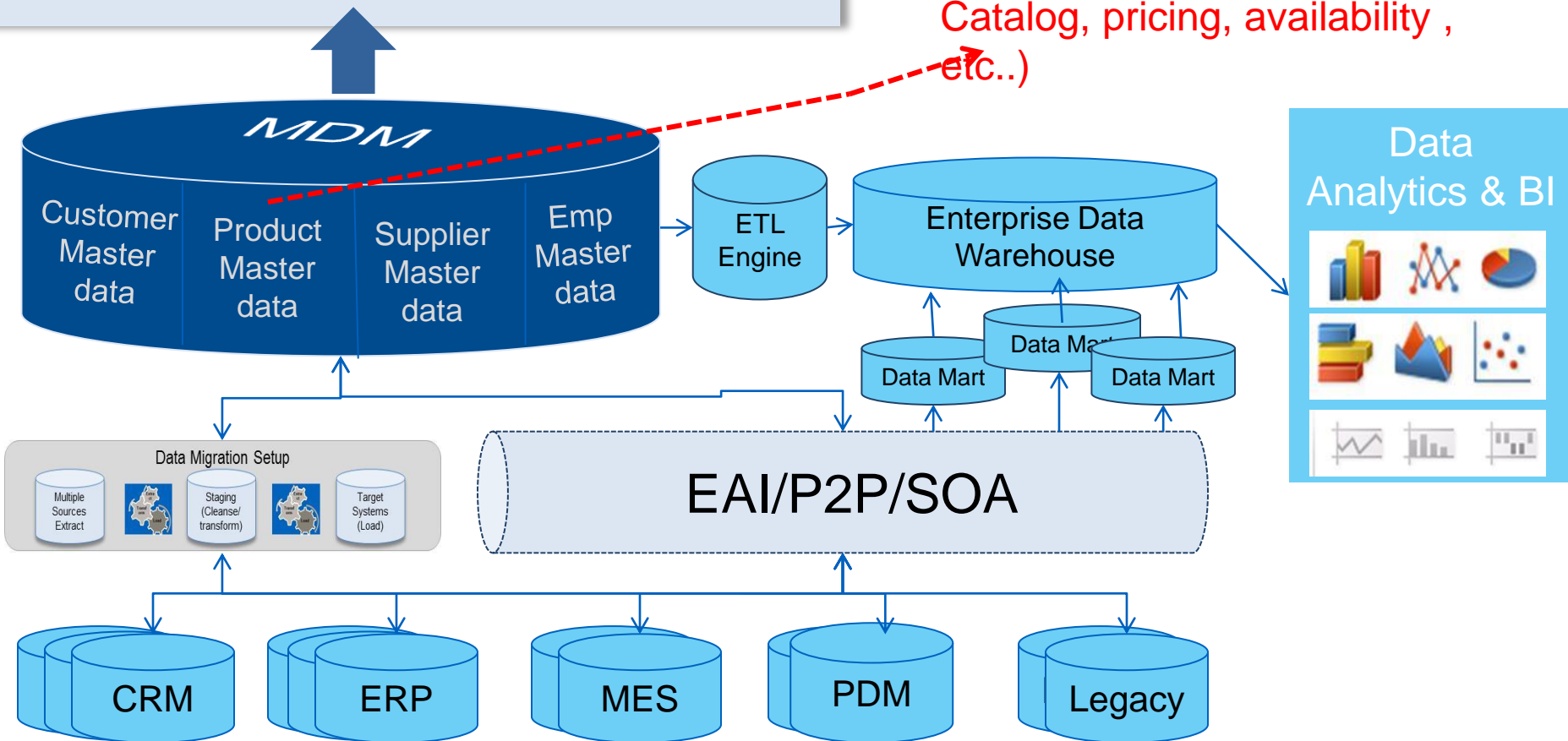
*“A need exists for a system to store released product information available as a System of Record, **defined as Product Master Data** which can be referred across the organization”*

Are Today's MDM practices able to establish a product Master to address these challenges ??

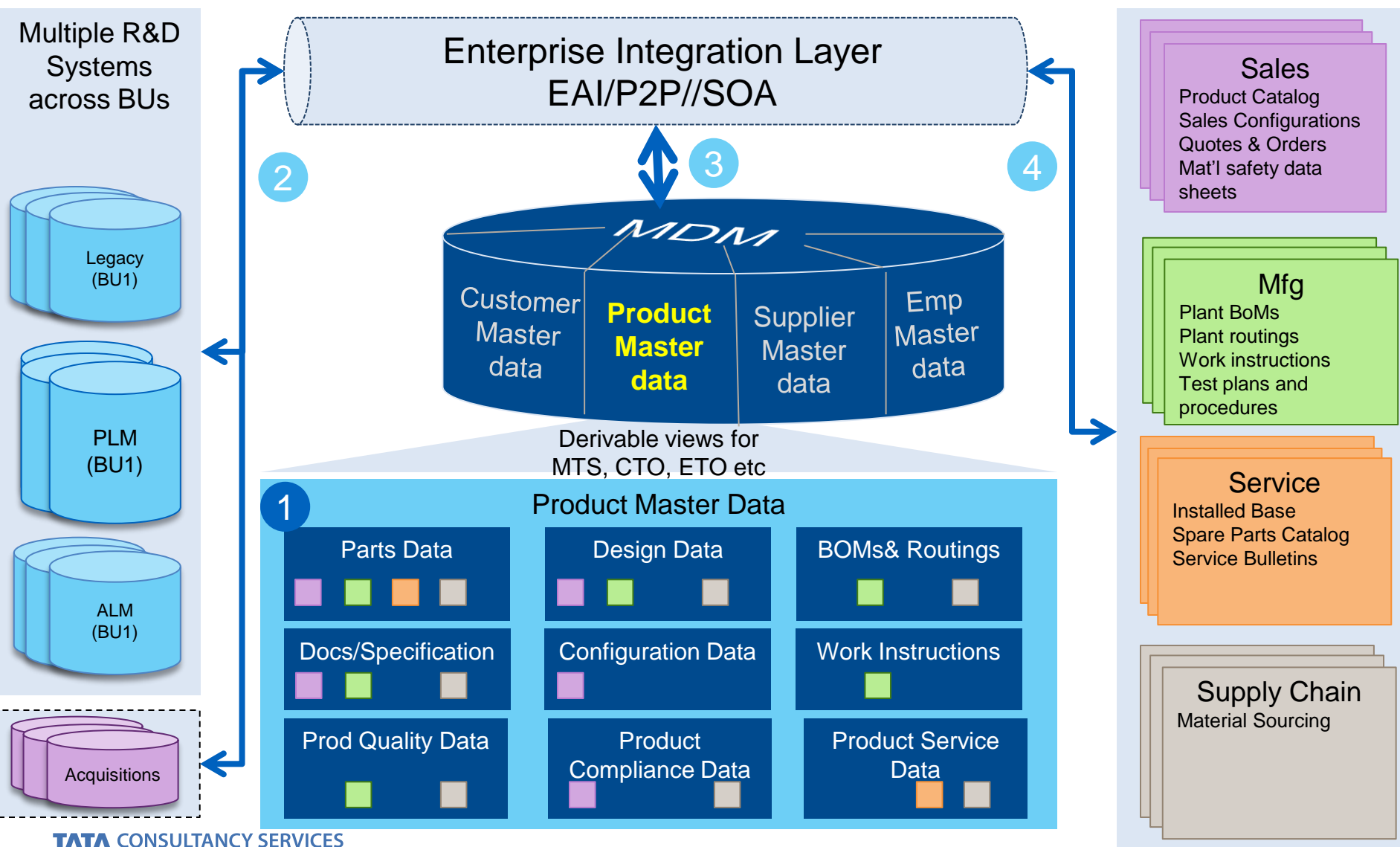
Current established practices of MDM should enrich the scope and boundaries of Product Data

Data Integrity Data Accuracy Data Reuse
 Data Stewardship Data Quality Data Ownership
 Semantic consistency
 Data Accountability Data Accountability

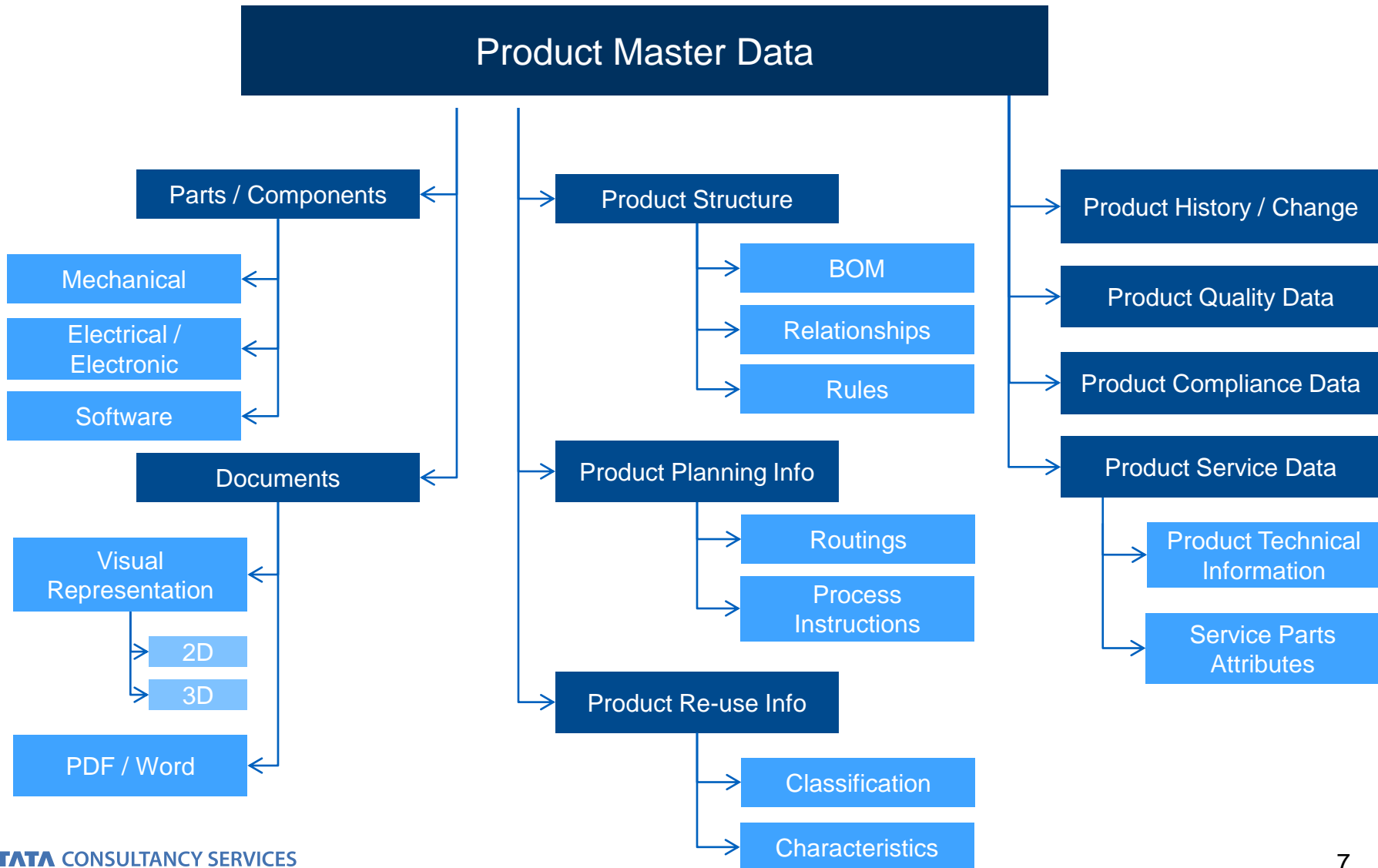
Today, Product Master data under MDM is catering mainly to the Sales and Marketing needs of the organization (Product Catalog, pricing, availability, etc..)



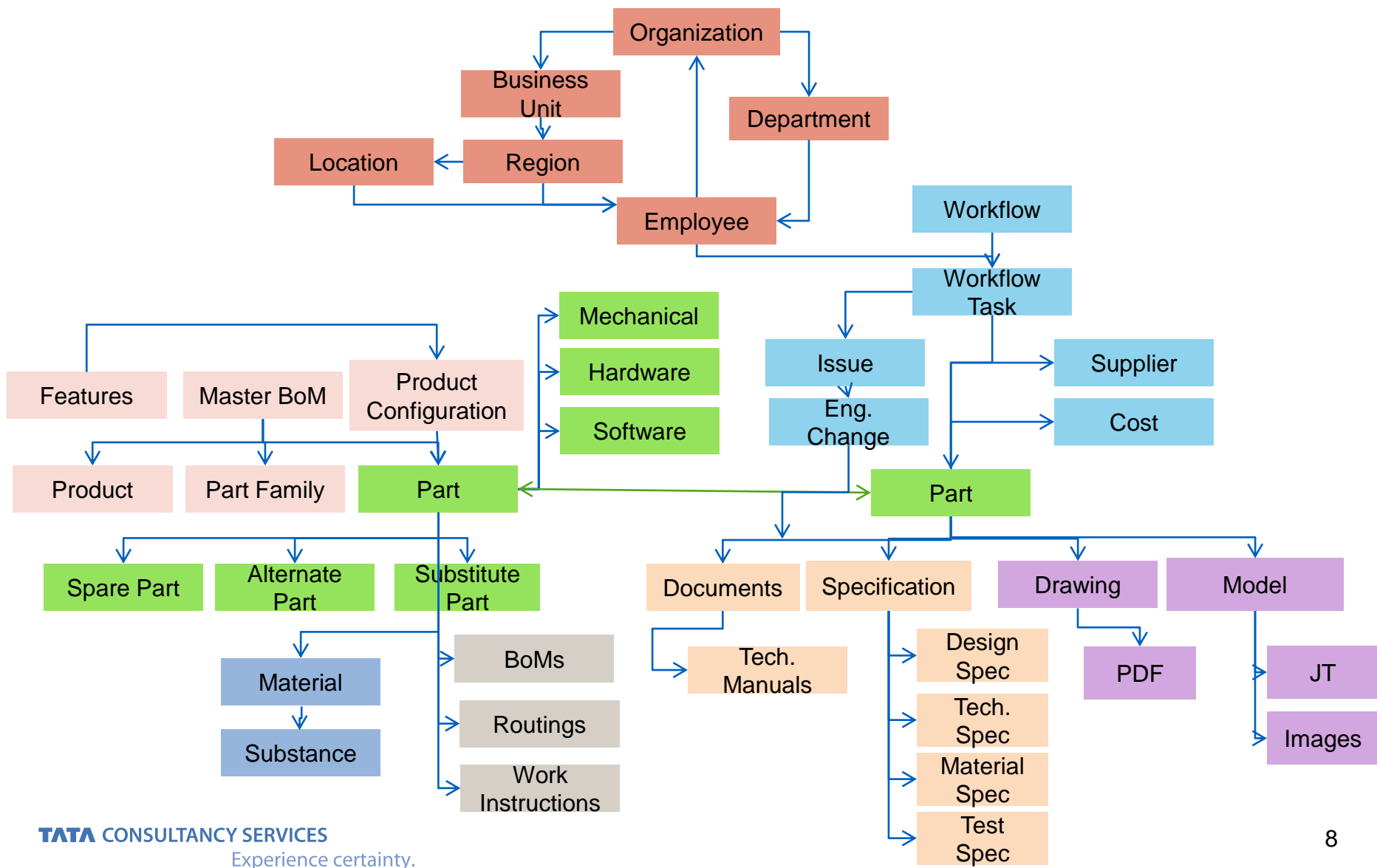
Understanding Product Master Data in the Context of Master Data Management



Ontology of Product Master Data



A Closer look at the Data elements and interrelationships- Ontology of the Product Master Data (But not limited to..)



PLM Systems will complement the creation of Product Master Data systems

PLM

PLM is the Source for Work in Progress (WIP) Product Data

Authoring Space for Product Data

Focus on Multidisciplinary engineering functions (Hardware/Mechanics/Software)

Process centric approach to creation of Product Data

Structured feed of data elements which can constitute the Product Master data

MDM

MDM is the source for Released Product Data aggregated to a Product Master

Gate Keeper of Product Master Data for different consumers

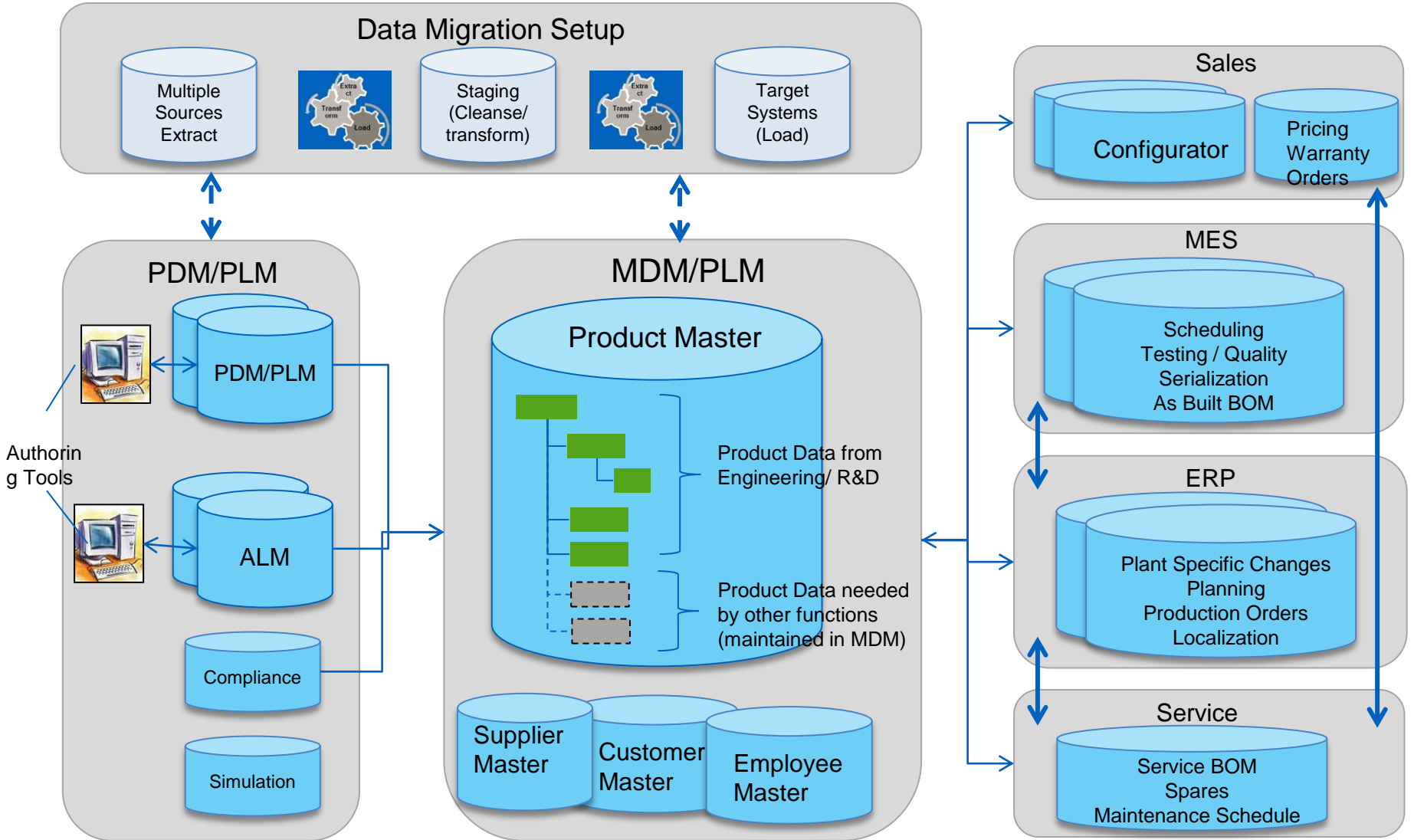
Focus on Product Master Data needed for enterprise level transactions

System of Record for establishing the *single source of truth*

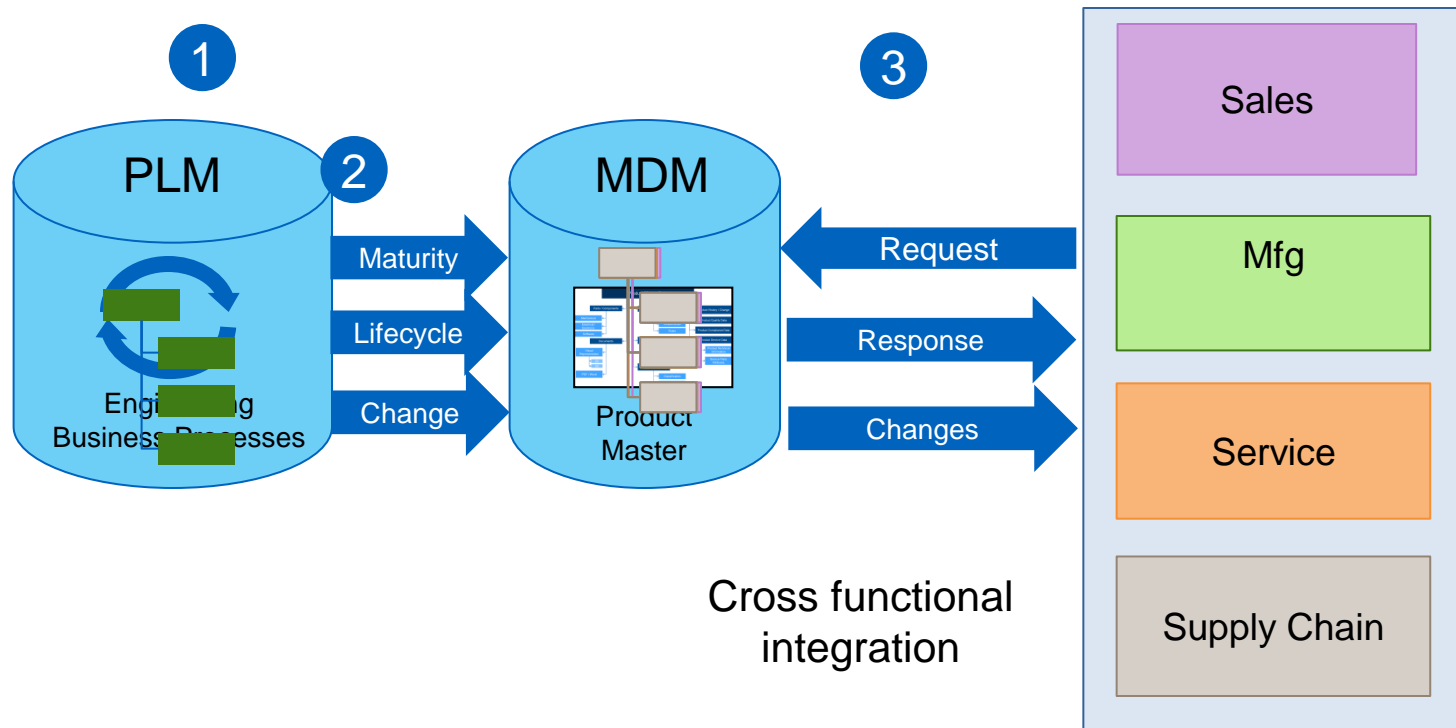
Leveraging the MDM infrastructure to feed different consumers like Sales, Supply Chain, Analytics etc

PLM and Product Master data Systems are complementary and not redundant

Systemic View of the PLM MDM setup with other cross functional enterprise systems



Enabling integration between the Engineering/ R&D systems, MDM and cross functional systems



Key Use Cases and solution scenarios

Standard Based Meta Model Definition

1

- Meta model definition of the Product Master
- Standards based metal model for structure, relationships and information exchange

Automated Continuous Data Migration Mechanism

2

- Automatic transfer situations from Engineering (R&D) systems to Product Master data system
- Identify triggering mechanisms (synchronous / asynchronous)
- Workflow modifications / status change triggers modification for data transfer

On Demand Trigger for data migration

3

- Establishing the triggers from Engineering systems
- Identify additional attributes for transfer

Data Ownership Identification & Transfer Mechanism

4

- Identify ownership mechanism in various Engineering Systems
- Ownership definition in Product Master system
- Role & Access Control setup in Product Master System
- Engineering attribute & Product Master attribute identification

Closed Loop Engineering Change Process

5

- Process definition for Engineering release to Product Master
- Mechanism to inform Product Master stakeholders regarding the change
- Change Number format harmonization in all Engineering Systems

Integration between engineering (R&D)systems Product Data master system

6

- Transform engineering system data to Product Master schema
- Data validations before transfer
- Development mechanism identification for source and destination systems
- Queuing, Scheduling and Monitoring mechanism

Benefits for Globalization, Innovation, Cost competitiveness and Sustainability

Data Governance, Risk & Compliance

- Standardized & uniform product data in Product Master system across the organization
- Single source for truth for Sales, Mfg, Supply chain & Service
- Ease in making Product Ownership changes
- Increased data quality for decision making

Process Simplification & Standardization

- Improved change management : Control on Global/Local changes
- Ease in engineering/mfg change analysis and implementation
- Improved business agility & speed to customer response
- Improved traceability of product data, helping in compliance & Issue identification

Scalable and Simplified IT Landscape

- Reduced number of interfaces (Low AMS costs)
- High Scalability due to standard practices and established models

6 Key Learnings for Product Master Data fitment into Overall MDM Strategy

1

Business Unit / Product Division level variations in Product Data will lead to more time for interfaces harmonization

2

No standard data ownership identification mechanism. Organization specific rules need to be developed to classify ownership

3

Data conflicts identification & resolution is time consuming (especially for legacy data)

4

Historical data migration, could lead to development of complex migration mechanisms

5

Changes in upstream & downstream systems calls for lot of coordination among different organization functions

6

Standards driven Meta Model definition and data exchange like JT2Go, STEP, PLCS etc should be evaluated and established

Recommended reading

- Open Methodology Solution on MDM (http://mike2.openmethodology.org/wiki/Master_Data_Management_Solution_Offering).
- Microsoft Definition on MDM (<http://msdn.microsoft.com/en-us/library/bb190163.aspx>)
- David Butler. *Master Data Management, an Oracle White Paper*, 2011.
- Dr Rob Bodington, Patrick Houbaux. *What is PLCS – STEP AP239*, 2011.

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