

TRUSTED BABUSINES

Capgemini's Data Trust value proposition July 2022



OBJECTIVE 1: THE DATA- & AI-POWERED ENTERPRISE





A new breed of enterprises has emerged that is built on the activation of data, both bricks-and-mortar companies such as Domino's Pizza, Zara or Sephora as well as fundamentally digital ones such as Netflix or Amazon.

These data-powered organizations win market share by:

- Delivering better and more personalized products & services
- Leveraging data to make faster and better decisions

Industrialize your data journey from acquisition to activation in order to liberate your full enterprize power

ORGANIZATIONS MASTERING DATA & AI ARE OUTPERFORMING THEIR **PEERS**



Data & AI are a pillar of our clients' Performance

Data-powered organizations win market share through

Better engaging customers with respectful, personalized and engaging experiences

more personalized products & services to consumers and businesses

faster and better decisions to drive operational excellence and competitiveness

Data-powered public institutions also aim to offer better citizens services for an optimized cost to serve thanks to Data & Al.



Data & Al powered organizations are **22%** more profitable



Data & Al powered organizations generate 70% more revenue on average per employee



But only 16% of organizations fully master Data & Al

OBJECTIVE 2: COLLABORATIVE DATA ECOSYSTEM





Data ecosystems are partnerships between organizations to share and manage relevant data and insights, **creating new value for all participants** that they wouldn't be able to create by themselves

New products, services & experiences you can't provide with only "your own" data

Augmented insights on how to better run your business

that you couldn't get looking only at "your own" data

THE NEW TECTONIC SHIFT IN DATA AND ALIS COLLABORATION



Data ECOSYSTEMS create new foundation for business expansion

2x

BAU revenue impact from data ecosystembased sharing**

Market Capitalization for strong collaborators**

14x

30% of GLOBAL REVENUE

Fixed Asset Turnover**

WILL COME FROM COLLABORATIVE DATA ECOSYSTEMS BY 2025*



TRUSTED DATA AS A BUSINESS ASSET



You can't become a datapowered enterprise

and create a Collaborative Data Ecosystem...

...without trusted data

and without Business ownership

So what are the building blocks of a Trusted Data foundation?

WHAT WOULD IT MEAN TO BECOME A DATA TRUST MASTER?





THE UNDESIRED NOW

- Data is fragmented, sits in silos, systems are disjointed
- Data is incomplete, inconsistent, duplicate, inaccurate, out of date
- Taxonomies, policies, dictionaries are not harmonized and poorly documented
- The Business is committed to data in theory, but doesn't invest enough and implementation is too slow
- Data is not sufficiently protected, neither internally nor externally
- The data pain is constant



THE UNWANTED CONSEQUENCES

- Management reports are inconsistent and slow to produce
- Management lacks trust in the data
- Cross-departmental end-to-end business visibility is poor
- Cloud modernization is slowed down
- Digital transformation suffers delays
- Competitiveness is deteriorating
- Staff morale about data management is poor
- The data debt is mounting



THE DESIRED FUTURE

- We have learned to master our data
- Our self-service analytics has become reality
- Our decision-making is fluid and faster
- Our collaborative data ecosystems are deepening
- We contribute to / benefit from data product marketplaces
- We have decentralized our data ownership and governance
- Our staff is re-energized



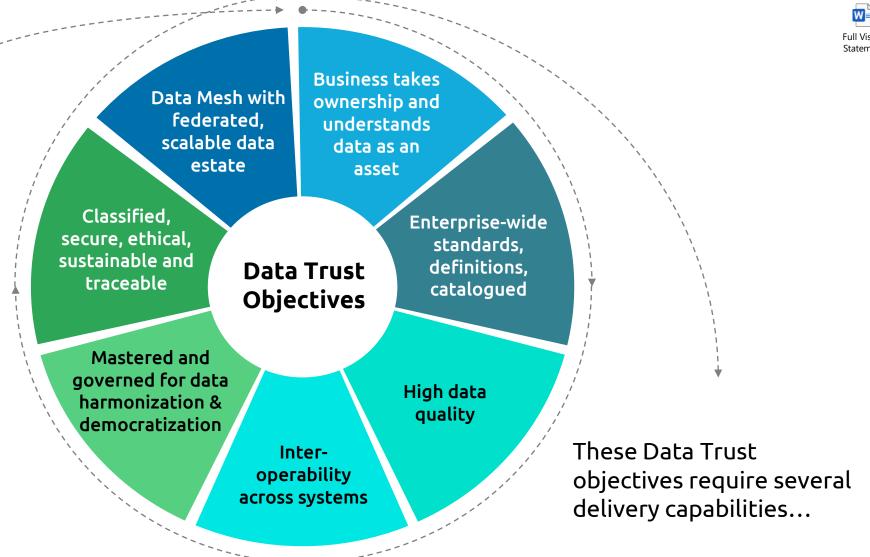
REAPING THE REWARDS

- Cutting inefficiencies and increasing automation in data-rich business processes has saved a lot of costs
- Our decision-making leads to better results
- We can spot and develop proofs of concept, new products or market opportunities more quickly
- Data productization & monetization has created new revenues
- Our overall business health and growth is improved
- We are low risk of data compliance breaches

CAPGEMINI'S VISION FOR TRUSTED DATA AS A BUSINESS ASSET



The vision of trusted data that is widely recognized by key functional stakeholders as a valuable business asset translates into several Data Trust objectives



COMPONENTS OF DATA TRUST



Capgemini's Data Trust propositions, global reach, experience and a powerful combination of business and technology consulting leverages methodologies and tools within our data factory IDEA by Capgemini:



Data Governance/Trust Organization

Establishes data as a business asset, defines data ownership, ensures Business/IT engagement, develops the data organization and operating model, enforces data policies and processes, and promotes data literacy and culture



Data Discovery & Lineage

The process of discovering the organization's data assets (data repositories, data domains, entities & attributes) as well as their lineage and traceability (system interfaces).



Data Catalog

Creates and maintains an inventory of data assets through the discovery, description and organization of distributed datasets (systems, databases, data lakes etc.) and their relationships, enabling data stewards, data/business analysts, data engineers and other data consumers to find and understand relevant datasets



Business Glossarv

Contains the semantic description of enterprise-wide business concepts and data standards, usually in the form of detailed business term definitions for critical data attributes and their relationships to each other, with examples, exceptions, synonyms, lineage, business rules, context notes and data ownership



Data Quality

Measuring and visualizing data quality (Data Profiling) across a range of data quality dimensions, and of cleansing, enriching or otherwise improving the data quality, with a focus on high-priority strategic and operational metrics, by applying hygiene rules and functionalities, making it fit for purpose



Master Data Management

MDM is a tool-based approach towards building the single view of master data and reference data (single source of truth, or golden copy), based on a variety of source systems that all hold similar, though incomplete master data



Data Lifecycle Management

The lifecycle of enterprise data assets is managed via data retention, data archiving, data disposition policies that document specific timings, methods, target repositories and relevant compliance regulation, with specialized tools configured to perform recurring or one-off lifecycle management tasks



8 Data Privacy/Protection

Regulations such as GDPR and HIPAA require organizations to apply specific controls to Personal Information concerning protection, consent and disposal. They require solutions centred around data discovery, classification, security and the ability to mask or delete data, typically through MDM-related solutions.

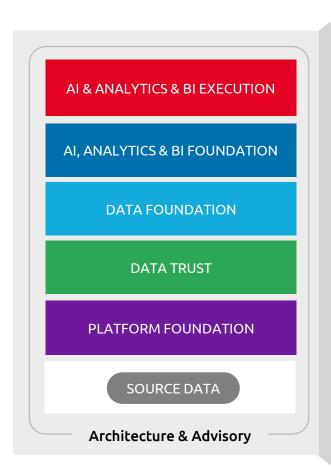


Data Mesh Governance

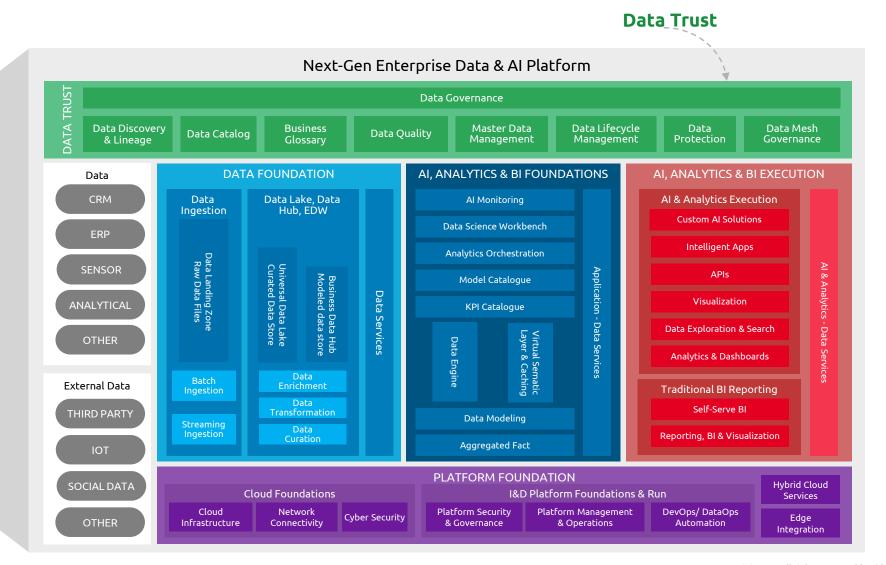
Data Mesh is an architectural and organizational paradigm that seeks to decentralize and distribute ownership and responsibility of data delivery to people who are closest to the data, providing a standardized set of data products for self-serve data consumption, often via data marketplaces

CAPGEMINI ARCHITECTURE BLUEPRINTS REFERENCE ARCHITECTURE FOR ENTERPRISE DATA & AI PLATFORM





Source: AI & Data Engineering – I&D



THE BUILDING BLOCKS OF TRUSTED DATA – VIA 4 DELIVERY TEAMS



The data-powered organization needs to be underpinned not just by modern Data and AI platforms, but also by trusted data. Capgemini offers suitable frameworks and accelerators for all required building blocks.

Data Governance

TEAM A

DG Strategy & Organization

Data Mesh Governance

Data Discovery, Lineage & Data Cataloguing

Business Glossary & Data Dictionaries

Data Literacy & Data Culture

Data Lifecycle Management

TEAM B

Data Quality

Data Profiling

Data Quality Implementation

Data Quality Maintenance

Data Quality-as-a-Service

TEAM C

Master Data Management

MDM Advisory

MDM Implementation

Product Information Management

Reference Data Management

Master Data Process
Optimization/Outsourcing

TEAM D

Data Protection

Data Protection Strategy

Data Privacy & Compliance

Personal Information Access Management

Data Protection Organi-zation (incl. Data Mesh)

DATA GOVERNANCE OFFERING & SERVICE LINES



Data needs to be clearly understood as a business asset, with the Business empowered to take on ownership and accountability. Data domain governance will be federated, but follow corporate standards.

TEAM A Data Governance		Delivery frameworks:	Active Data Governance (banking) QuickStart Data Governance (other industries)
DG Strategy & Organization	Define and prioritize critical data domains © Prioriti with Data Trust Board and domain-centric data wor		Set up operating model and organization structure
Data Mesh Governance	Develop Data Mesh / Data Fabric strategy © Identif data ownership in hybrid multi-cloud scenarios © Er	•	·
Data Discovery, Lineage & Data Cataloguing	Gather requirements for a Data Catalog (DC) © Con DC © Discover data assets across multiple sources ©		aluation & selection © Implement and populate the eage/knowledge graph
Business Glossary & Data Dictionaries	Identify which concepts require definitions		
Data Literacy & Data Culture	Develop Data Literacy strategy across Business and Data Culture strategy with executive board	IT 🔞 Develop train	ing and awareness-raising program © Develop
Data Lifecycle Management	Develop policies and processes for data retention, of lifecycle interests	data archiving, data	a disposition 🥯 Implement tools to manage data

DATA QUALITY OFFERING & SERVICE LINES



Important data assets need to be of high completeness, conformity/validity, consistency, uniqueness, accuracy and timeliness. Measuring and improving Data Quality is an important component of any Data Governance or MDM project.

TEAM B D	ata Quality	Delivery frameworks:	DQ-as-a-Service, ProfilIT
Data Profiling Determine systems, data attributes and DQ dimensions to measure in collaboration with the Business © Build DQ scorecard © Use profiling tool to measure relevant DQ metrics © Conduct proactive profiling			
Data Quality Implementation	Select, implement and configure DQ too Quantify business benefits of DQ improv		and continuous DQ improvement requirements 💿
Data Quality Maintenance	Host regular reviews 🦁 Set up formal Iss	ue Management structures, w	orkflows and processes
Data Quality-as-a-Service	Contract and host DQ tool on client's be environment	half 🥯 Deliver DQ improvemei	nt services from Capgemini-hosted tool

MASTER DATA MANAGEMENT OFFERING & SERVICE LINES



The Business and IT collaborate in a tool-based approach towards the single source of truth for all data sets, esp. where critical master data elements originate from disparate sources.

TEAM C Master Data Management		Delivery frameworks:	Intelligent MDM, I&DENT, MDMsure, MDM-as-a-Service
MDM Advisory		🧿 Develop Product Info	data), Thing data (Product, Part, Asset, Equipment ormation Management (PIM) strategy © Develop
MDM Implementation	Design and build MDM (or PIM) architecture domain knowledge © Ensure alignment with D		operate MDM (or PIM) tool 🧐 Contribute extensive
Product Information Management	Configure PIM solution for effective online sear respond to consumer demands, omni-channel		log management, regulatory compliance, agility to provements SKU data management
Reference Data Management		ce data ③ Identify reference data and domain restrictions ⑤ Define processes to manage organization ⑥ Define Data Products (for Data Mesh)	
Master Data Process Optimization/Outsourcing	Identify MDM processes © Optimize MDM pro process outsourcing)	cesses © Business proce	ess optimization © MDM outsourcing (business

DATA PROTECTION OFFERING & SERVICE LINES



To comply with data protection, privacy and security regulation, organizations need to apply controls and processes, supported by data discovery, classification, masking and security solutions.

TEAM D Dat	a Protection
Data Protection Strategy	Conduct Data Protection (DP) Impact Assessment © Prioritize DP domains, activities and technologies © Develop DP operating model © Align departments on common DP processes © Establish DP compliance governance (monitoring & assurance) © Develop data and document classification policies
Data Privacy & Compliance	Locate personal data assets (data discovery) © Develop data subject rights, processes and tools © Develop consent management processes, incl. privacy notices, policy updates, cookies © Embed Privacy-by-Design principles into IT policies © Amend vendor contracts to comply with third-party requirements
Personal Information Access Management	Develop controls and solutions to protect systems against unauthorized access © Develop breach management and reporting processes © Develop policies for data retention, archiving, disposition, minimization, tokenization, encryption and masking, with a focus on cloud scenarios © Develop training and awareness programs © Personal Information Lifecycle Management
Data Protection Organization (incl. Data Mesh)	Implement DP organization and stewardship © Develop DP policies tailored to complex, federated data environments, e.g. Data Mesh or Data Fabric scenarios © Identify and maintain record of cross-border flows of personal data © Manage data residency requirements

MDM/DATA QUALITY VENDORS



Master Data Management





















talend

















SSAS ORACLE TIBCO Semarchy AD INITIO





















Additional MDM vendors:

- Salesforce MDM
- Winshuttle
- Viamedici

- PiLog
- Tamr
- Syniti

Additional DQ vendors:

- Syncsort
- Pitney Bowes
- Experian
- Information Builders

- Ataccama
- MIOsoft
- RedPoint Global
- Innovative Systems
- BackOffice Associates

Microsoft Azure includes Profisee Talend has stopped supporting its MDM solution Riversand now part of Syndigo

Microsoft Azure includes Profisee

DATA CATALOG VENDOR LANDSCAPE



This Capgemini deck provides a pro's and con's analysis of 30+ Data Catalog tools

Tier 1 – Strategic partnership, global footprint









Tier 2 – Global/local, partnership or working relationship





























Precisely includes Infogix, Datum, Data3sixty — Profisee now part of Microsoft Azure — Riversand now part of Syndigo — Waterline Data now Hitachi Lumada

Tier 3 – Local, opportunistic (only partially profiled in this deck)























data

































PRIME EXAMPLES / 'MEGA' CASE STUDIES ACROSS DG, DQ AND MDM



GDPR Assessment Services



NYMITY







GDPR Program Services















Data Discovery Services







Microsoft SPIRION M-Files DEDCUS

PROBLEM (Informatica: DATAGUISE IMPERVA







ORACLE"



PRIVITAR



Consent & Individual's Rights

Management Services















Pseudonymizing Services





















Sas proofpoint

















Data Protection Services





















Breach Management & Reporting Services





















GDPR Assurance Services











































Cloud Data Foundation ABCR & Data Trust Platform Foundation Migrate Insights Security & Compliance Plane **Batch Ingestion Service Ontology Studio** Teradata DWH to Snowflake Audit & Balance Data Discovery Ontology Editor ETL Code Converter & Ontology Visualization & Stream & CDC Ingestion Service Control Service Telemetry & Control Plane Complexity Analyser Collaboration Schema & Data Migration Biz Domain Knowledge Graph **API Ingestion Service** for Banking, LS, Telecom, **Reconciliation Service** Multi-Tenancy Secure Data Sharing CPRD & for Industry 4.0 **Unified Data Integration** Teradata DWH to Cloud Native Workflow Orchestration Service Serverless AI/ML Studio DW Image Annotation Service Data Discovery **Data Catalog Services Data Profiler Services** DevSecOps 2.0 (DSOP by DoD) Build-Train-Deploy on Cloud Schema & Data Migration **Native Tooling** ETL Code Analyzer & Federated Datalake Al Trust Converter **Data Quality Services Baked-in Zero-Trust Security** Management Service On Cloud Native Tooling (SCSS) Serverless LCNC Drag-n-Drop AutoML **Data Virtualization Services** Platform Metadata Knowledge Project & User Onboarding canvass for Migration Kubeflow Pipeline on Cloud Services- FIdM integration Graph

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Data Trust capabilities

DATA TRUST IN DATA MESH SCENARIOS



Data Mesh addresses the common failure modes of the traditional centralised data lake or data platform architecture, hinging on modern distributed architecture and self-serve data infrastructure

 \rightarrow It is core to enabling data collaboration & data products \leftarrow

DOMAIN-ORIENTED DECENTRALIZATION

More Limber Approach To Data Management DATA AS A PRODUCT

Product Thinking to Data SELF-SERVE DATA INFRA AS A PLATFORM

Generalist Developers Can Develop Analytical Data Products FEDERATED
COMPUTATIONAL
GOVERNANCE

Data Products Conform
To A Shared Set Of Rules



IDEA features to implement Data Mesh in our Data Platform as Code

Data Governance Methodology

3-step prioritisation process

Data Domain Criticality Assessment

Workstream Prioritisation Matrix

Iterations process with sprints and sprint cards

Data Product Templates

with the integrations to Data Trust & Infra/Financial Monitoring

Accelerators

to help abstract the technical difficulties of doing SDLC on Analytical Data Products

Capgemini



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