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Chase Extraordinary

Cure data trust issues in your cloud journey

Improve trust in your data and fast-track ~~the~~ cloud migration leveraging AI-powered Data Quality Management (DQM)

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Cloud data migration is fraught with many challenges, and the top one is ensuring **data quality**

According to **Gartner**,

75% of all databases will be deployed or migrated to the cloud by 2022.

Businesses migrating their on-premises data to the cloud want to take advantage of benefits such as greater efficiency, scalability and performance.

But achieving these benefits is very unlikely if the data being migrated is not trustworthy.

Service providers in the **Connectedness industry** often face ~~the~~ data quality challenges due to ~~the~~ legacy applications that rarely have complete, consistent, and correct data. This leads to:

- slippage of project timelines due to time consuming steps for fixing data quality issues
- flawed decision making due to incorrect information management and reporting
- poor service delivery and fault management impacting both business and end customer experience

Service providers must adopt modern Data Quality Management (DQM) solutions to make their data trustworthy.
As per Gartner report:

- By 2024, 50% of organizations will adopt modern data quality solutions to support their digital business initiatives
- By 2022, 60% of organizations will leverage Machine Learning-enabled data quality technology to reduce the manual tasks and improve the data quality

While leading service providers have started implementing modern Data Quality Management (DQM) solutions, they face various impediments in the implementation journey:

- Lack of cloud agnostic solutions for DQM
- Lack of predictive data quality to automate quality workflows
- Tools for DQM in market are expensive and limited to a particular hyperscaler
- DQM is bundled into major ETL (Extract, Transform and Load) product and not available separately
- Customization of DQM solution for business needs is time consuming due to complexity and lack of skills
- Security and regulatory compliance issues in use of 3rd party tools

> Temporary solutions or hasty fixes cannot provide the kind of data quality needed for trusted insights. If service providers want to accelerate their cloud data migration and ensure the migrated data is trustworthy, they need a holistic **data quality strategy** and an automated and robust **data quality management framework.**

Key transformation levers to improve data quality across a hybrid environment and accelerate cloud migration

01

Create a **holistic data quality strategy** to set a strong foundation

a. Setting up an **efficient data quality analysis**, **data mapping and quality monitoring** at every step in the migration data flow

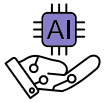
b. Ensuring a **quality-first data culture**

c. Selecting the **right DQM tool**

d. Addressing the **security and regulatory requirements**

02

Implement a **Data Quality Management (DQM) framework.** This should consist of:



AI-powered data mapping to fast-track the data ingestion process

DQM classification matrix to accelerate the discovery, implementation and support phase for data quality improvement

DQM monitoring dashboard to measure data quality trends, increase the issue fix rate and accelerate the data migration lifecycle

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By embracing these transformation levers, service providers can ensure a successful cloud migration with a 50% improvement in data quality, 80% reduction in data mapping efforts and 30% reduction in the overall data migration timelines

Create a **holistic data quality strategy** to set a strong foundation

01 02

Data Quality Challenges

Lack of centralized and modern data quality tools

Data quality is not part of the standard business practices

Sophisticated data quality tools are expensive

Lack of clarity in data ownership

Difficult to correlate between data quality issues and the impact it has on the business

Many service providers start migrating to the cloud without devoting sufficient time and attention to their data quality strategy. Successful cloud adoption and implementation requires a holistic data quality strategy to ensure the data is trustworthy, secure, and governed.

Key considerations for defining a data quality strategy

Setup efficient data quality analysis

- Understand the business context of the data during the data discovery phase
- Perform data profiling early and often in the migration lifecycle
- Define data quality standards based on DAMA-DMBOK Functional Framework
- Assess the source and target data model to identify the gaps

Instill a quality-first data culture

- Identify data ownership with well defined roles and accountability
- Establish a special interest group for data quality across ~~the~~ business and IT
- Adopt data quality needs as part of the standard business practices

Select the right DQM tool

- Choose a cost effective DQM solution aligning to the business requirements
- Embrace predictive data quality
- Monitor DQM trends regularly
- Assess, monitor and improvise data quality as data conditions change

Establish data security

- Clearly define a shared responsibility model
- Implement regulatory and customer's security compliance requirements
- Define an approach for handling sensitive data
- Enable cloud-wide logging for visibility and central monitoring

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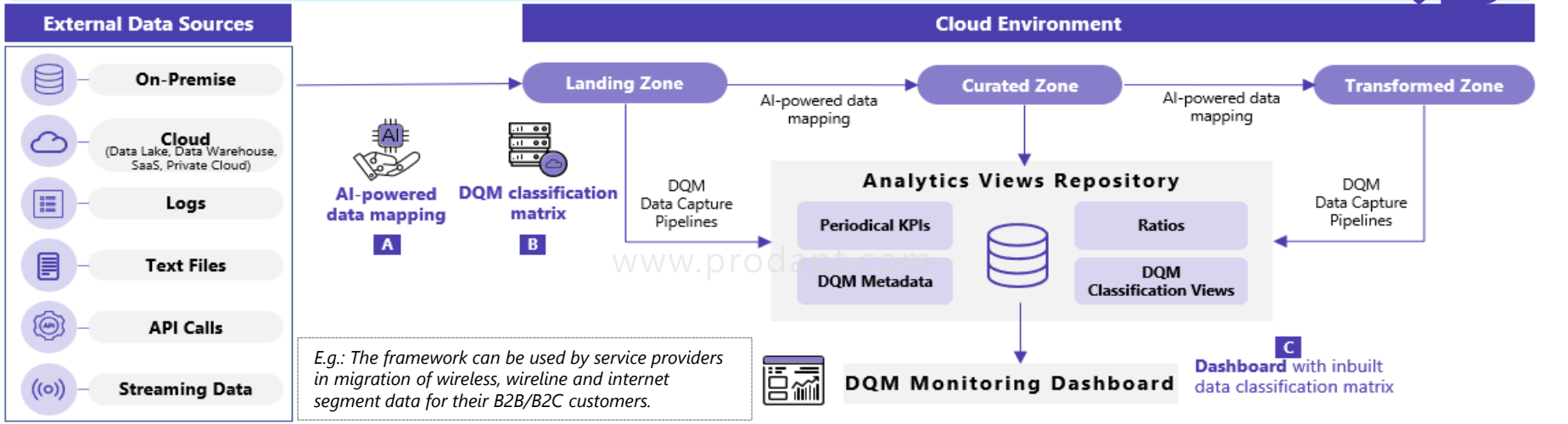
Data Quality Management (DQM) framework

Migrating millions of data from varied external data sources to the cloud environment can be complex and risky if not implemented correctly. Data mapping and data classification exercise if done manually can be very time consuming and prone to errors.
Service providers must adopt a modern DQM framework to ensure successful cloud data migration.



An efficient Data Quality Management (DQM) framework powered by the key **accelerators** can fast-track the cloud data migration

AI-powered data mapping to accelerate the data ingestion process

DQM classification matrix to accelerate the migration discovery, implementation and support phase for data quality improvement

DQM monitoring dashboard to measure the data quality trends, increase issue fix rate and accelerate the data migration lifecycle

Key characteristics of an effective DQM framework:

- Is **cloud-agnostic** and provides a **hybrid cloud support**
- Enables reuse of control tables, dashboard templates and pre-defined KPIs as it saves implementation time
- Supports **rule-based mechanism** for data quality dimension checks and has configurable reports and dashboards
- Has **role-based access control** for lists, templates, reports and dashboards to improve security compliance
- Is light weight and cost effective

AI-powered data mapping to fast-track the data ingestion process

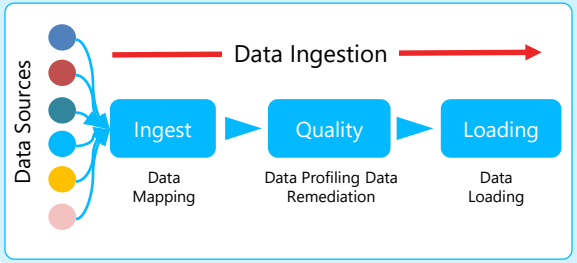
Key challenges in the data ingestion process

The '**ingestion to loading'** step of any data pipeline building activity is crucial. However, as the need for more pipeline grows, the complexities increase exponentially, resulting in a much slower implementation.

This is primarily because most processes have **repetitive and manual steps** like:

- data mapping activities
- profiling and data quality rule identification activities
- remediation rule identification activities
- creation of data loading scripts

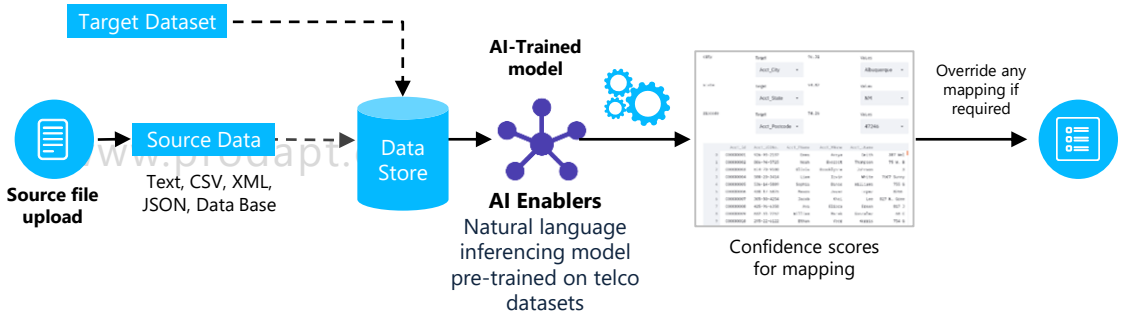
E.g., Mapping data from legacy Order Management / Billing / CRM to the new system(s) can be very time consuming and expensive manual exercise.



> A cloud-native, AI-powered data mapping approach can enable service providers to overcome these repetitive and manual steps in the data 'ingestion to loading' step and thereby, fast-track the entire data ingestion process.

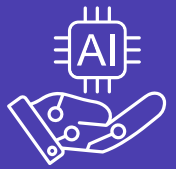
AI-powered Data Mapping

(Load the source and target dataset and auto map them using a trained AI model)



An AI-powered data mapping can accelerate the data ingestion process by **30-40%** while reducing the manual effort by more than **80%.**

For service providers, the AI-model trained with telco specific datasets will ensure that data mapping is more accurate and can give a high confidence score.



AI-powered data mapping to fast-track the data ingestion process

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Recommendations for building a cloud-native tool for AI-powered data mapping

Create a user friendly and intuitive UI for business and admin users

- Provide upload of source data from multiple options such as text, CSV, XML or JSON files through API calls
- Auto determine the format of the mapping rules, profiling rules and remediation rules
- Provide an option to select the right model for data mapping
- Override or accept mapping, exception or remediation recommendations
- Allow transformation of functions/rules
- Provide version control for the models, mappings, profiling or remediations
- Enable visualization of the recommended mappings, profiling rules or remediations along with the confidence score for the business to make the decision

Provide smart automation of actions

- Automate actions for self mapping, self remediation and self identification of rules
- Remember human actions taken e.g., overriding of rules etc., and apply the same in the next run

Provide quantifiable & measurable outcomes for decision making by displaying the following:

- Number of records automatically mapped
- Number of rules automatically identified
- Number of records automatically corrected
- KPIs to measure the confidence on recommendations

Operationalize the model for auto-mapping the data

Upon predictions from the model with the confidence scores, the migration team should be able to:

- Visualize the recommended mappings, profiling rules or remediations along with the confidence score to decide on the acceptance or rejection
- Override any mapping, if needed

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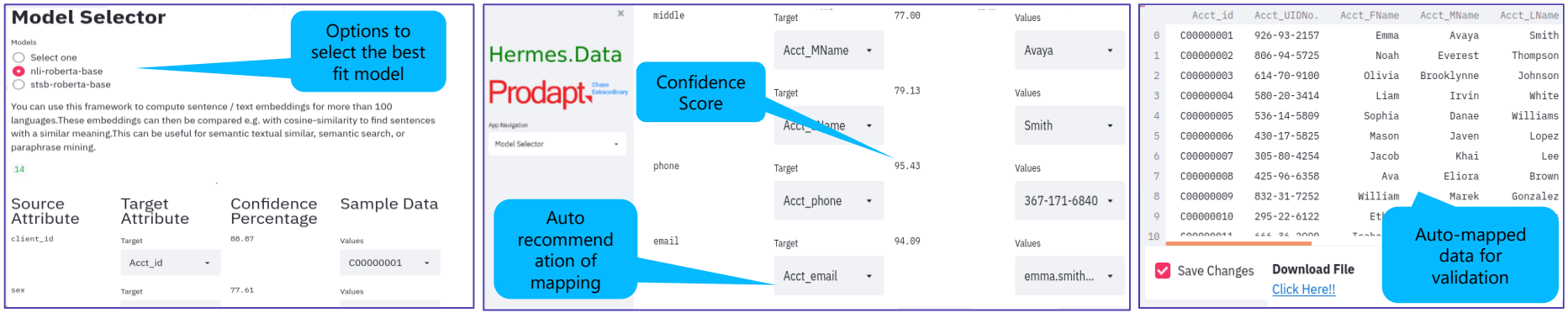
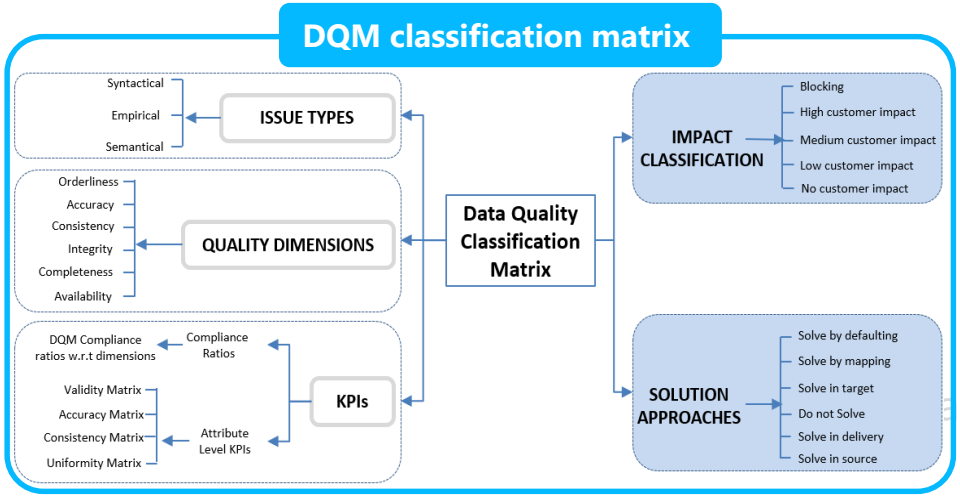


Fig: Sample representation of a cloud-native tool for AI-powered data mapping

DQM classification matrix to accelerate the discovery, implementation and support phase for data quality improvement in data migration



DQM classification matrix should be an integral part of the DQM framework to strengthen the data quality and enable faster **issue mapping, issue classification and issue prioritization** in the overall data migration process.

Benefits

- Provides standardization for data quality issue mapping
- Enables prioritization of data quality issues, thus, accelerating data migration
- Accelerates the discovery, implementation and support phase for data quality improvement in data migration
- Accelerates the issue triage process as the solution approach is pre-defined

Recommendations

Define the DQM classification matrix based on the industry data standards - DAMA (Global Data Management community) DM Book of knowledge guidelines.

- Understand the business context of the source data to define the impact classification
- Discuss and agree with stakeholders on the solution approach to fix the data quality issues (E.g., solve by defaulting, solve in source, solve in target etc.)
- Do the impact classifications upfront during the data mapping phase
- Map the issue types to data quality dimensions as this is essential to segregate the issues and score the quality
- Pre-define the KPIs to measure the data quality dimensions

DQM monitoring dashboard to visualize and measure the data quality trends, increase issue fix rate and accelerate data migration lifecycle

DQM Monitoring Dashboard

Create **DQM monitoring dashboard templates** that can be re-used in any other data migration project.

Benefits

- Improves the productivity of migration, development, testing and support teams with faster issue identification and cross verification of the issue fixes
- Provides clear visualization of the data quality issues and data quality trends to prioritize and fix the issues based on severity
- Ensures security compliance using role-based access controls and role-specific views

Recommendations

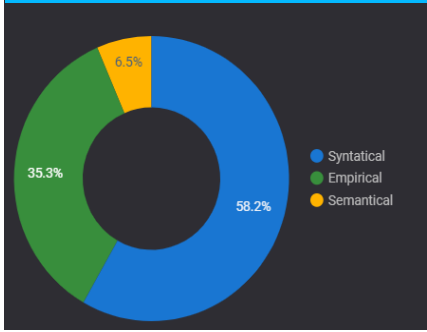
The DQM classification matrix should be pre-built into the monitoring dashboard. This provides a single holistic solution to classify the issues and monitor the data quality trends, thereby increasing the fix rate.

- **Design an analytics schema** specific to the reporting/dashboard to enhance the dashboard performance
- Dashboard design should be easily customizable as per the user requirements
- Ensure that the **template format can be replicated** into any other visualization tool, thereby accelerating the dashboard setup
- Measure the DQM KPIs defined in DQM classification matrix and see the periodical trends
- Provide **options to export and automate mailers** with reports that can be configured in backend for every users

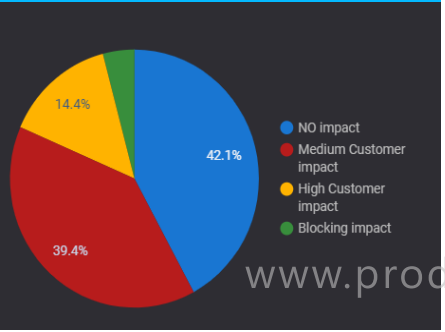
DQM monitoring dashboard – Sample images for mobile postpaid data migration to cloud

Enables the migration, business and support teams to visualize data quality issues and corresponding impacts. Thereby the teams can prioritize and fix the issues and accelerate the cloud data migration.

Issue Types Comparison



Impact Comparison



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Detailed View – Postpaid Customer

	cust_id	cust_type	cust_sts	cust_full_n...	IMSI	DQM_Types	DQM_impa...
1.	789036565...	B2B	Active	Olivia Brookl...	1234410902...	Data Complete	NO impact
2.	789036565...	B2C	Inactive	Ava Eliora Br...	null	Syntatical	Blocking imp...
3.	789036565...	B2C	Inactive	Sophia Dana...	null	Syntatical	Blocking imp...
4.	789036565...	B2B	Inactive	Jacob Khai L...	null	Syntatical	Blocking imp...
5.	789036565...	B2C	Active	Liam Irvin W...	1234410902...	Syntatical	High Custom...
6.	789036565...	B2C	Inactive	William Mare...	null	Syntatical	Blocking imp...
7.	789036565...	B2B	Active	Noah Everest...	1234410902...	Data Complete	NO impact
8.	789036565...	B2B	Active	Emma Avaya...	1234410902...	Data Complete	NO impact

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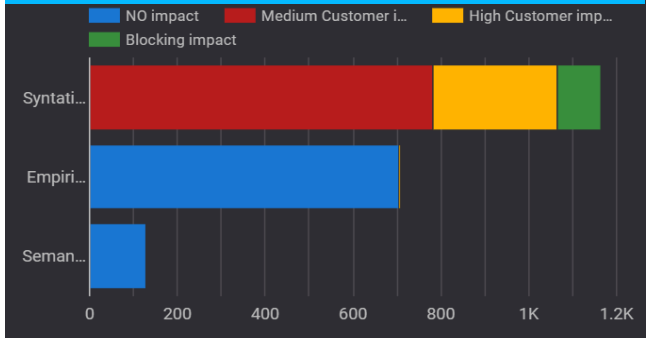
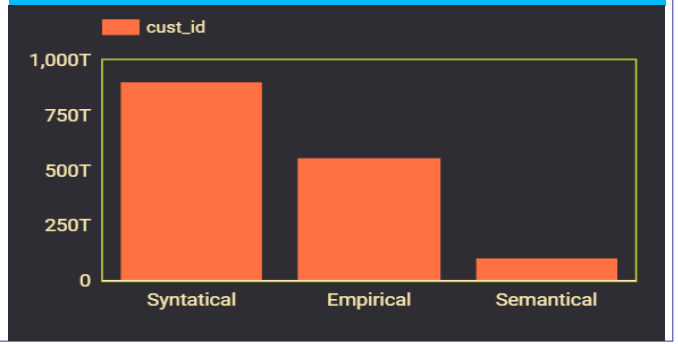
Comparison between "Issue Types" & "Impact Classification"

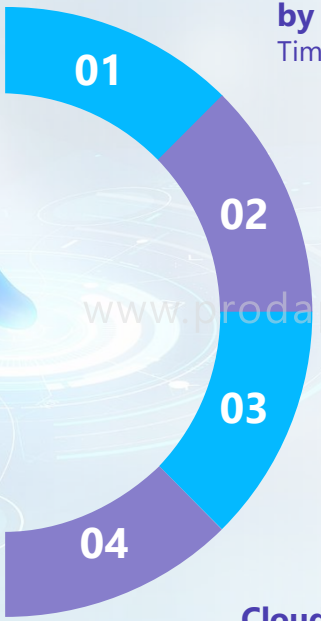


Histogram chart for Impact Classification

Histogram chart for Issue Types



Benefits achieved by a leading service provider in the US by leveraging the key transformation levers described in this insight



80% reduction in data mapping efforts by using AI-powered data mapping
Time reduction from 2 days to 2 hours

50% improvement in data quality
with automated identification of critical and high impact issues using the DQM framework

30% reduction in cloud data migration timeline
with reduction in data mapping efforts, improvement in teams productivity and improvement in overall data quality

Cloud agnostic and highly cost effective DQM solution compared to the expensive ETL-based DQM solution

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