Data Quality Management, microservices
Bad data quality implications and root cause

Good data quality is a prerequisite for operational and analytical applications

Without data quality processes...
- It is difficult to determine the right target audience for marketing campaigns
- Inaccurate information causes delayed shipments and lower customer satisfaction
- Costs are high due to account duplications, and response-rate is low
- Reporting uses wrong data – this leads to incorrect conclusions/decisions
- Sales representatives cannot able identify relevant accounts

Sources of Data Quality Problems

Based on 632 respondents who could select multiple answers. TDWI Research Survey 2006
SAP Data Quality Management, microservices embeds data cleansing and enrichment services within any business process or application with a self-service, right-sized consumption model. It is quickly deployed on many SAP applications with pre-built integration, eliminating operational complexity and infrastructure costs.

SAP is the ONLY vendor offering industry leading data quality solutions and applications. This allows SAP to provide seamless end-to-end solutions, all from one vendor.
Introducing SAP Data Quality Management, microservices
What is SAP Data Quality Management, microservices?
Data cleansing services in the Cloud

1. Address cleansing/validation, Geocoding, & Reverse Geocoding REST Services powered by SAP Cloud Platform
2. Global Solution supporting Address cleansing in 240+ countries as well as high-quality Geo capabilities in many Countries
3. Easy to Integrate RESTful services with partner/customer applications, includes integration w/ many SAP applications
4. Industry Leading Solution based on 30+ years of SAP Data Quality Management technology
5. Consumption-based pricing model, sold as a stand alone service separate from SAP Cloud Platform
Benefits of Address Cleansing and Geolocation Services

**Reduced Unnecessary Costs**
- Reduce undeliverable package fees, returned mail and possible government compliance fee’s for incorrect employee address information.

**Accurate Location Analytics**
- Correct, consistent and standardized location information will ensure accurate location analytics to make better business decisions.

**Increased customer satisfaction**
- Ensure timely delivery of packages and communications
- Provide relevant communication based on location intelligence


<table>
<thead>
<tr>
<th>Standardised City</th>
<th>City Pre standardisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad Schönborn</td>
<td>Bad Schnönborn</td>
</tr>
<tr>
<td></td>
<td>Bad Schöborn</td>
</tr>
<tr>
<td></td>
<td>Bad Schoenborn</td>
</tr>
<tr>
<td></td>
<td>Bad Schönborn</td>
</tr>
<tr>
<td></td>
<td>Bad Schönborn - Langenbrühr</td>
</tr>
<tr>
<td></td>
<td>Bad Schönborn-Langenbrück</td>
</tr>
</tbody>
</table>
### Simple example

<table>
<thead>
<tr>
<th>Address1</th>
<th>Address2</th>
<th>City</th>
<th>Region</th>
<th>Postal</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>121 Trellis Ln</td>
<td>&lt;Blank&gt;</td>
<td>escondid</td>
<td>California</td>
<td>&lt;Blank&gt;</td>
<td>USA</td>
</tr>
<tr>
<td>121 Trellis Lane</td>
<td>&lt;Blank&gt;</td>
<td>Escondido</td>
<td>&lt;Blank&gt;</td>
<td>92026</td>
<td>USA</td>
</tr>
<tr>
<td>121 trelis Ln.</td>
<td>&lt;Blank&gt;</td>
<td>Escondido</td>
<td>CA</td>
<td>92026</td>
<td>USA</td>
</tr>
</tbody>
</table>

#### SAP Data Quality Management, microservices

- Address Cleansing
- Geocoding & Reverse Geocoding
- Other Services…

<table>
<thead>
<tr>
<th>Delivery address</th>
<th>City</th>
<th>State</th>
<th>Zip</th>
<th>Zip4</th>
<th>Longitude</th>
<th>Latitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>121 Trellis Ln</td>
<td>Escondido</td>
<td>CA</td>
<td>92026</td>
<td>2078</td>
<td>-117.09002</td>
<td>33.14502399</td>
</tr>
<tr>
<td>121 Trellis Ln</td>
<td>Escondido</td>
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<td>33.14502399</td>
</tr>
</tbody>
</table>

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SAP solutions for Enterprise Information Management
Information ready for action

Analytics
Big Data & IoT

Business Processes
Compliance

Govern
Integration
Data Quality Management
Master Data Management
Content Management
Information Lifecycle Management
Data Integration
Data Discovery

Cleanse & Monitor

Understand

Manage

Associate

Archive
Data Quality solutions from SAP

- **SAP HANA**, smart data quality
- **SAP Data Services**
- **Agile Data Preparation**
- **Information Steward**
- **Data Quality Management, microservices**

Diagram:
- Data Quality
  - Match
  - Enhance
  - Validate/Correct
  - Standardize
  - Parse
  - Analyze
  - Measure
  - Consolidate
  - Continuous Monitoring

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SAP Cloud Platform
The enterprise capabilities you need to succeed in the cloud

Collaboration  User Experience  Integration  Internet of Things  Analytics

Security  Mobile  Data & Storage  Business Services  Dev & Ops
Why address cleansing and validation?
Does this look like a valid address?

6 St. Andrews Court
Thame OX9 3GG
What if we can …

Identify, add missing elements, correct and normalize address data?
Basic feature: Geocoding

Geocoding is the process of finding associated **geographic coordinates (latitude/longitude)** from other geographic data such as **street addresses** or **postal codes**

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>800 Main St, La Crosse, WI, 54601</td>
<td>43.81162, -91.24488</td>
</tr>
</tbody>
</table>

Cascade Geo assignments:
Find the best coordinate for an address, in the following sequence:

1. Primary Number Exact (Parcel)
2. Primary Number Interpolated
3. Postcode / Locality Centroid
**Basic feature: Reverse geocoding**

**Reverse Geocoding** is finding a street address from geographic coordinates

<table>
<thead>
<tr>
<th>Input</th>
<th>43.81162, -91.24488</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td></td>
</tr>
<tr>
<td>800 Main St, La Crosse, WI, 54601, La Crosse Public Library, 0km</td>
<td></td>
</tr>
<tr>
<td>800-899 Main St, La Crosse, WI, 54601, 0.0009km</td>
<td></td>
</tr>
<tr>
<td>801 Main St, La Crosse, WI, 54601, 0.0032km</td>
<td></td>
</tr>
<tr>
<td>820 Main St, La Crosse, WI, 54601, 0.0314km</td>
<td></td>
</tr>
</tbody>
</table>
SAP Data Quality Management, microservices

Two components

1. “Web Service” API – HTTPS/JSON
2. Web-based user interface (optional, does not apply to reverse geocoding)
Address cleansing maturity at SAP – Postal Certifications
Proven and trusted solution (30+ years experience, Firstlogic/BusinessObjects technology)

SAP Data Quality Solutions have held major Postal Certifications since their inception
SAP is one of very few vendors that hold these 5 postal certifications
SAP Cloud Platform Data Center Build-Out with Data Quality Management, microservices current support

<table>
<thead>
<tr>
<th>Region/Location</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashburn, NA</td>
<td>operational</td>
</tr>
<tr>
<td>Phoenix, NA</td>
<td>operational</td>
</tr>
<tr>
<td>Amsterdam, EU</td>
<td>operational</td>
</tr>
<tr>
<td>Rot, EU</td>
<td>operational</td>
</tr>
<tr>
<td>Sydney, ANZ</td>
<td>operational</td>
</tr>
<tr>
<td>Tokyo, APJ</td>
<td>operational</td>
</tr>
<tr>
<td>Shanghai, APJ</td>
<td>operational</td>
</tr>
<tr>
<td>Dubai, EMEA</td>
<td>Q3/2017</td>
</tr>
<tr>
<td>Moscow, Asia</td>
<td>Q3/2017</td>
</tr>
<tr>
<td>Toronto, NA</td>
<td>Q3/2017</td>
</tr>
<tr>
<td>Sao Paulo, LATAM</td>
<td>Q4/2017</td>
</tr>
<tr>
<td>AWS, EU</td>
<td>operational</td>
</tr>
<tr>
<td>AWS, NA</td>
<td>operational</td>
</tr>
<tr>
<td>Azure, NA (beta)</td>
<td>operational</td>
</tr>
</tbody>
</table>

DQM, microservices only available in St. Leon-Rot initially. Inquire about other data centers.

Disclaimer: Dates are subject to change and considerable delays may be introduced due to unforeseen circumstances.
1) BETA, 2) planned innovations / future direction

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Current Integration Scenarios Supported

SAP Data Services
SAP Hybris Cloud for Customer
SAP Business Suite and S/4HANA (On-premises and Private Cloud)
Common Use Scenarios

Extend SAP Data Services

- Simplify use of address cleansing/geocoding
- Hybrid use of on-premises and DQM, microservices to maximize value

Data Quality Firewall

- Pre-built integrations with SAP Applications
- Customer integrations with non-SAP Applications

Provides Extended Data Quality Capabilities

Clean and Accurate Data at Point of Entry
Data Quality Management, microservices
Integration with SAP Data Services

1. (Optionally) Model configuration for use with Data Services

2. Model dataflow to process data through DQM, microservices

3. Execute data services job

Data Services 4.2 SP08
- New data quality management, microservices transform
- Address cleansing & geolocation services
- Real-time and batch processing
- Hybrid model also supported: Combining on-premises processing of some countries, and processing others through the microservices
Data Quality Management, microservices
Integration with SAP Data Services

New Data Services Data Store
Type “SAP DQM microservices”

- Configure URL to DQM, microservices for your specific account
- Configure other connection information – authentication, proxy, SSL, …
SAP Hybris Cloud for Customer Integration (NEW in 1705)

- With SAP Hybris Cloud for Customer 1705 release we offer an out of box integration with SAP DQM, microservice
- New action on accounts quick create and detail view to validate / standardize / geo-code addresses
- SAP Data Quality Management, microservices must be licensed to enable capability
SAP Hybris Cloud for Customer Integration (NEW in 1705)

Incomplete Address entered

Validated Address returned to fields
Data Quality Management, version for SAP (ABAP Add-on)

- Create a real-time Data Quality firewall to enable trusted data from entry to reporting
- ABAP Add-on included with Data Quality Management, microservices

Instant savings on business and IT costs by:

- Improving productivity through use of native UI and data entry validation
- Reducing redundant work and manual data cleansing downstream
Example address cleansing from Business Suite and S/4HANA integration
Automatically completes and corrects entries, then presents to user for approval

Incomplete Address entered

Compared Original and Validated Addresses

Validated Address returned to fields
Example address cleansing from Business Suite and S/4HANA integration
Presents Suggested Correct Addresses if input results an ambiguous match
Example address cleansing from Business Suite and S/4HANA integration

Then presents the selection to the user for approval

Compared Original and Validated Addresses

Validated Address returned to fields
Summary
Why SAP Data Quality Management, microservices?
Simple consumption of core data quality services

- Includes integrations with many SAP Applications
- Simple to consume via the Cloud
- Global solution
- Trusted vendor with 30+ years experience in address cleansing and geocoding
- Consumption-based pricing

SAP Data Quality Management, microservices embeds data cleansing and enrichment services within any business process or application with a self-service, right-sized consumption model

Simple Consumption
Pre-built Integrations
Consumption-based Licensing
Summary

Benefits
- Simple
- Prebuilt Integrations
- Consumption-based pricing
- Mature Solution
- Strong partnerships

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