

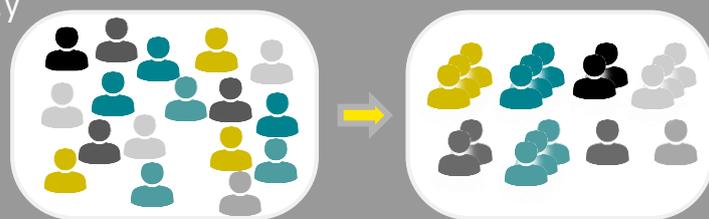
# EY Entity Resolution

## Harmonize your customer data



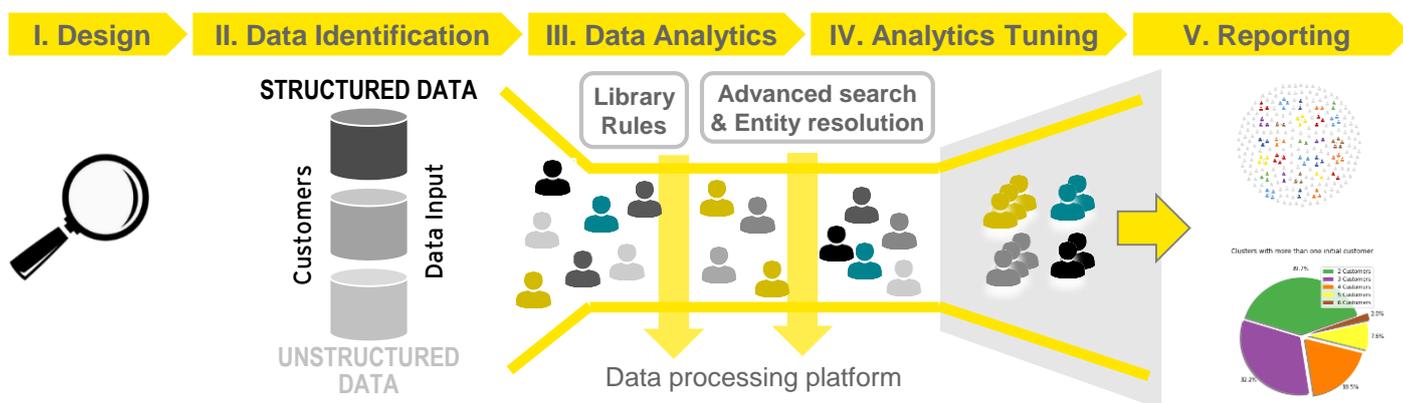
EY Entity Resolution: a solution to identify in customer data, different digital representations of the same real-world entity

Customer relationship management systems may contain incomplete, redundant or inconsistent customer information. This can increase the financial, reputational, compliance, corporate integrity risks of your company.



	Data Issues	Risks
FATCA - AEI regulation	<ul style="list-style-type: none"> <li>▶ Redundant datasets do not allow to retrieve the full information on the customers</li> <li>▶ The identification of red flags/indicia and the calculation of aggregate values are inaccurate</li> </ul>	<ul style="list-style-type: none"> <li>▶ Potential regulatory driven investigation or audits due to under-/over-reporting of customers</li> </ul>
GDPR	<ul style="list-style-type: none"> <li>▶ During a data subject request, not all records regarding the same customer are identified in the customer data, which leads to a potential non-compliance</li> </ul>	<ul style="list-style-type: none"> <li>▶ Administrative fines up to €20 million or 4% of annual turnover, based on GDPR standards</li> </ul>
Know Your Customer	<ul style="list-style-type: none"> <li>▶ Only partial information on the customer can be identified and the KYC analysis is performed on the "wrong" customer</li> </ul>	<ul style="list-style-type: none"> <li>▶ Onboarding of customers which are involved in financial crime activities</li> </ul>
Performance improvement	<ul style="list-style-type: none"> <li>▶ KPI's and statistics on customers are affected by overcounting of customers with multiple records</li> <li>▶ The redundancy of the dataset leads to re-performing the same action multiple times</li> </ul>	<ul style="list-style-type: none"> <li>▶ Potential wrong management decisions</li> <li>▶ Loss of time/resources on operations (e.g. customer outreach)</li> </ul>

▶ Proposed methodology for data harmonization



## Data input

A large variety of information can be used from the data to resolve entities, such as

- ▶ First name, Last name, Middle name / Company name
- ▶ Date or Place of birth / Date or Place of registration
- ▶ Address, Town, Phone number, Email
- ▶ ID number, Passport number / Company registration number

## Visual example

From a customer dataset, we need to identify the customers with at least two accounts. From the simplified data below, it is possible to identify only C04 as having at least two accounts.

ID	First Name	Last Name	Birthdate	Town	Accounts	New ID
C01	James M.	Smith	01.05.2000	Geneva	A01	EY01
C02	John	Smith	01.01.2001		A02	EY02
C03	Johnny	Smith	01.01.2001	Zürich	A03	EY02
C04	Jane	Doe	01.02.2002	Bern	A04, A05	EY03
C05	Jane	Doe		Berne	A06	EY03

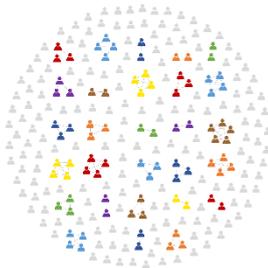
After performing an entity resolution, two customer pairs are matched. This brings the following benefits:

- ▶ C02 is matched to C03 and considered as a unique customer having two accounts, therefore it falls within the scope of the search.
- ▶ The completeness of the information is improved, as it is now possible to associate a town to the customer linked to A02 and a birthdate to the customer linked to A06.



## Output

Duplicate customers linked to the same real-world customer are identified and grouped in clusters.



## Case studies

The technique was applied to different tasks in different industries

- ▶ **Deduplication: Insurance sector**  
Improvement of the accuracy of aggregated numbers and statistics regarding amounts and customers. From an initial data set of 25'000 customers, 10% duplicates were found and 5% additional policies to be reported to regulators.
- ▶ **Record Linkage: Life Science sector**  
Improvement of the identification of customer names in a target list. In this case, the matching is not performed on duplicate entries of a single data source, but on distinct entries of two different data sources. As a result, 6% of relevant names from the target list could be additionally linked to a population of 8'000 customers.

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