



LEVERAGING AI/ML BASED STEWARDSHIP TO ENABLE ROBUST CUSTOMER MASTER DATA

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Pradeep is a Principal Consultant Data Scientist at D Cube's India office. He brings close to 12+ years of pure play analytics and data science experience across various industries like Pharma, Hospitality, Telecom and Retail. He has expertise in laying out complete analytical roadmap for the business. He has extensive knowledge of developing machine learning solutions to help support client in their decision making and process automation.

1. **Introduction – Overview of Stewardship**



2. The Need (Use cases and Why Automation)



3. Solution Approach

A. Intelligent Automation Framework



B. Configurable Enrichment



C. Intelligent Matching and scoring



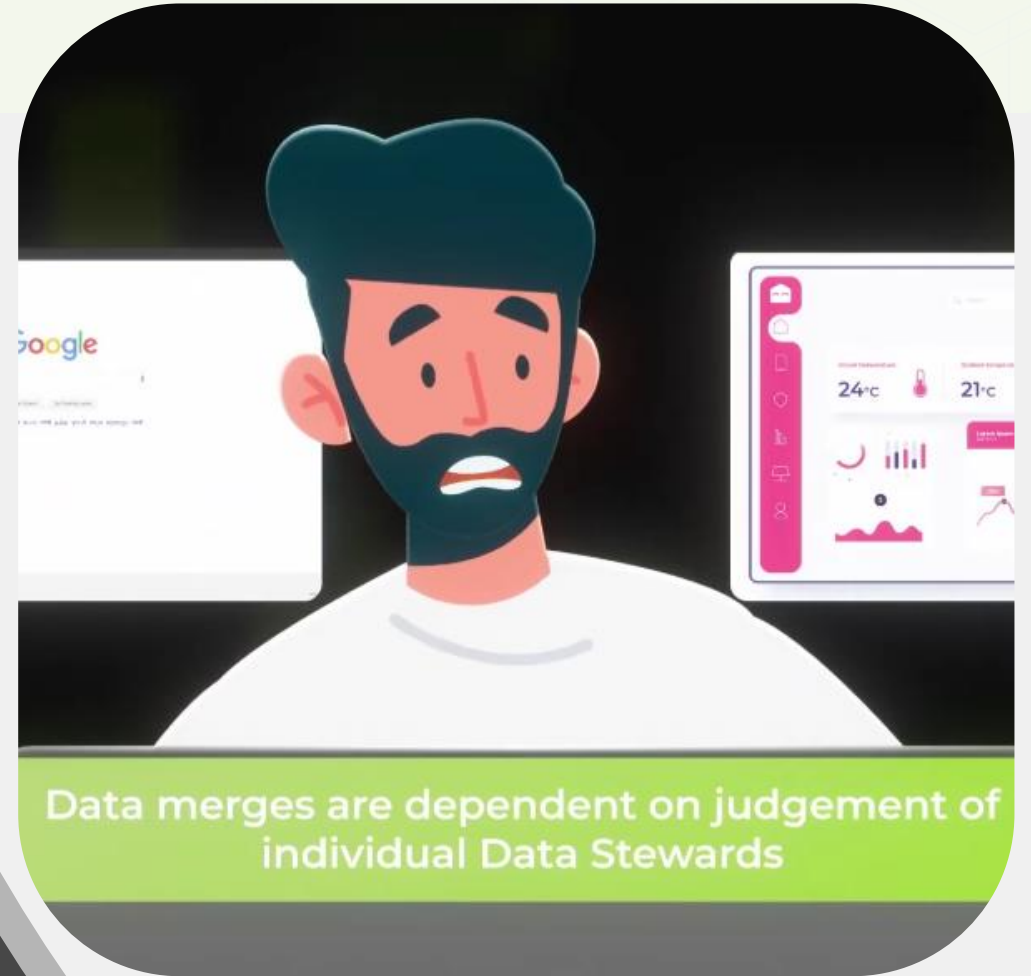
D. Consumption



4. Conclusion



TO ENSURE THE ACCURACY
AND ACCOUNTABILITY OF
THE MASTER DATA,
DATA STEWARDS SPEND
DISPROPORTIONATE TIME
AND EFFORT








Data Steward

Accountable for institutional or personal data within their functional area, including the protection of data assets that result in high quality data that are clearly accessible and consumable

Data Source Responsibilities

- 01** Has clear and unambiguous Data Element Definition
- 02** Does not have conflict with other Data Elements (Duplicate, outdated record Removal)
- 03** Usage Consistency across functions and applications
- 04** Is it still being used? (Remove unused data elements)
- 05** Has clear enumerations and usage documentation for the data elements

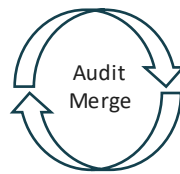
Data Stewardship Activities (With potential to automate)

- 01**  Audit merges while publishing the master data
- 02**  Data change requests from external partners
- 03**  Removal of duplicate, obsolete and outdated records



To make any successful marketing and customer engagement efforts, the first step is to have a well stitched Customer Master data with rich and accurate attributions. The conventional MDM Systems have certain Fuzzy match capabilities, however they still need significant Human Data Stewardship to audit merges and publish the master data.

Use Case 1



Manual Lookup and Decision Making

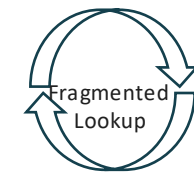
- MDM Lookup (Missed out from fuzzy logic)
- Corrected names/patterns
- Google Search, Address verification
- External Websites

Provider Master

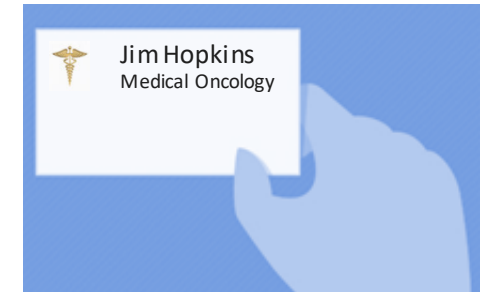
Key	Name	Speciality	Provider ID
HCP1	John Hopkins	Radiation Oncology	N10299099
HCP2	James Hopkins	Psychiatry	H10946733
HCP3	James Popkin	Nurse Practitioner	N97848383
HCP4	James H	Radiation Oncology	N98392839

ILLUSTRATIVE

Specialty Code	Type Code	Specialty	Type	Description	l_id	street	city	state	zip_cod
23	2022	Sleep Medicine	Physician (M.D. or D.O.) Group Physician (Multiple Physician Practice)			807 Grandrose Ave.	Yonkers	NY	10701
						26 Market Drive	Forest Hills	NY	11375
						60 Myers Dr.	Amityville	NY	11701
						9782 Indian Spring Lane	Hartlingen	TX	78552
24	2022	Plastic Surgery (Reconstructive Surgery)	Physician (M.D. or D.O.) Group Physician (Multiple Physician Practice)			167 James St.	Los Banos	CA	93635
						755 East Henry Lane	Central Islip	NY	11722
25	2022	Physical Medicine and Rehabilitation (Physiatrist)	Physician (M.D. or D.O.) Group Physician (Multiple Physician Practice)			8165 Baker Ave.	Franklin Square	NY	11010
						669 S. Gartner Street	San Pablo	CA	94806
26	2022	Psychiatry	Physician (M.D. or D.O.) Group Physician (Multiple Physician Practice)			683 West Kirkland Dr.	East Northport	NY	11731
						104 Medical Park	Northport	NY	11761
27	2022	Radiation Oncology	Physician (M.D. or D.O.) Group Physician (Multiple Physician Practice)						



Use Case 2



Manual Lookup and Decision Making

- Social (Additional info)
- Corrected names/patterns
- Google Search, Address verification
- External Websites

Please note: Examples shown in the slides are for illustrative purposes only and have no relationship with real world data.

SUBJECTIVITY IN ANALYSIS AND DECISION MAKING - ILLUSTRATION



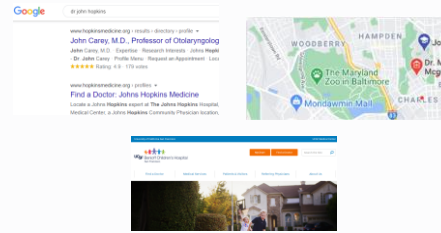
Master Data Management



MDM fuzzy lookup output provides the list of potential matches



Google and Maps search



Steward 1 looks up the potential matches in google/external websites/address proximity and finds out a small correction in name gives accurate results



External Provider Source



Steward 1 uses the corrected name to lookup in external provider sources and finds supporting evidence for merge decision.



Master Data Management



MDM fuzzy lookup output provides the list of potential matches



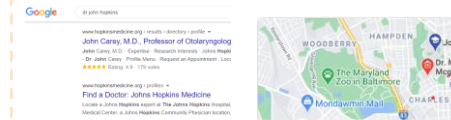
External Provider Source



Steward 2 looks up the potential match records in external provider websites and gets multiple matches.



Google and Maps search



Steward 2 performs additional analysis on the results from previous step and concludes no matching record available in MDM





Manual Stewardship Activities



Manual & Internet based search



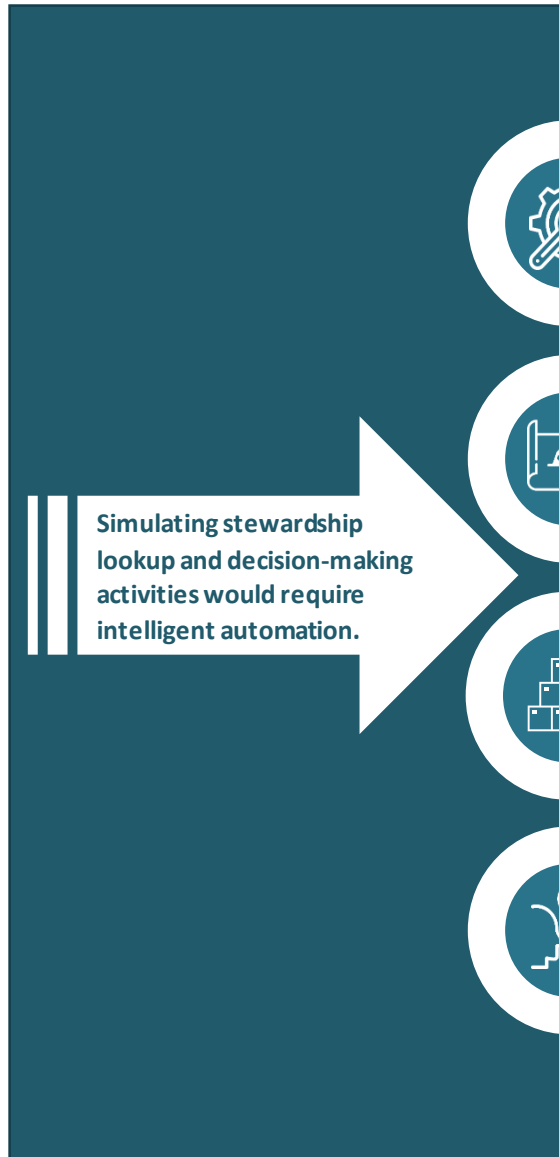
Human judgement-based Stewardship



Skillset based Scale-up



Time spent on Recurring Patterns



How Automation Helps

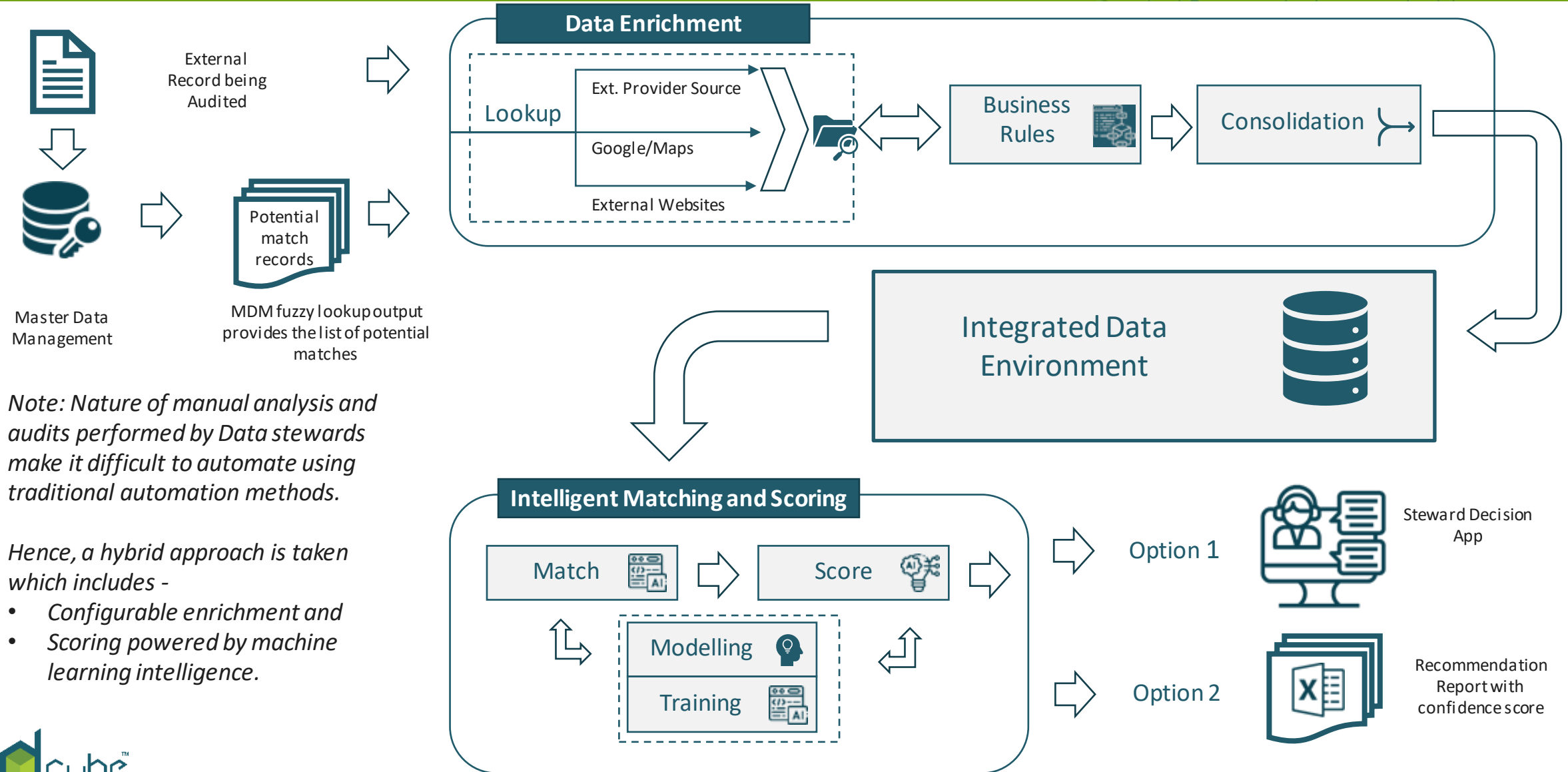
Configurable & Streamlined Lookups

AI/ML Powered Recommendations

Reduced Skillset Dependency

Model Training on Recurring Patterns

INTELLIGENT AUTOMATION FRAMEWORK



Note: Nature of manual analysis and audits performed by Data stewards make it difficult to automate using traditional automation methods.

Hence, a hybrid approach is taken which includes -

- Configurable enrichment and
- Scoring powered by machine learning intelligence.





01

IDENTIFY AND BASELINE SOURCES

Utilize FAIR principles to baseline sources and facilitate data access more systematically.

- **Findability:** Data Sources should be described, identified and registered or indexed in a clear and unequivocal manner
- **Accessibility:** Data Sources should be accessible through a clearly defined access procedure
- **Interoperability:** Extraction procedure is expressed and structured using common, published standards
- **Reusability:** Characteristics of data and their provenance are described in detail according to pharma - relevant standards

02

EMPIRICAL ANALYSIS – IDENTIFICATION OF RULES

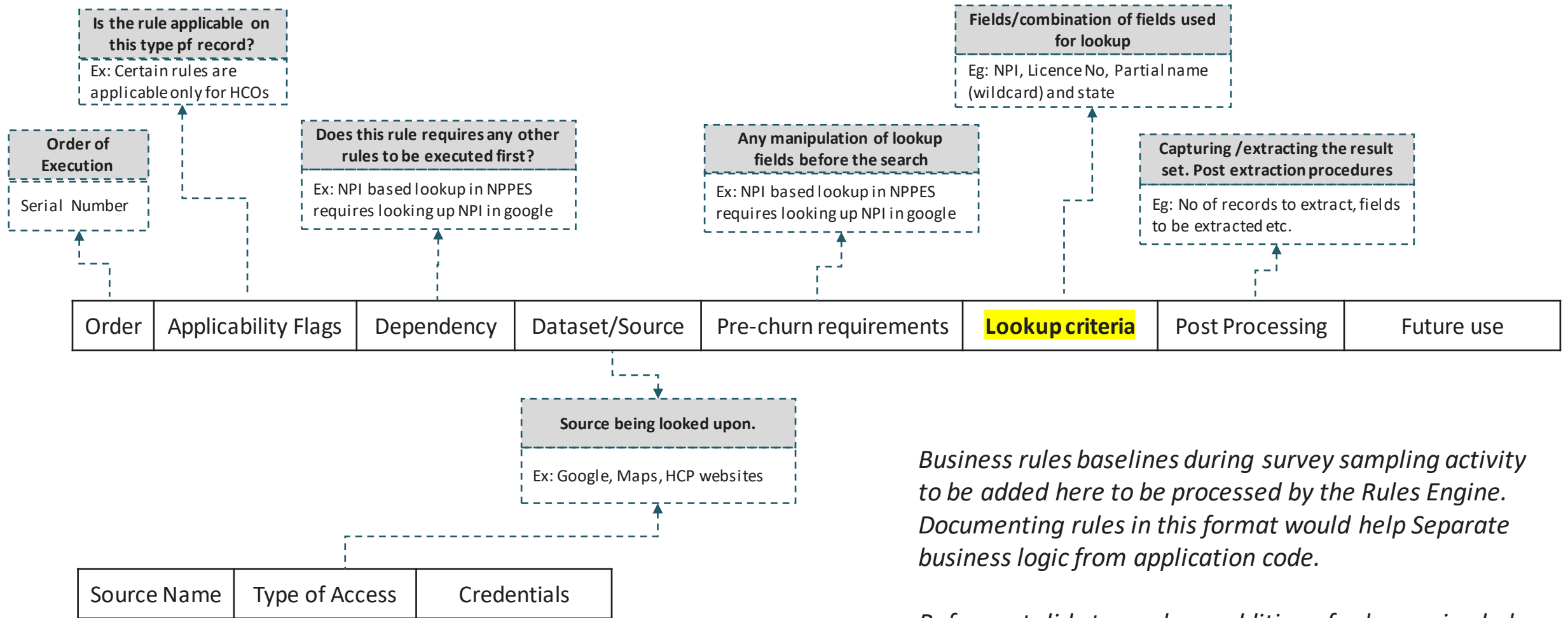
Identify sizable sample and run the manual process through various analysis+ churning+ lookup combinations. Activity performed with “above threshold” degree of success + “above threshold” success probability on samples and groups will be added as a rule.

03

BASELINE BUSINESS RULES

- Document the rule in the Rule Repository (Detailed in next slide)
- Access type, Authentication and Authorization methods
- Filter sensitive information like PII, PHI etc

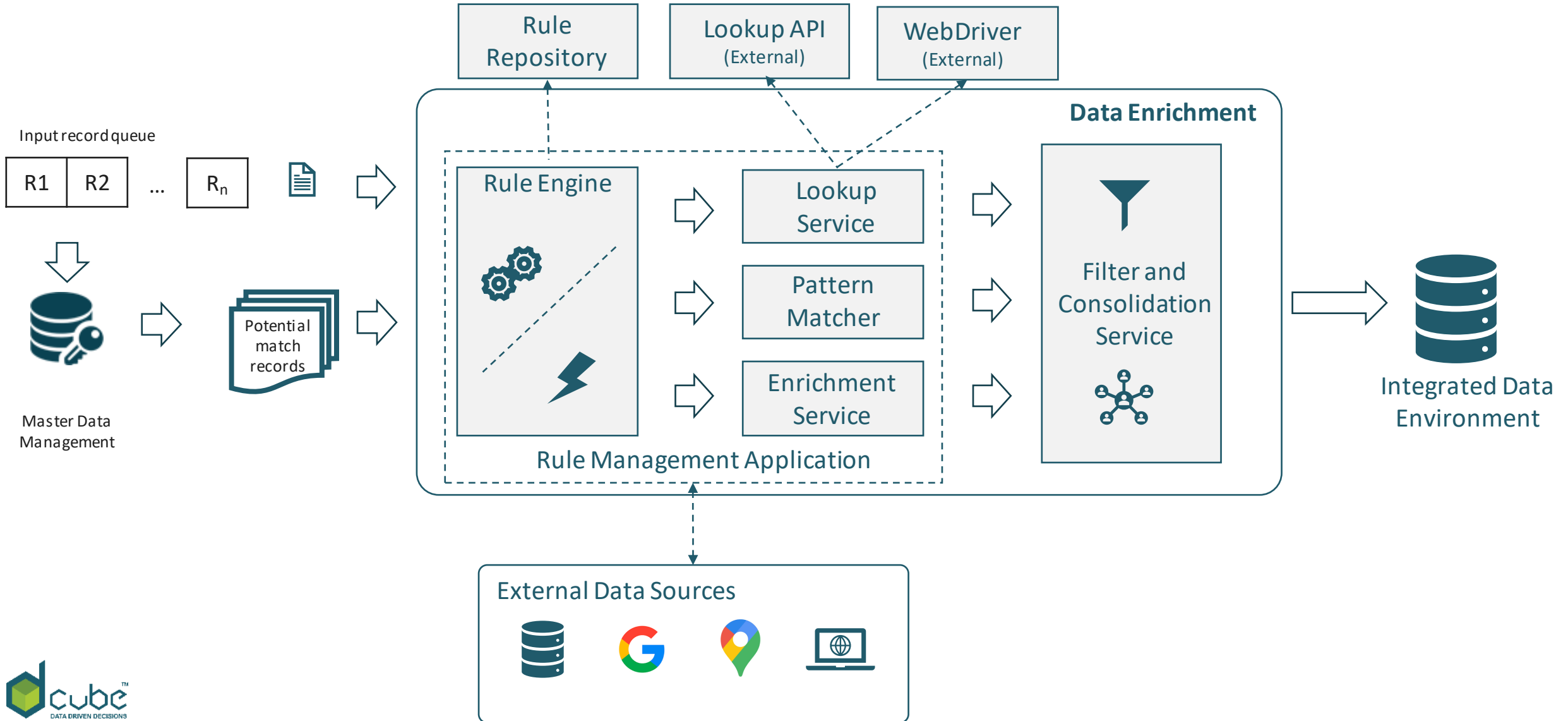
DATA ENRICHMENT RULES REPOSITORY – CONFIGURING LOOKUPS

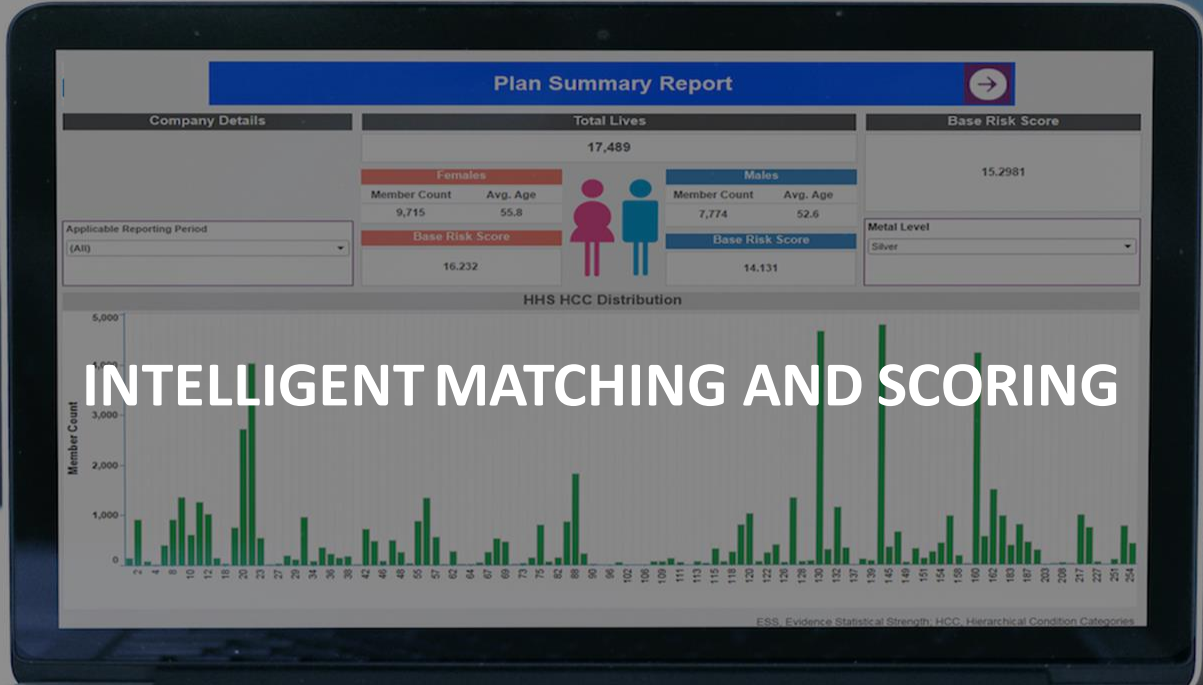


Business rules baselines during survey sampling activity to be added here to be processed by the Rules Engine. Documenting rules in this format would help Separate business logic from application code.

Refer next slide to see how addition of rules engine helps the Data Enrichment activity.

RULE ENGINE DURING DATA ENRICHMENT



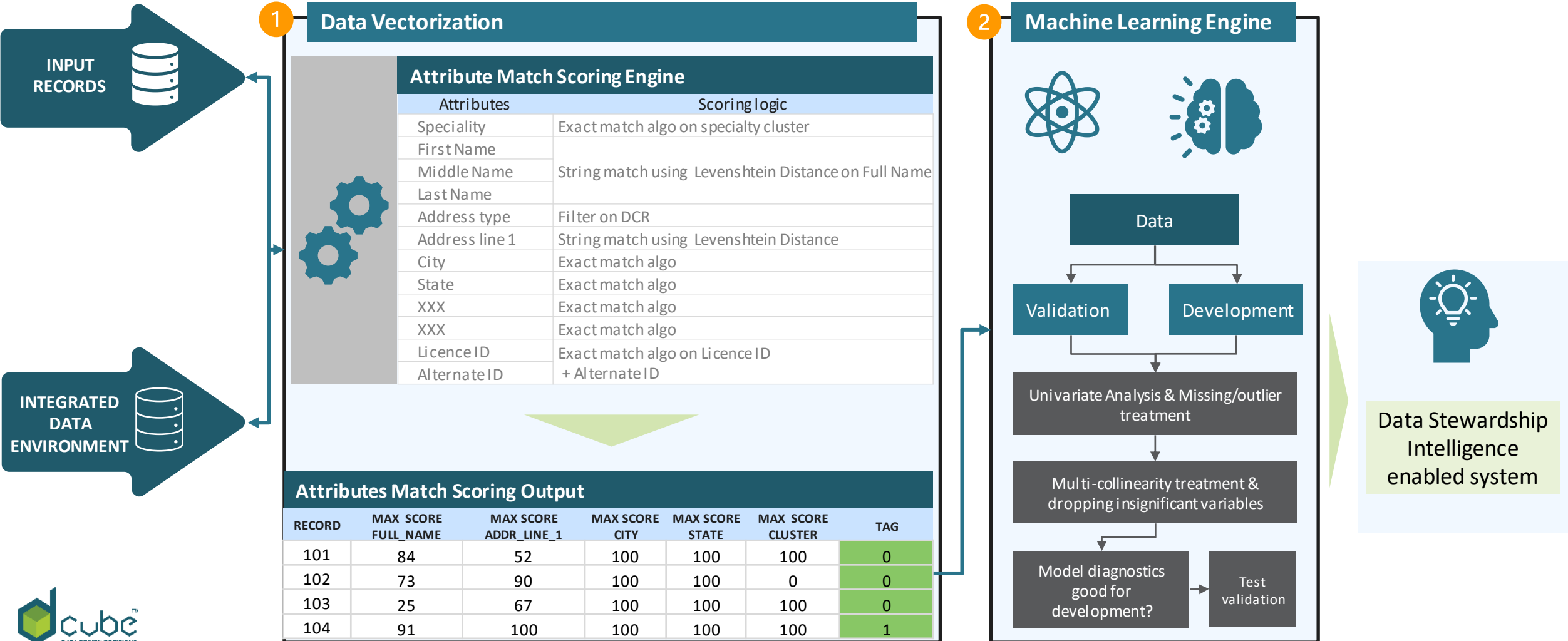


INTELLIGENT MATCHING AND SCORING





Mechanics to mimic data steward's intelligence using Machine Learning



ATTRIBUTE LEVEL SCORING - ZOOM IN VIEW



Attributes Considered	Scoring logic
SPCLTY	Exact match algorithm on specialty cluster
FIRST NAME	String match using Levenshtein Distance on Full Name
MIDDLE NAME	
LAST NAME	
ADDRESS TYPE		Filter on DCR
ADDRESS LINE	String match using Levenshtein Distance
CITY	Exact match algorithm
STATE	Exact match algorithm
ALTERNATE ID	Exact match algorithm
ALTERNATE ID TYPE	Exact match algorithm
Lat/Long Distance	Distance between locations
STATE LICENCE NUMBER	Exact match algorithm on STATE LICENCE NUMBER + SLN STATE CODE
SLN STATE CODE	

For each customer, scores are generated for all its attribute values and **Max score** is considered as final score for that attribute. i.e. for illustrative customer **12345678**, 3 cities are Fostoria, Findlay and Lima, but Lima has 100 % match and hence 100 is final score considered for city for the customer. Similarly for other attributes

Illustrative of attributes level scores

RECORD TYPE	PARTY_ID	CUSTOMER_ID	SPCLTY_1	SPCLTY_1 SCORE	FULL NAME	FULL NAME SCORE	ADDR_LINE_1	ADDR_LINE_1 SCORE	CITY	CITY SCORE	STATE	STATE SCORE	ALT_ID	ALT_ID SCORE	ALT_ID_TYPE	ALT_ID_TYPE SCORE	SLN	SLN SCORE	SLN_STATE_CD	SLN_STATE_CD SCORE
CR	12345678	12345678	GP		JON DOE		25 S CABLE RD		LIMA		OH									
DR	12345678	7896543	PHR	100	JON DOE TIN	83	126 W HIGH ST	56	FOSTORIA	45	OH	100	7094333	0	IMS_PRESCRIBER_ID	0	0	0	0	
DR	12345678	7896543	PHR	100	JON DOE TIN	83	15885 WOLF RUN	63	FINDLAY	63	OH	100	7094333	0	IMS_PRESCRIBER_ID	0	0	0	0	
DR	12345678	7896543	PHR	100	JON DOE TIN	83	126 W HIGH ST	56	FOSTORIA	45	OH	100	1655342	0	HCE_ID	0	4777	0	OH	0
DR	12345678	7896543	PHR	100	JON DOE TIN	83	126 W HIGH ST	56	FOSTORIA	45	OH	100	1467988	0	NPI	0	4777	0	OH	0
DR	12345678	7896543	PHR	100	JON DOE TIN	83	15885 WOLF RUN	63	FINDLAY	63	OH	100	1655342	0	HCE_ID	0	4777	0	OH	0
DR	12345678	7896543	PHR	100	JON DOE TIN	83	15885 WOLF RUN	63	FINDLAY	63	OH	100	1467988	0	NPI	0	4777	0	OH	0
DR	12345678	7896543	PHR	100	JON DOE TIN	83	123 W HIGH ST	56	FOSTORIA	45	OH	100	1655342	0	HCE_ID	0	4777	0	OH	0
DR	12345678	7896543	PHR	100	JON DOE TIN	83	123 W HIGH ST	56	FOSTORIA	45	OH	100	1467988	0	NPI	0	4777	0	OH	0
DR	12345678	7896543	PHR	100	JON DOE TIN	83	25 S CABLE RD	100	LIMA	100	OH	100	1655342	0	HCE_ID	0	4777	0	OH	0
DR	12345678	7896543	PHR	100	JON DOE TIN	83	25 S CABLE RD	100	LIMA	100	OH	100	1467988	0	NPI	0	4777	0	OH	0
Final Score considered is Max value				100		83		100		100		100		0		0		0		0

Single customer with multiple attributes value

CR : Current Record ; DR : Database Record

Please note: Examples shown in the slides are for illustrative purposes only and have no relationship with real world data.



WHY WE NEED A DEEPER THINKING BEFORE DEFINING ANY MATCH RULE ?

Sample rules for developing attribute matching score

Name Matching

First Name	Middle Name	Last Name
John		Doe

First Name	Middle Name	Last Name
John	Smith	Doe
John	Doe	
Doe		John

Below observations recorded in the name columns :-

- Last name is in the Middle name column
- First Name Last name interchanged
- First Name missing while middle and last name populated

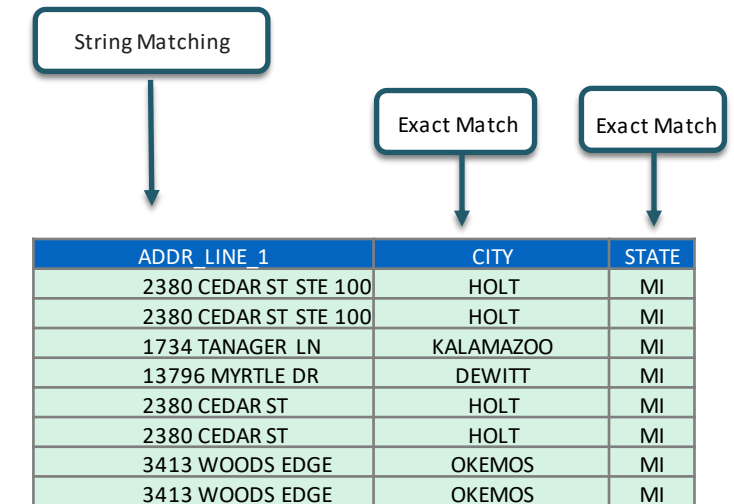
Specialty Matching

Exhaustive upcoding has been done for handling Specialty and given a code

CODE	SPECIALTY_CODE_DESCRIPTION
PSH	PSH - PLASTIC SURGERY WITHIN THE HEAD & NECK
PSM	PSM - SPORTS MEDICINE (PEDIATRICS)
PSO	PSO - PLASTIC SURGERY WITHIN HEAD & NECK (OTO)
PUD	PUD - PULMONARY DISEASE
PYA	PYA - PSYCHOANALYSIS
⋮	
REN	REN - REPRODUCTIVE ENDOCRINOLOGY & INFERTILITY
RHU	RHU - RHEUMATOLOGY

Exact match approach is used for specialty match

Address Matching



Exact match or String Level match approach is used as per the address part

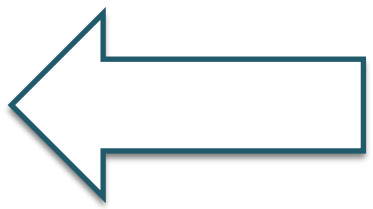
DOES MATCH SCORE SOLELY SOLVES THE PURPOSE ?

	CUSTOMER_ID	SPCLTY_1	SPCLTY SCORE	FULL NAME	FULL NAME SCORE	ADDRESSLINE 1	ADDR_LINE_1 SCORE	CITY	CITY SCORE	STATE	STATE SCORE	
CR	12345678	GP		JON DOE		25 S CABLE RD		LIMA		OH		
	7896543	PHR	100	JON DOE	100	25 W RDA ST	65	LIMA	100	OH	100	Total Score Option 1
Integrated Data	6896541	PHR	100	JON DOE TIN	83	15885 WOLF RUN	63	FINDLAY	63	OH	100	465
	4896542	PHR	100	JON DOE TIN	83	126 W HIGH ST	56	FOSTORIA	45	OH	100	
	5896543	PHR	100	JON DOE TIN	83	126 W HIGH ST	56	FOSTORIA	45	OH	100	
	9896544	PHR	100	JON DOE TIN	83	15885 WOLF RUN	63	FINDLAY	63	OH	100	
	3896545	PHR	100	JON DOE TIN	83	15885 WOLF RUN	63	FINDLAY	63	OH	100	
	2896546	PHR	100	JON DOE TIN	83	123 W HIGH ST	56	FOSTORIA	45	OH	100	
	1896547	PHR	100	JON DOE TIN	83	123 W HIGH ST	56	FOSTORIA	45	OH	100	Total Score Option 2
	8896547	PHR	100	JON D TIN	60	25 S CABLE RD	100	LIMA	100	OH	100	460



Data Steward choice

Option 2




Can we mimic Data Steward's intelligence ?

Please note: Examples shown in the slides are for illustrative purposes only and have no relationship with real world data.

MODELING APPROACH



Data Steward's historic efforts are translated to make the modeling dataset

RECORD	MAX SCORE FULL_NAME	MAX SCORE ADDR_LINE_1	MAX SCORE CITY	MAX SCORE STATE	MAX SCORE CLUSTER	TAG
101	84	52	100	100	100	0
102	73	90	100	100	0	0
103	.	.	.	.	.	.
104	75	100	100	100	100	1
105	25	67	100	100	100	0
:	:	:	:	:	:	:
106	91	100	100	100	100	1

ZOOM IN - Sample input model training data

RECORD	MAX SCORE FULL_NAME	MAX SCORE ADDR_LINE_1	MAX SCORE CITY	MAX SCORE STATE	MAX SCORE CLUSTER	TAG
101	84	52	100	100	100	0
102	73	90	100	100	0	0
103	.	.	.	.	.	.
104	75	100	100	100	100	1
105	25	67	100	100	100	0
:	:	:	:	:	:	:
106	91	100	100	100	100	1

Model Development



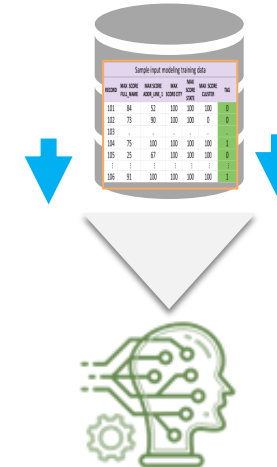
Learning Engine

Advanced ML algo.
Like Neural Network, Tree based or SVM to mimic data steward's intelligence

Model diagnostics good for development?

Test validation

Scoring Mechanism



New Data inflow

Trained Engine

Intelligent Selection



HOW DATA ENRICHMENT FROM IQVIA AND GOOGLE LEADS TO BETTER MATCH RATE



Scenario 1:- Information in HCM match output record can conclude merge decision

SOURCE	PARTY_ID	CUSTOMER_ID	SPCLTY_1	SPCLTY_1 SCORE	FIULL_NM	FULL_NA SCORE	ADDR_LINE_1	ADDR_LINE_1 SCORE	CITY	CITY SCORE	STATE	STATE SCORE	DISTANCE SCORE
CR	232635	2326463			LORENA CAM		120 E CLIFF DR		EL PASO		TX		
INTERNAL	232635	1844303	ANCI		LORENA CAM	100	120 E CLIFF DR	100	EL PASO	100	TX	100	93
INTERNAL	232635	1844303	ANCI		LORENA CAM	100	120 E CLIFF DR	100	EL PASO	100	TX	100	93

Highest matching score across different attributes coming from HCM record

HOW DATA ENRICHMENT FROM IQVIA AND GOOGLE LEADS TO BETTER MATCH RATE



Scenario 2:- HCM feed independently failed to conclude merge decision while information enriched from IQVIA lookup data conclude merge decision

SOURCE	PARTY_ID	CUSTOMER_ID	SPCLTY_1	SPCLTY_1 SCORE	FULL_NM	FULL_NM SCORE	ADDR_LINE_1	ADDR_LINE_1 SCORE	CITY	CITY SCORE	STATE	STATE SCORE	DISTANCE SCORE
CR	233801	380137	NRP		PAIGE TURPIN		20 CEDAR ST STE 100		HOLT		MI		
INTERNAL	233801	27231	NRP	100	PAIGE ELIZABETH HOARD	36	1734 TANAGER LN	33	KALAMAZOO	15	MI	100	48
.
.
INTERNAL	233801	27231	NRP	100	PAIGE ELIZABETH HOARD	36	13796 MYRTLE DR	44	DEWITT	20	MI	100	67
IQVIA	233801	27231	NRP	100	PAIGE ELIZABETH TURPIN	71	20 CEDAR ST	76	HOLT	100	MI	100	89
IQVIA	233801	27231	NRP	100	PAIGE ELIZABETH TURPIN	71	20 CEDAR ST	76	HOLT	100	MI	100	89
IQVIA	233801	27231	NRP	100	PAIGE ELIZABETH TURPIN	71	3413 WOODS EDGE	39	OKEMOS	20	MI	100	80
IQVIA	233801	27231	NRP	100	PAIGE ELIZABETH TURPIN	71	3413 WOODS EDGE	39	OKEMOS	20	MI	100	80

Highest matching score across different attributes coming from IQVIA record

HOW DATA ENRICHMENT FROM IQVIA AND GOOGLE LEADS TO BETTER MATCH RATE



Scenario 3:- HCM and IQVIA feed independently failed to conclude merge decision while information used from google to enrich IQVIA record concluded merge decision

SOURCE	PARTY_ID	CUSTOMER_ID	SPCLTY_1	SPCLTY_1 SCORE	FULL_NM	FULL_NM SCORE	ADDR_LINE_1	ADDR_LINE_1 SCORE	CITY	CITY SCORE	STATE	STATE SCORE	DISTANCE SCORE
CR	23386657	23386657	NEP		MAHMD KAMEL		40 N HABANA AVE STE 107		TAMPA		FL		
INTERNAL	23386657	1514651	NEP	100	MAHMD TURKI KAMEL	81	12662 TELECOM DR	24	TAMPA	100	FL	100	
.
INTERNAL	23386657	1514651	NEP	100	MAHMD TURKI KAMEL	81	600 OAK ST	40	PESHTIGO	15	WI	0	45
IQVIA-Google	23386657	1514651	NEP	100	MAHMD TURKI KAMEL	81	2800 E AJO WAY	36	TUCSON	18	AZ	0	67
IQVIA-Google	23386657	1514651	NEP	100	MAHMD TURKI KAMEL	81	1501 N CAMPBELL AVE	55	TUCSON	18	AZ	0	67
IQVIA-Google	23386657	1514651	NEP	100	MAHMD TURKI KAMEL	81	40 N HABANA AVE	81	TAMPA	100	FL	100	91
IQVIA-Google	23386657	1514651	NEP	100	MAHMD TURKI KAMEL	81	96 JONATHAN LUCAS ST	40	CHARLESTON	13	SC	0	33
.
IQVIA-Google	23386657	1514651	NEP	100	MAHMOUD TURKI KAMEL	81	12662 TELECOM DR	24	TEMPLE TERRACE	42	FL	100	89
IQVIA-Google	23386657	1514651	NEP	100	MAHMOUD TURKI KAMEL	81	600 OAK ST	40	PESHTIGO	15	WI	0	45

Highest matching score across different attributes coming from google enriched IQVIA record



UI SHOWCASE (DASHBOARD VIEW)



Dashboard View: Summary view of the records along with its potential match records shown here.

The screenshot shows the 'Steward Decision App' interface. At the top left is the 'cube' logo and the text 'DATA DRIVEN DECISIONS'. The main header is 'Steward Decision App' with a user profile icon on the right. Below the header, there's a section 'AR RECORDS FOR' with a toggle for 'ALL DAYS'. A search bar and a download icon are on the right. The main content is a table with columns: CUSTOMER ID, NAME, PRIMARY ADDRESS, DATE, POTENTIAL MATCH RECORDS, and ACTIONS. The table lists several records, each with a checkbox, a customer ID, a name, an address, a date, and a set of potential match records (represented as pills). The 'ACTIONS' column contains icons for lock, checkmark, and chat. A modal window is open over the record for 'LAUREN ELISE STEINBERG', showing her name, role 'PRESCRBR', address '7301 W PALMETTO PARK RD, BOCA RATON, FL 33433, 3458', and a confidence score of '93.20%'. The modal also shows the NPI: H293124.

CUSTOMER ID	NAME	PRIMARY ADDRESS	DATE	POTENTIAL MATCH RECORDS	ACTIONS
H245918	ISAAC A CASTILLO	6431 FANNIN ST, HOUSTON, TX. 77...	2020-12-10	H362385	Lock, Checkmark, Chat
H431253	MUSERRAH S SALEM	332 N YORK ST, ELMHURST, IL, 6012...	2020-12-10	H1135125	Lock, Checkmark, Chat
H315123	LAUREN STEINBERG	7301 W PALMETTO PARK RD STE 30...	2020-12-10	H769704, H293124, H069069	Lock, Checkmark, Chat
H351410	MATTHEW D FUKUDA	8850 SE 37TH ST, MERCER ISLAND, ...	2020-		Lock, Checkmark, Chat
H461821	ELIZABETH L MATLOCK	PO BOX 720670, ATLANTA, GA, 3035...	2020-		Lock, Checkmark, Chat
H511270	KATHRYN E DUNLAP	3824 ENGLEWOOD LN, FORT WORT...	2020-12-10	H524900	Lock, Checkmark, Chat

Actions include selection of records for merge and downloading the results of the merge for actionizing in HCM

This helps Data Stewards manually Integrate the outcomes of the Selection. Records identified for merge can be manually actionized in HCM.

Pills based on the confidence score along with necessary details to identify the record

Selection of records for merge would be assisted by the details provided.

Merge recommendations along with the confidence score is shown here

The recommendations helps Data Stewards to focus on the right records.

UI SHOWCASE (DETAILED VIEW)



Detailed View: Attributes of the selected record along with potential duplicates are available side by side

cube™ Steward Decision App

SOURCE	CUSTOMER ID	OVERALL PERCENT	NAME	SPECIALTY	ADDR_TYPE	ADDR_LINE_1
INPUT RECORD	H315123		LAUREN STEINBERG	US	OTHER_ADDR	7301 W PALMETTO PARK RD STE 303A
MDM	H293124	93.2 %	LAUREN ELISE STEINBERG	DGP	OFC_ADDR	7301 W PALMETTO PARK RD
NPPES	H293124		LAUREN STEINBERG		DOM	7301 W PALMETTO PARK RD 303A
IQVIA	H293124		LAUREN STEINBERG	PHTH	Office	400 TAMIAMI TRL S
IQVIA	H293124		LAUREN ELISE STEINBERG	DGP	PRIM_ADDR	7301 W PALMETTO PARK RD
HIPPA	H293124		LAUREN ELISE STEINBERG		PRACTISE_LOCATION	7301 W PALMETTO PARK RD STE 303A
GOOGLE	H293124		LAUREN ELISE STEINBERG		SEARCH RESULTS	
MDM	H769704	90.72 %	LAUREN ELISE STEINBERG	DGP	OFC_ADDR	7301 W PALMETTO PARK RD STE 303A

Selected record along with potential match records are shown here with all attributes used for matching.

This view enables side by side comparison of DCR record along with the potential match records

Attribute level scores for the selected duplicate are available here

Provides visibility on how the confidence score is calculated.

Enriched records from external provider source are available just below the duplicate record.

This will enable the enriched attributes to be viewed on the same screen.

UI SHOWCASE (DETAILED VIEW)



Detailed View: Attributes of the selected record with multiple instances are shown along with relevant enrichment.

cube™
DATA DRIVEN DECISIONS

Steward Decision App

SOURCE	CUSTOMER ID	ADDRESS
INPUT RECORD	H315123	W PALMETTO PARK RD STE 303A
MDM	H293124	W PALMETTO PARK RD
NPPES	H293124	
IQVIA	H293124	
IQVIA	H293124	
HIPPA	H293124	
GOOGLE	H293124	
MDM	H769704	W PALMETTO PARK RD STE 303A

Google Map

7301 W Palmetto Park Rd, Boca Raton, FL 33433

STATE: FL, ZIP_CD: 33433, ZIP_EXTN: 3458

For any attribute with multiple instances, all instances are shown here.

Viewing all addresses of the record together would help quick visual match.

Additional information on the attributes also shown here.

Viewing address as a map component helps additional analysis.

UI SHOWCASE (DETAILED VIEW)



Detailed View: Frequently searched field combinations are made available for the Data Stewards for their analysis

The screenshot displays the 'Steward Decision App' interface. At the top left is the 'cube' logo with the tagline 'DATA DRIVEN DECISIONS'. The main header reads 'Steward Decision App' and includes a user profile icon on the right. Below the header is a table with columns: SOURCE, CUSTOMER ID, OVERALL PERCENT, NAME, SPECIALTY, ADDR_TYPE, and ADDR_LINE_1. The table contains several rows, with the second row (MDM, H293124) highlighted in green. This row has progress bars for 'OVERALL PERCENT' (84%) and 'SPECIALTY' (0%). A search results popup is overlaid on this row, titled 'SEARCH RESULTS FOR' and showing three tabs: 'Name and Address' (selected), 'Name and Speciality', and 'Speciality and City'. The 'Name and Address' tab shows search results from NPPES, IQVIA, HIPPA, and GOOGLE. The top result is 'DR. LAUREN ELISE STEINBERG DMD, NPI 1265041578 - Dentist ...' with a 'Visit page' button. Below the popup, the table continues with a row for 'LAUREN ELISE STEINBERG' (DGP, OFC_ADDR, 7301 W PALMETTO PARK RD STE 303A).

SOURCE	CUSTOMER ID	OVERALL PERCENT	NAME	SPECIALTY	ADDR_TYPE	ADDR_LINE_1
INPUT RECORD	H315123		LAUREN STEINBERG	US	OTHER_ADDR	7301 W PALMETTO PARK RD STE 303A
MDM	H293124	84.2%		0%		
NPPES	H293124					
IQVIA	H293124					
IQVIA	H293124					
HIPPA	H293124					
GOOGLE	H293124					
MDM	H769704	90.72%	LAUREN ELISE STEINBERG	DGP	OFC_ADDR	7301 W PALMETTO PARK RD STE 303A

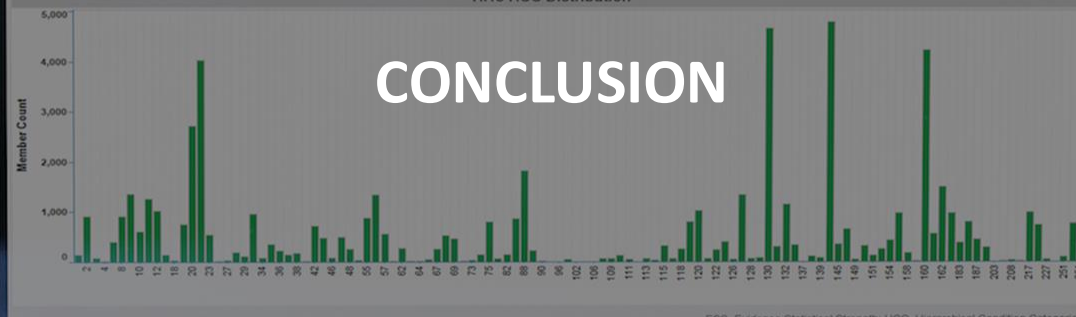
Google search results using common field combinations like name and address, name and speciality are shown here.

Helps easy navigation to the page and decision making based on these results.

Plan Summary Report

Company Details	Total Lives	Base Risk Score
	17,489	15,2981
	Females	Males
	Member Count Avg. Age	Member Count Avg. Age
	9,715 55.8	7,774 52.6
Applicable Reporting Period (All)	Base Risk Score	Base Risk Score
	16,232	14,131

HHS HCC Distribution



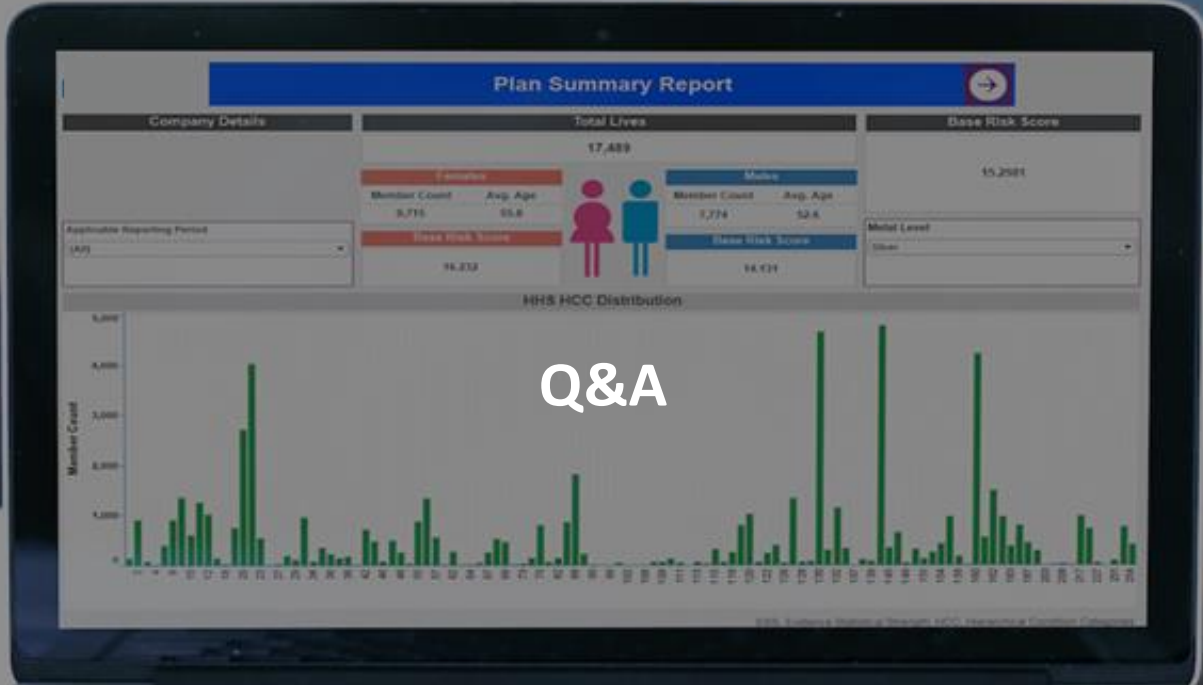
A GAME CHANGER IN THE DATA STEWARDSHIP PROCESS



- SIMULATE STEWARDSHIP
- INTELLIGENT AUTOMATION
- PRODUCTIVITY BOOST
- COMPLEMENTS MDM

D Cube Analytics has also been mentioned as a representative vendor in Gartner, How Life Science CIOs Can Build a Data-Driven Enterprise Foundation With Commercial MDM.

(Animesh Gandhi, 23 Sep 2020)



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