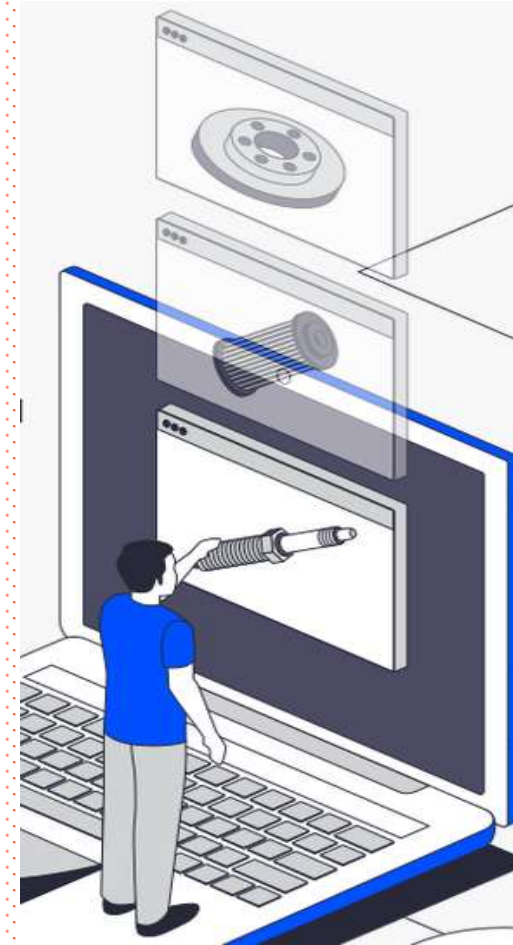


# Ai in Catalogue Data & Vehicle-Part Matching

Thijs Leentvaar

# Todays highlights

- Challenges in Cataloguing
- Product management evolution
- Relevance in data
- AI tools, in progress

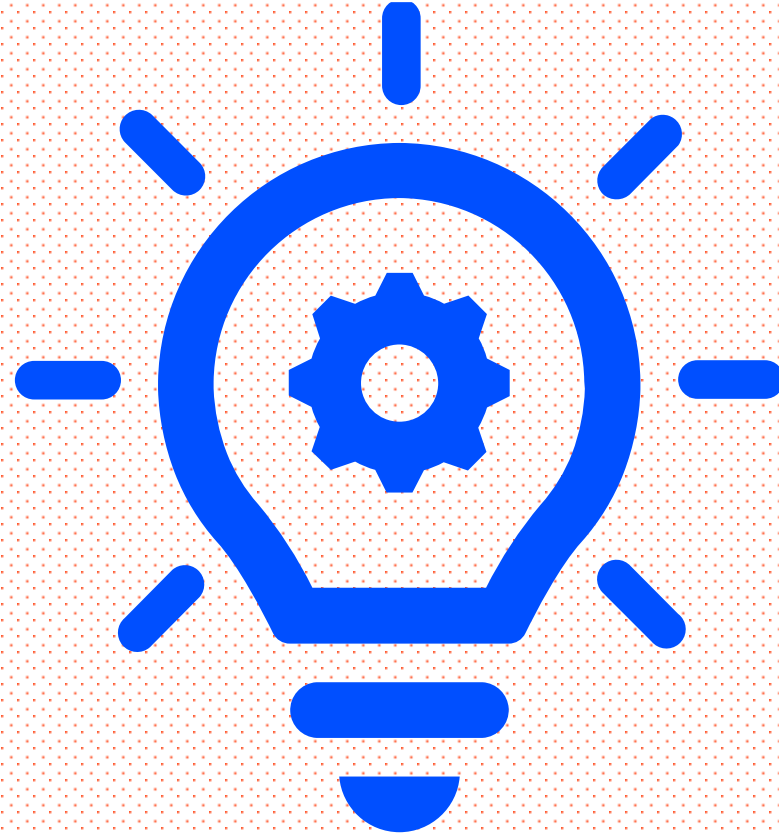


# Challenges in Cataloguing

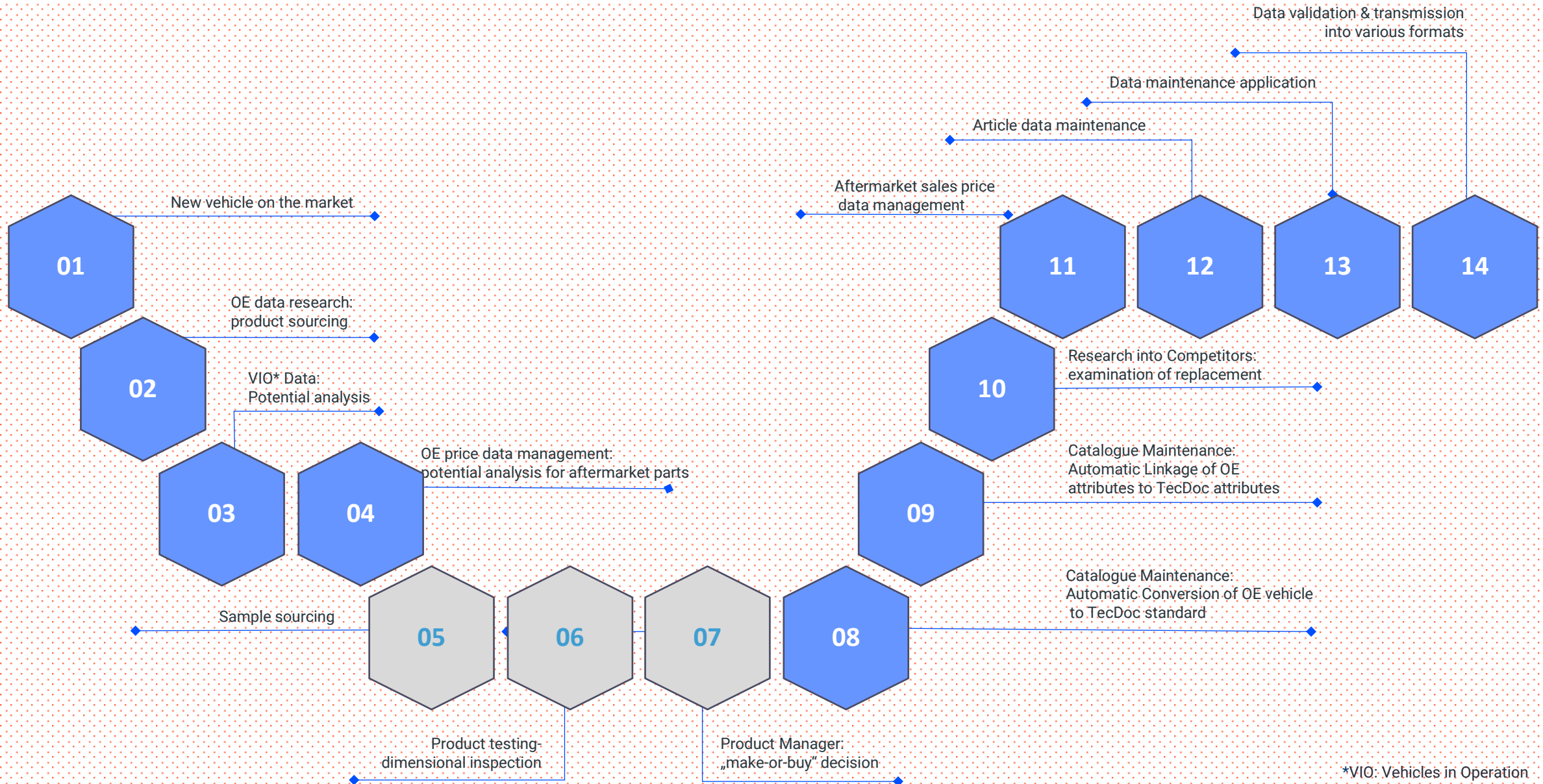
- **Identifying the vehicles**
  - (market/region/sales volumes VIO/market potential)
- **Identifying gaps** (product management analysis)
- **Research OE numbers/supplier information**
- **Cross references** (1:1 , 1>N)
  - 1-> 1,
  - 1-> kit,
  - Kit -> replacement,
  - OE quality -> refit/ecoline quality
- **Over qualifying** of content

# Challenges in Cataloguing

- First time the right time
- Parts returns
- 1 Part per vehicle
- Quality of content



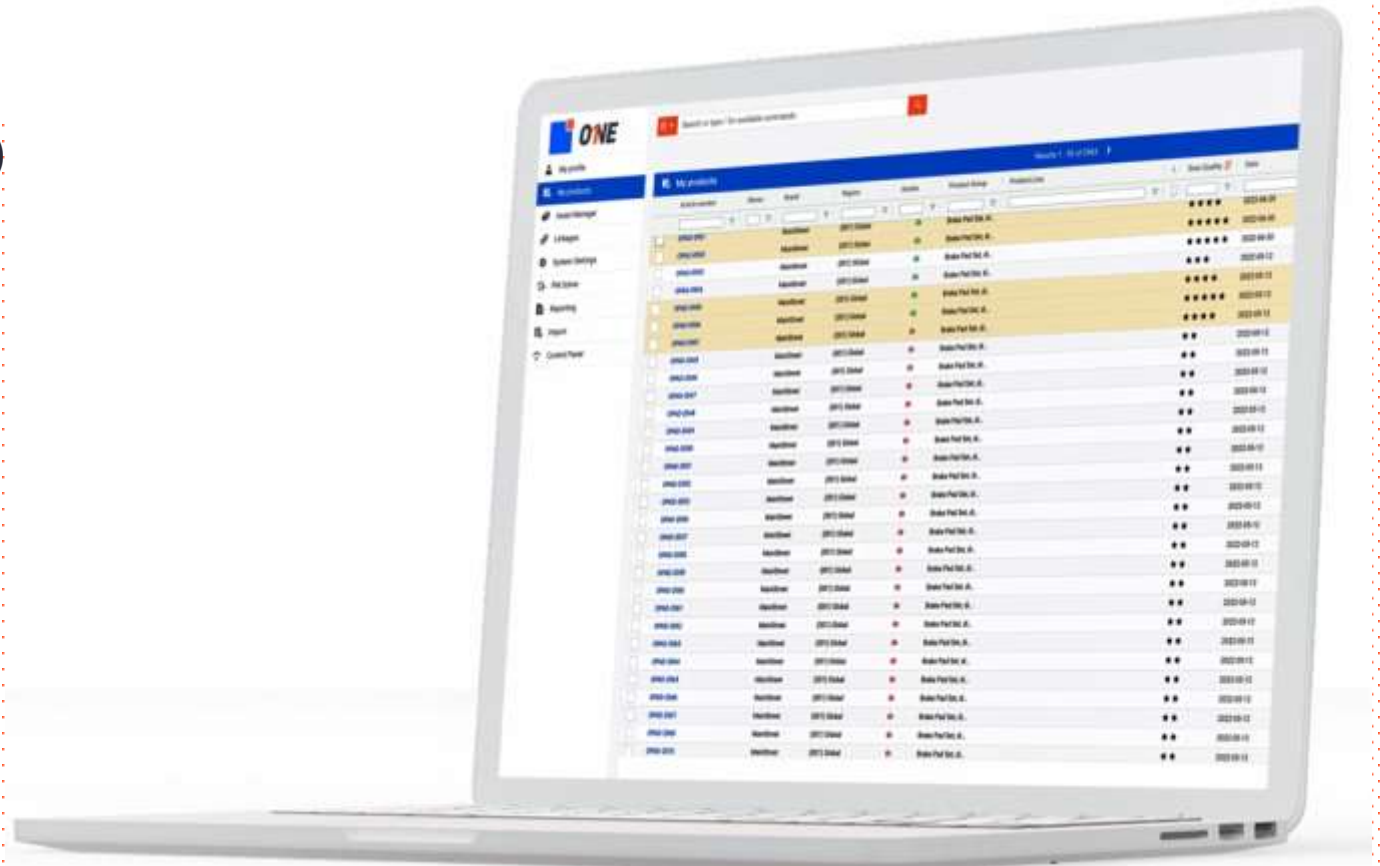
# Product management workflow ->



# TecDoc ONE | Product management tooling



- Data Importing & Exporting Features
- (Global) Data Maintenance
- Features for Improved Data Quality (DQM)
- Value Adding Analytics Tools, Reports
- Asset Management
- Vehicle In Operation figures
- Supersession & Lifecycle Management
- Automated Reference Data Updates
- Reporting PRO Module
- IAM Cross Reference Module
- Extended Media Manager Module
- OE parts linked to KType



# TecDoc ONE | TecDoc Linkages (with VIO)



ONE

My profile

My products

Asset Manager

Linkages

System Settings

Product Linkage Advisor (PLA)

Reporting

Import

Control Panel

Auto Care Export

Super Admin Panel

Translation Manager

Search or type / for available commands

UndoNewSave

Query

Linkages

Results 1 - 26 of 26

	Detail	Links	VIO	L7 Type	A-Type	Make	Model	Type	Year	Region	kW	HP	Capacity	CC	Cylinders	Valves	Engine Code	Body Type	Engine Type
		5	11	PC	6030	AUDI	A3 (8P1)	1.6 E-Power	01.2011 - 08.2012	Europe	75	102	1.6	1595	4	2	CCSA, CMXA	Hatchback	Petrol Engine
		4	26166	PC	17009	AUDI	A3 (8P1)	2.0 FSI	05.2003 - 06.2008	Africa, Antar...	110	150	2.0	1984	4	4	AXX, BLR, BLX, B...	Hatchback	Petrol Engine
		4	24482	PC	20864	AUDI	A3 (8P1)	1.8 TFSI	11.2006 - 08.2012	Africa, Antar...	118	160	1.8	1798	4	4	BFT, BZB, CDAA	Hatchback	Petrol Engine
		2	91421	PC	17172	AUDI	A3 (8P1)	1.6	05.2003 - 08.2012	Africa, Antar...	75	102	1.6	1595	4	2	BBU, BSE, BSE, C...	Hatchback	Petrol Engine
		2	105546	PC	17398	AUDI	A3 (8P1)	1.9 TDI	05.2003 - 05.2010	Africa, Antar...	77	105	1.9	1896	4	2	BKC, BLS, BKE	Hatchback	Diesel
		2	21215	PC	17578	AUDI	A3 (8P1)	1.6 FSI	08.2003 - 09.2007	Africa, Antar...	85	115	1.6	1598	4	4	BAG, BLE, BLP	Hatchback	Petrol Engine
		2	10138	PC	18358	AUDI	A3 (8P1)	2.0 TFSI	09.2004 - 08.2012	Africa, Antar...	147	200	2.0	1984	4	4	AXX, BWA, CAWB...	Hatchback	Petrol Engine
		2	7237	PC	18359	AUDI	A3 (8P1)	2.0 TFSI qu...	09.2004 - 08.2012	Africa, Antar...	147	200	2.0	1984	4	4	AXX, BWA, CBFA...	Hatchback	Petrol Engine
		2	32985	PC	26581	AUDI	A3 (8P1)	1.4 TFSI	09.2007 - 08.2012	Africa, Antar...	92	125	1.4	1392	4	4	CAXC, CMSA	Hatchback	Petrol Engine
		2	5785	PC	31316	AUDI	A3 (8P1)	1.6 TDI	05.2009 - 08.2012	Africa, Antar...	66	90	1.6	1598	4	4	CAYB	Hatchback	Diesel
		2	37162	PC	31317	AUDI	A3 (8P1)	1.6 TDI	05.2009 - 08.2012	Africa, Antar...	77	105	1.6	1598	4	4	CAYC	Hatchback	Diesel
		1	167517	PC	17173	AUDI	A3 (8P1)	2.0 TDI 16V	05.2003 - 08.2012	Africa, Antar...	103	140	2.0	1968	4	4	BKD, CBAB, CBE...	Hatchback	Diesel
		1	4090	PC	17458	AUDI	A3 (8P1)	2.0 TDI	05.2003 - 08.2012	Africa, Antar...	100	136	2.0	1968	4	4	AZV, CBAA, CFFA	Hatchback	Diesel
		1	7764	PC	17577	AUDI	A3 (8P1)	3.2 V6 quattro	07.2003 - 05.2009	Africa, Antar...	184	250	3.2	3189	6	4	BDB, DMJ, SUB	Hatchback	Petrol Engine
		1	1547	PC	18358	AUDI	A3 (8P1)	2.0 TDI qu...	05.2003 - 06.2008	Africa, Antar...	100	136	2.0	1968	4	4	AZV	Hatchback	Diesel
		1	20302	PC	18360	AUDI	A3 (8P1)	2.0 TDI 16V ...	08.2004 - 08.2012	Africa, Antar...	103	140	2.0	1968	4	4	BKD, CBAB, CFFB	Hatchback	Diesel
		1	18505	PC	19614	AUDI	A3 (8P1)	2.0 TDI	03.2006 - 08.2012	Africa, Antar...	125	170	2.0	1968	4	4	BMN, CBBB, CFFB	Hatchback	Diesel
		1	11453	PC	19615	AUDI	A3 (8P1)	2.0 TDI qu...	03.2006 - 08.2012	Africa, Antar...	125	170	2.0	1968	4	4	BMN, CBBB, CFFB	Hatchback	Diesel
		1	14575	PC	19914	AUDI	A3 (8P1)	S3 quattro	11.2006 - 08.2012	Africa, Antar...	195	265	2.0	1984	4	4	BHZ, CDLA	Hatchback	Petrol Engine
		1	34480	PC	19960	AUDI	A3 (8P1)	2.0 TDI	06.2005 - 06.2008	Africa, Antar...	103	140	2.0	1968	4	2	BMM	Hatchback	Diesel
		1	3791	PC	19967	AUDI	A3 (8P1)	2.0 TDI qu...	01.2006 - 06.2008	Africa, Antar...	103	140	2.0	1968	4	2	BMM	Hatchback	Diesel
		1	18	PC	23839	AUDI	A3 (8P1)	1.8 T	08.2006 - 08.2012	Asia, North ...	110	150	1.8	1781	4	5	BPU	Hatchback	Petrol Engine
		1	1328	PC	28169	AUDI	A3 (8P1)	S3 quattro	02.2007 - 08.2012	Africa, Antar...	188	256	2.0	1984	4	4	BZC, CDLC	Hatchback	Petrol Engine
		1	5324	PC	30738	AUDI	A3 (8P1)	1.8 TFSI qu...	07.2006 - 08.2012	Africa, Antar...	118	160	1.8	1798	4	4	CDAA	Hatchback	Petrol Engine
		1	119	PC	32688	AUDI	A3 (8P1)	2.0 TDI	06.2006 - 06.2008	Africa, Antar...	120	163	2.0	1968	4	4	BUY	Hatchback	Diesel
		1	11815	PC	33251	AUDI	A3 (8P1)	1.2 TSI	04.2010 - 08.2012	Africa, Antar...	77	105	1.2	1197	4	2	CBZB	Hatchback	Petrol Engine

1 to 26 of 26

Page 1 of 1

Hide sidebar

08.1402.10 08.1365.89 FE0261-6J FE0261 D0219962024 2404161 07.0314.01 74.0275.10 14.0275.10 08.1630.10

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# But how can Ai support these processes. ?

To make it simple first consider just one feature

- The correlation is calculated by

$$\rho = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

Age (x)	Price (y)
1	22.000
5	12.600
10	10.500
14	4.900

- Where  $\bar{x}$  and  $\bar{y}$  are the average values calculated

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = \frac{1}{4} [1 + 5 + 10 + 14] = \frac{31}{4} = 7,5$$

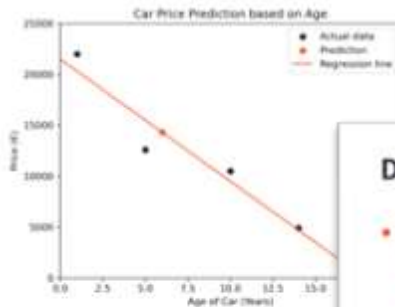
$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i = \frac{1}{4} [22.000 + 12.600 + 10.500 + 4.900] = \frac{50.000}{4} = 12.500$$

Greek letter	Pronunciation	Usage
$\rho$	"rho"	Correlation coefficient
$\Sigma$	"Sigma"	Sum notation

$\sum_{i=1}^n x_i$  is read as, "the sum of x from i=1 to n"

The linear assumption is nice for interpretation but sometimes we want to add a non-linear function

$$y = w * x + b$$



$$y = \sigma(w * x + b)$$



Data Science is

- Making data-based decisions
  - Mathematical tools (Correlation, Regression, etc.)
  - Plotting
  - Statistics
  - Logical Reasoning
- Understanding those tools
  - Which plot could prove the hypothesis?
  - Can you explain expected results?
  - Second guess everything

## DS, AI and ML explained using maths

classification intelligence chatbot  
AI data  
regression clustering learning  
DS ML science  
llm artificial machine

Dr. Robert Buch  
Team DS ML

explained simple

It tells us, when we are allowed to reject a hypothesis  
Connect mathematics to the real world  
Yes/no answers are not possible  
Accept/not reject answers



Hypothesis: "There are no black swans on earth"

Black swan -> Significant finding -> Reject ("No")

White swan found -> Insignificant -> Neither "yes" or "no" can be answered

Which is better?

Search at a different season?

Were they all hiding?

Artificial Neural Networks is  
Neural Network of the human

The environment through  
Images... plays a crucial part

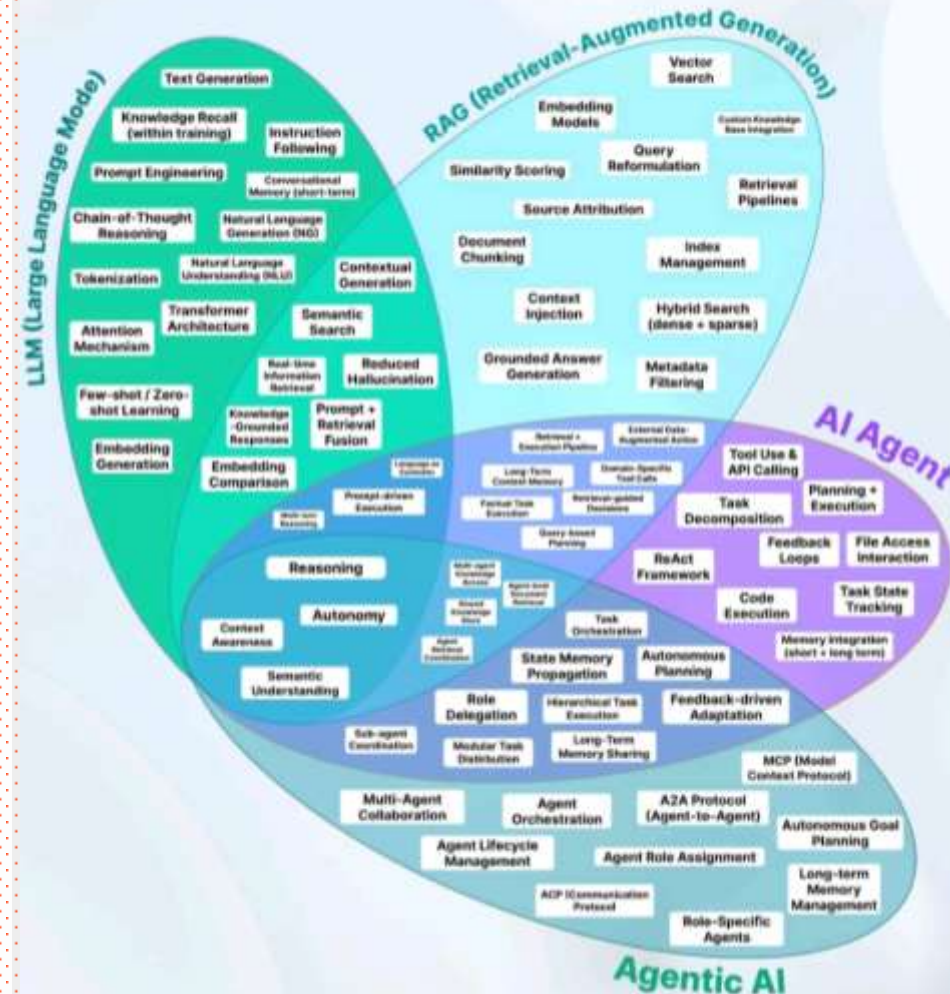


# Ai | Data Sources

- Data sources varies in quality,
- Many sources are already generated by Ai,
- Know what you want to accomplish,
- Outcome is base for decision not a final product.



## The Basics of Top AI Concepts



# Data Quality = Key

# Improved Vehicle Reference Data

**New Vehicle attributes**  $\xrightarrow{\text{associated}}$  **Parts classification**  $\xrightarrow{\text{combined}}$  **Unambiguous parts application**



- Continuous improvement of the quality of TecDoc Reference Data with the aim of enabling the customer to clearly and unambiguously identify the right spare part for a vehicle.
- New vehicle attributes for New Energy Vehicles, supporting complex Vehicle technologies (hybrids/drivetrain components/emission and safety systems).
- Cooperations in Working- and expert groups with Data Suppliers and Data User Groups for refinements.

# Dimensions of TecDoc Data Quality

The TecDoc data must be:



free of errors



unambiguously interpretable



standardized



comprehensible



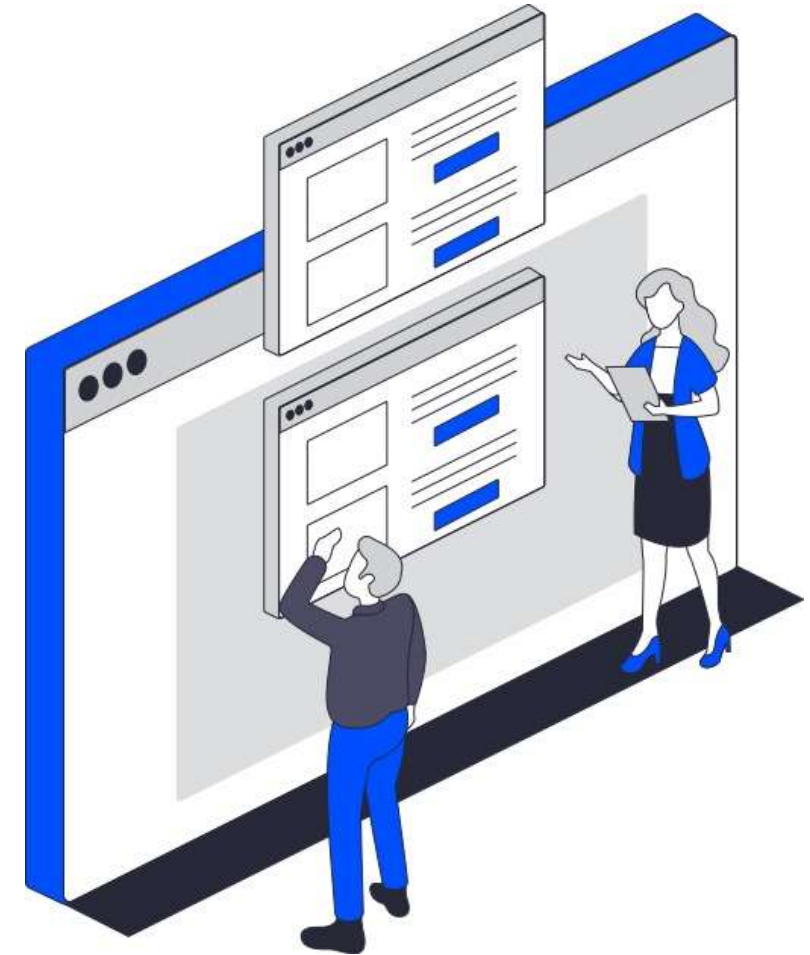
relevant



complete



up-to-date



## **TecDoc-Expert-Group** **TEG**

- Discussion of DQM issues with suppliers
- **Meeting every 4 months**
- Participants: Bosch, Brembo, Continental, Delphi, DRIV, Eibach, Elring, Ernst, Eurorepar, Febi, Gates, Hella, HJS, Kolbenschmitt, KYB, Mahle, Meyle, NGK, Schaeffler, TMD, ZF

## **TecDoc-Data-User-Group** **DUG**

- **Data User Group (DACH)**
- **Meetings every 6 months / focus: DQM, Product- & Vehicle-Data-Standardization, TecDoc Format**
- **International rollout of Data User Group meetings**

## **DQM-Breakout-Session**

- Discussion and handling of product group-dependent DQM issues with suppliers
- **Meetings as required**
- So far: brake system, engine/filtering, electrical components, suspension/damping, steering/wheel suspension, sensors



## Initial situation

- Suppliers and retailers are subject to increasingly comprehensive **EU product and consumer protection legislations**.
- The growing range of products subject to **ecodesign requirements** obliges suppliers and retailers **to provide consumers with defined information** to help them make more sustainable choices.
- The new legislations aims to make **sustainable products** the norm, promote the **circular economy** and prioritise the **reuse and repair of products**.

## Examples of this are:

- **DPP / Digital Product Passport** [(EU) 2024/1781 (**ESPR**)]
- **REACH** Regulation [EU Chemicals Regulation (EC) No. 1907/2006]
- **Product Safety Regulation** [(EU) 2023/988 (**GPSR**)]
- **Battery Regulation** [(EU) 2023/1542]
- **CLP Regulation** [(EC) Nr. 1272/2008]
- **AGEC** (national law for France)
- ...

## Findings

- All regulations require **specific product information** from manufacturers and distributors, **among other things**.
- **We proactively check which additional content in terms of attributes should be implemented in TecDoc so that suppliers can be supported in the best possible way in fulfilling their obligations from the various regulations.**

# DQM – Trade numbers (Table #207)

**Trade numbers are not permitted to have any of the following contents:**

- attributes
- generic articles
- names/descriptions
- specifications
- cross-references
- OE-article-numbers
- competitor-article-numbers

**The definition of the trade numbers is available TecDoc-Data-Guide!**





# DQM – Cross references

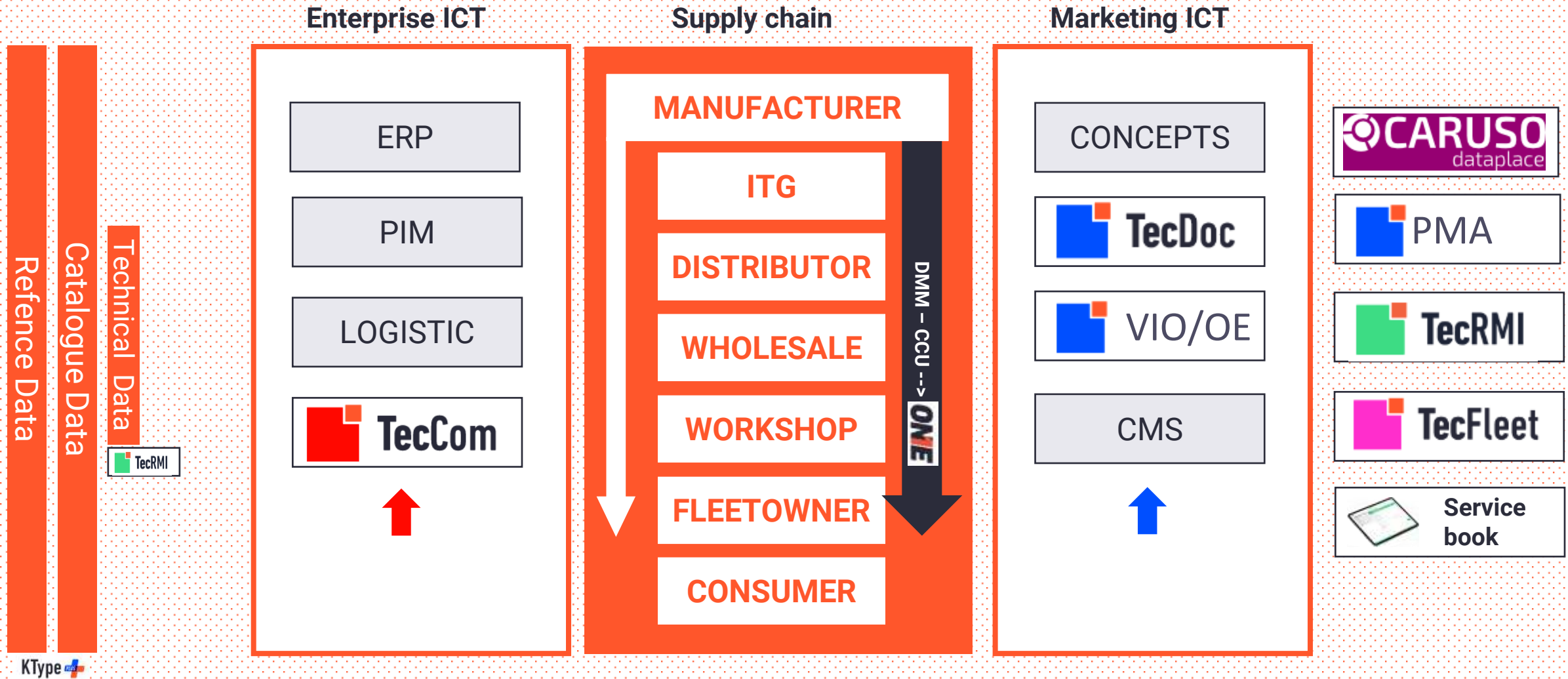
## OE2GA-Reporting for the optimisation of OE cross references

👉 **Target: Minimisation of different products per OE number**

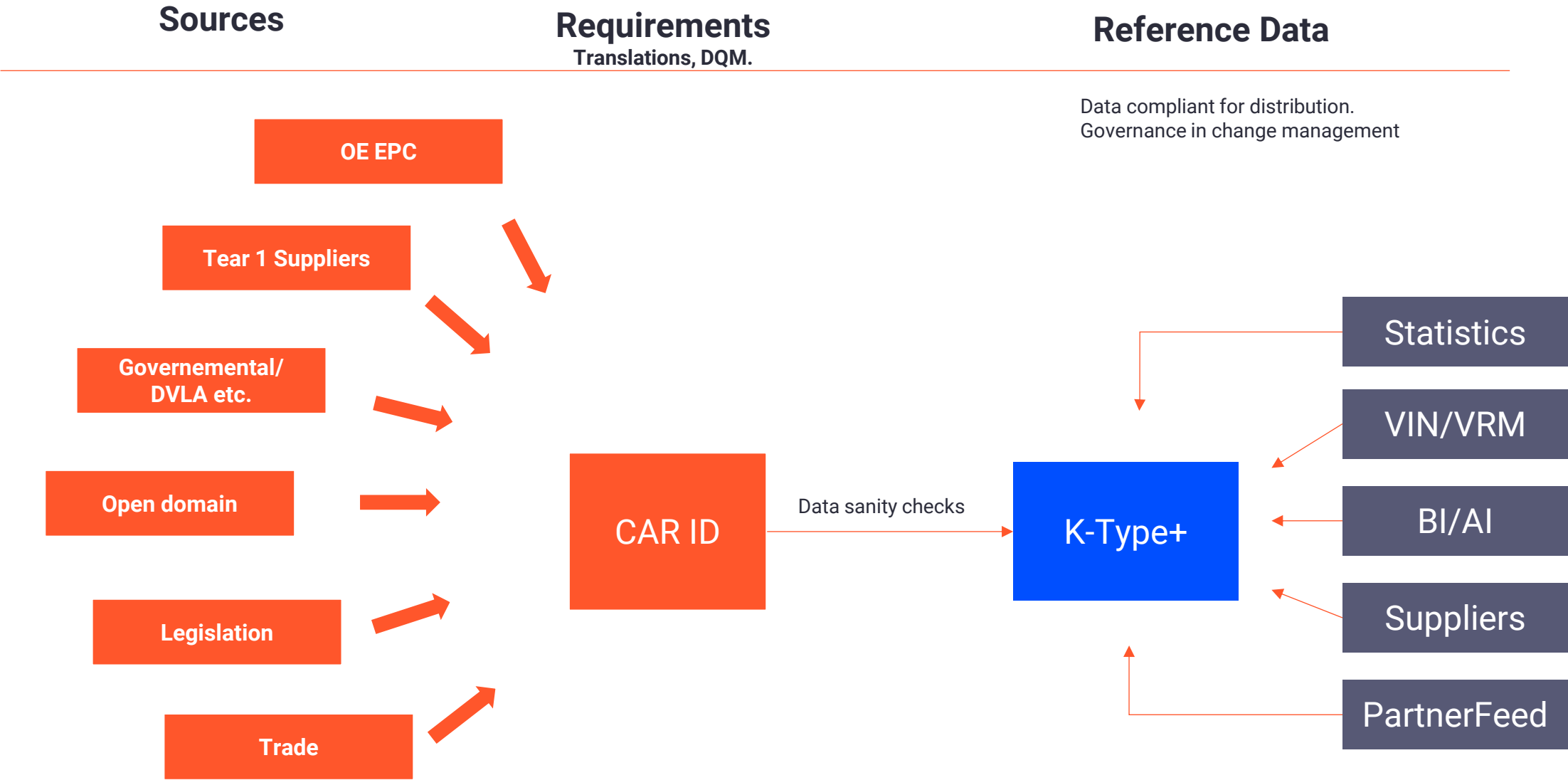
IAM_BrandNr	IAM_BrandName	OEM_BrandNr	OEM_BrandName	OE_Articlenumber	GA_Nr	GA_Name_Eng	Brands_With_GA	IAM_Brand_Used_GA	GA_Per_OE
2	HELLA	106	SKODA	038 903 023 R	4	Alternator	12	1	5
2	HELLA	106	SKODA	038 903 023 R	542	V-Ribbed Belt Set	4	0	5
2	HELLA	106	SKODA	038 903 023 R	1108	Pulley, alternator	1	0	5
2	HELLA	106	SKODA	038 903 023 R	1390	Alternator Freewheel Clutch	7	0	5
2	HELLA	106	SKODA	038 903 023 R	3079	Alternator, starter	2	0	5
2	HELLA	121	VW	074 903 026	4	Alternator	7	1	4
2	HELLA	121	VW	074 903 026	288	Alternator Regulator	1	0	4
2	HELLA	121	VW	074 903 026	542	V-Ribbed Belt Set	7	0	4
2	HELLA	121	VW	074 903 026	1390	Alternator Freewheel Clutch	17	0	4

# Reliable Reference Data

# Trade Landscape TecDoc Reference Data



# Enhanced reference data objective



# Enhanced reference data KType content

## KType

Make
Model
Type
Power
Cyl
Fueltype
Valve
Drive type

### KType Tables

100 Manufacturer  
120 vehicle type  
122 Vehicle Country Restriction  
124 Vehicle Country Specifications  
140 Additional Descriptions to Vehicle Model Series  
143 Allocation of Model Types to Model Series  
144 Additional Vehicle Type Descriptions  
145 Model Type  
146 Body Type Synonyms  
147 Drive Type Synonyms

TypID	100847
Make	BMW
Model Series	3 Touring (F31)
Type Description	320 d xDrive
Year from	03.2013
Year to	06.2015
Power in kW	147
Power in HP	200
Body Type	Estate
Engine capacity (cc)	1995
Fuel Type	Diesel
Engine Type	Diesel
Fuel mixture preparation	Direct Injection
Engine capacity (liter)	2.0
Cylinders	4
Valves of Chamber	4
Drive Type	All-wheel Drive

## KType

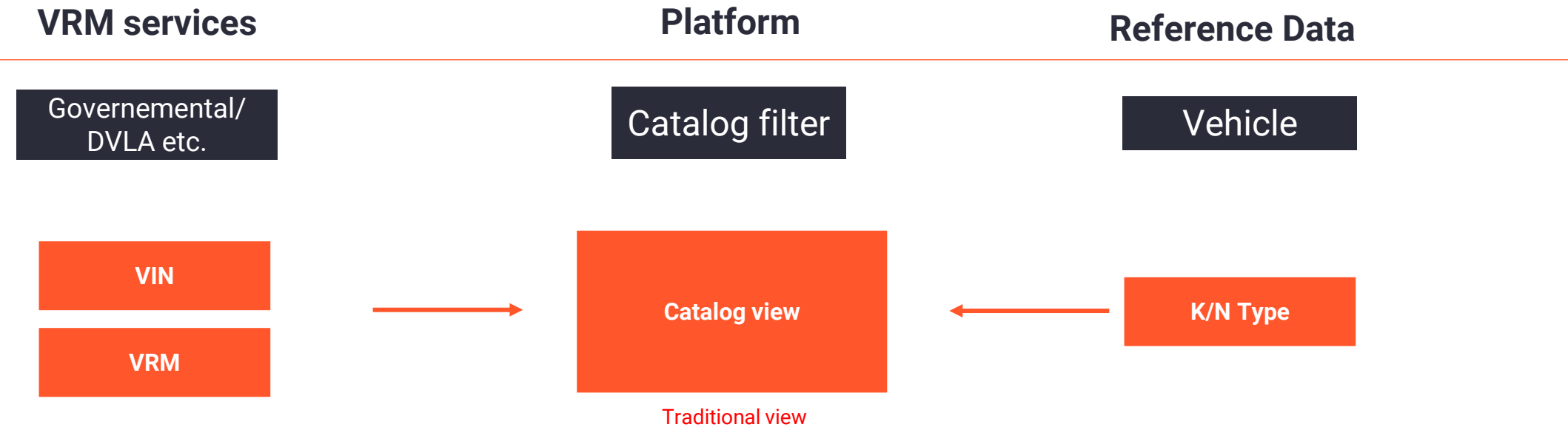
Engine
Gearbox
Facelift
Doors
Platform
Weight
Emission
Equipment

### Additional Tables

710 Plus Model  
711 Country Of Origin  
712 Model Facelift  
713 Door Allocation  
714 Vehicle Platform  
715 Vehicle Platform Allocation  
720 KType+  
721 Gross Weight Allocation  
723 Vehicle Equipment Features  
724 Emission Standard Country Allocation  
725 Attribute Association  
726 Wheelbase  
727 EU-ClassificationTable  
544 Transmission  
546 Allocation of a Transmission to a CV  
547 Allocation of a Transmission to a PC/LCV

Facelift	03.2013
Door allocation	5 door
Vehicle platform	CLAR platform
Vehicle Gross weight	1370 KG
Emission Standard	Euro-4
Wheelbase	1980 cm
Vehicle Equipment Features	Airco, SRC, Start-stop, Steering gear, Co <sup>2</sup> . (To be expanded)

# Use Case : VRM Catalog filter



# Catalogue examples

TecDoc CATALOGUE internal (PREPROD)

Search by any article number, VIN, vehicle, brand or product group

Car VW GOLF VII Variant (BA5, BV5) 2.0 GTD Flywheel Flywheel (19) x

Current selection

VW GOLF VII Variant (BA5, BV5) 2.0 GTD

TecRMI

Technical data

Vehicle type: VW GOLF VII Variant (BA5, BV5) 2.0 GTD

Model year: 01.2015 - 07.2019

Performance: 135 kW / 184 HP

Capacity: 1968 cc / 2 l

Cylinders: 4

Valves: 4

Body style: Estate

Drive type: Front-Wheel Drive

Engine type: Diesel

Engine codes: CUNA, DGCA, DJGA

Fuel type: Diesel

Fuel preparation: Direct Injection

SRS

Flywheel

Result 1 - 19 of 19

Article number	Description	Article status	Quantity
<input type="checkbox"/> FDE-VG14	AISIN Flywheel Packing unit: 1 Quantity per packing unit: 1	Normal	1
<input type="checkbox"/> FVW246DM	AUSTRALIAN CLUTCH ClutchPro Flywheel 7-Speed Dual-Clutch Transmission Number of Teeth: 135; Number of mounting bores: 6; for engines with dual-mass flywheel; Dual-Clutch Transmission Packing unit: 1 Quantity per packing unit: 1	Normal	1
<input type="checkbox"/> B10919	Borsehung Flywheel Number of Teeth: 129 General Information: dual mass flywheel, 129 teeth	Normal	1
<input type="checkbox"/> VOL100LUKN	DIPASPORT Flywheel with pilot bearing; Dual-Clutch Transmission; Number of Teeth: 129; Number of mounting bores: 6	Normal	1
<input type="checkbox"/> 415 0872 09	LuK LuK DMF Flywheel Engine Code: DGCA, DJGA 7-Speed Dual-Clutch Transmission; for wet clutch Packing unit: 1 Quantity per packing unit: 1	Normal	1
<input type="checkbox"/> 415 0744 09	LuK LuK DMF Flywheel 6-Speed Dual-Clutch Transmission; for wet clutch Packing unit: 1 Quantity per packing unit: 1 Replaces: 415 0631 09	Normal	1

< >

Restart CATALOGUE

Go to ONE

NO CHANGE - CURRENT PARTS RESULTS PAGE

Article Criteria filter UNFILTERED

This filter will be also improved thanks to the data inserted (ONE) with suggestions from KT+

Article criteria

Article status

Please select ...

IAM criteria

Engine Code

☒ All

☐ CRGA (1)

☐ CUNA (5)

☐ DGCA (4)

☐ DJGA (1)

Engine Features/Arrangement

☒ All

☐ for engines with dual-mass flywheel (5)

Service exchange part

☒ All

☐ Yes (3)

Number of mounting bores

☒ All

☐ 6 (13)

Supplementary Article/Supplementary Info

☒ All

☐ with flywheel screws (4)

☐ with pilot bearing (3)

☐ without pilot bearing (3)

Transmission Code

☒ All

☐ PDT (1)

☐ PGT (1)

☐ QMN (2)

☐ SKZ (1)

Outer Diameter [mm]

☒ All

☐ 240 mm (1)

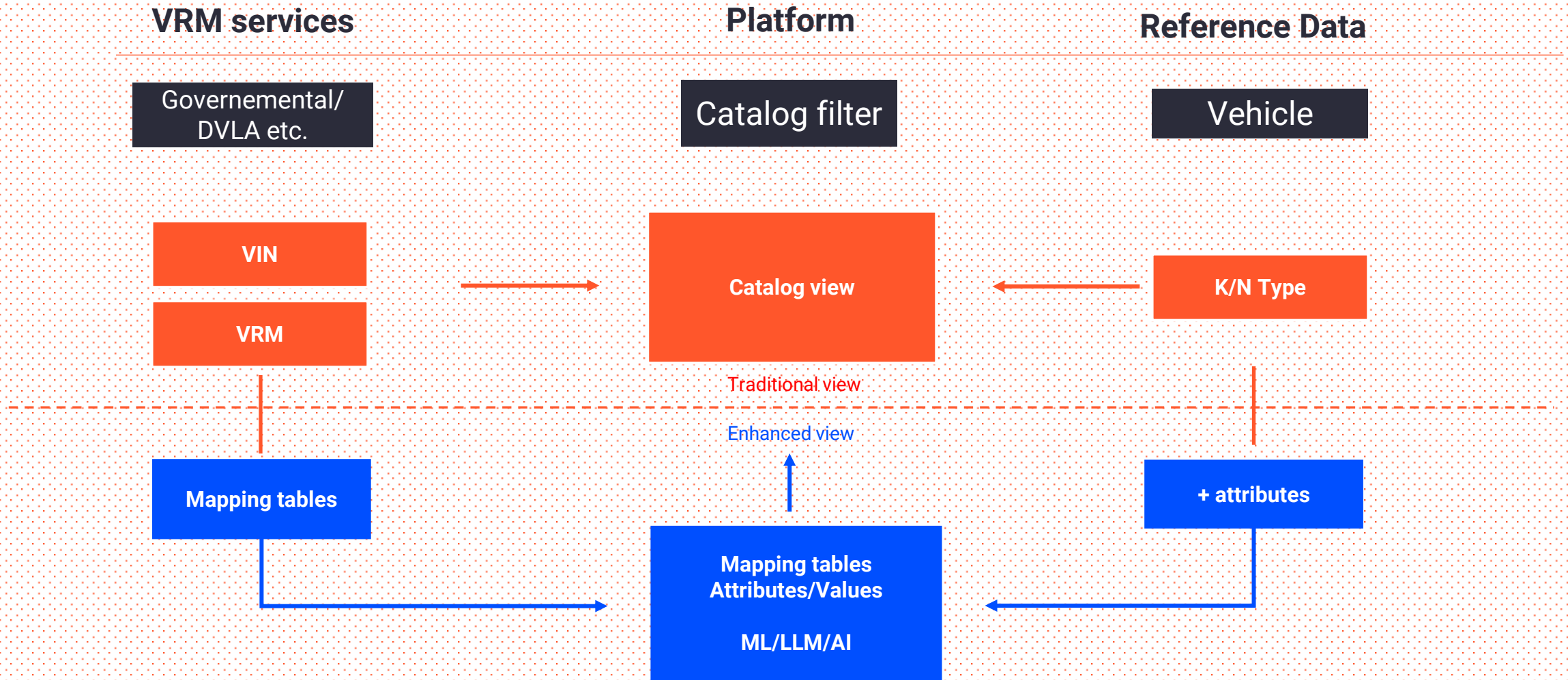
☐ 280 mm (3)

☐ 289 mm (1)

Transmission Type

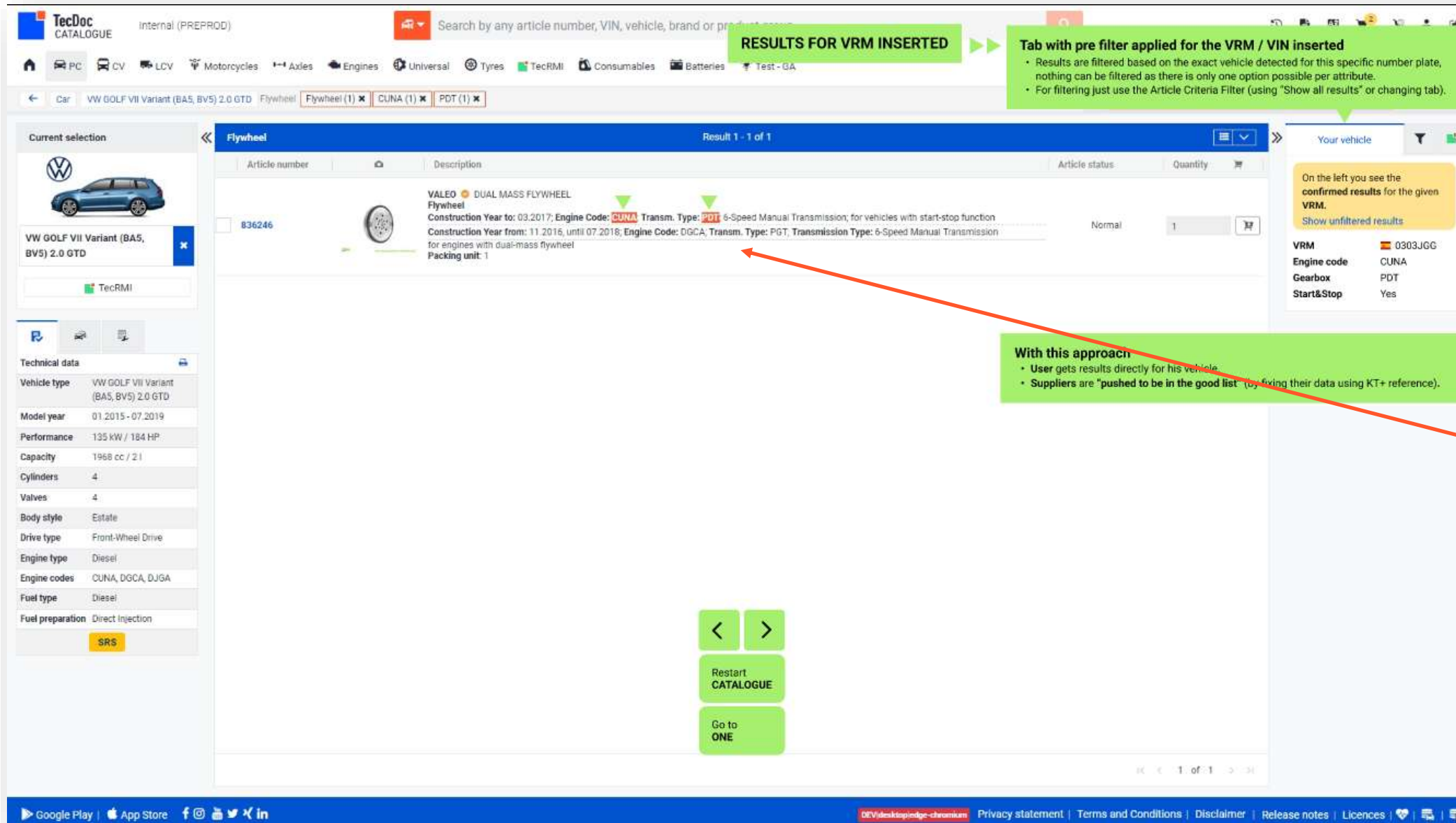
Traditional view, right panel attribute and criteria selection.

# VRM Catalog filter use case





# Catalogue examples



**TecDoc CATALOGUE** Internal (PREPROD)

Search by any article number, VIN, vehicle, brand or product code

Car | VW GOLF VII Variant (BA5, BV5) 2.0 GTD | Flywheel | Flywheel (1) | CUNA (1) | PDT (1)

**Current selection**

VW GOLF VII Variant (BA5, BV5) 2.0 GTD

**Technical data**


Vehicle type	VW GOLF VII Variant (BA5, BV5) 2.0 GTD
Model year	01.2015 - 07.2019
Performance	135 kW / 184 HP
Capacity	1968 cc / 2 l
Cylinders	4
Valves	4
Body style	Estate
Drive type	Front-Wheel Drive
Engine type	Diesel
Engine codes	CUNA, DGCA, DJGA
Fuel type	Diesel
Fuel preparation	Direct Injection

**RESULTS FOR VRM INSERTED**

**Tab with pre filter applied for the VRM / VIN inserted**

- Results are filtered based on the exact vehicle detected for this specific number plate, nothing can be filtered as there is only one option possible per attribute.
- For filtering just use the Article Criteria Filter (using "Show all results" or changing tab).

**Flywheel** Result 1 - 1 of 1

Article number	Description	Article status	Quantity
836246	 VALEO DUAL MASS FLYWHEEL Flywheel Construction Year to: 03.2017; Engine Code: CUNA; Transm. Type: PDT 6-Speed Manual Transmission; for vehicles with start-stop function Construction Year from: 11.2016, until 07.2018; Engine Code: DGCA; Transm. Type: PGT; Transmission Type: 6-Speed Manual Transmission for engines with dual-mass flywheel Packing unit: 1	Normal	1

**Your vehicle**

On the left you see the confirmed results for the given VRM.

Show unfiltered results

**VRM** 0303JGG

Engine code	CUNA
Gearbox	PDT
Start&Stop	Yes

**With this approach**

- User gets results directly for his vehicle
- Suppliers are "pushed to be in the good list" (by fixing their data using KT+ reference).

< >

Restart CATALOGUE

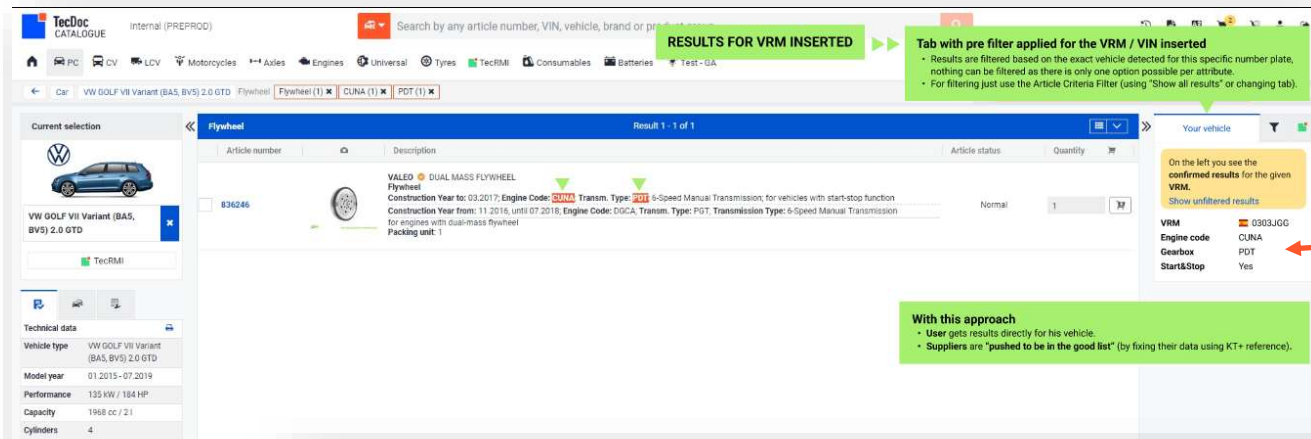
Go to ONE

Google Play | App Store | f | i | t | w | i | n

DEV/desktopindigo-chromium | Privacy statement | Terms and Conditions | Disclaimer | Release notes | Licences

Enhanced view, automatic attribute and criteria selection due to available VRM criteria.

# Catalogue examples -> 1 part per vehicle



**RESULTS FOR VRM INSERTED**

**Tab with pre filter applied for the VRM / VIN inserted**

- Results are filtered based on the exact vehicle detected for this specific number plate, nothing can be filtered as there is only one option possible per attribute.
- For filtering just use the Article Criteria Filter (using "Show all results" or changing tab).

**Your vehicle**

On the left you see the confirmed results for the given VRM.

Show unfiltered results

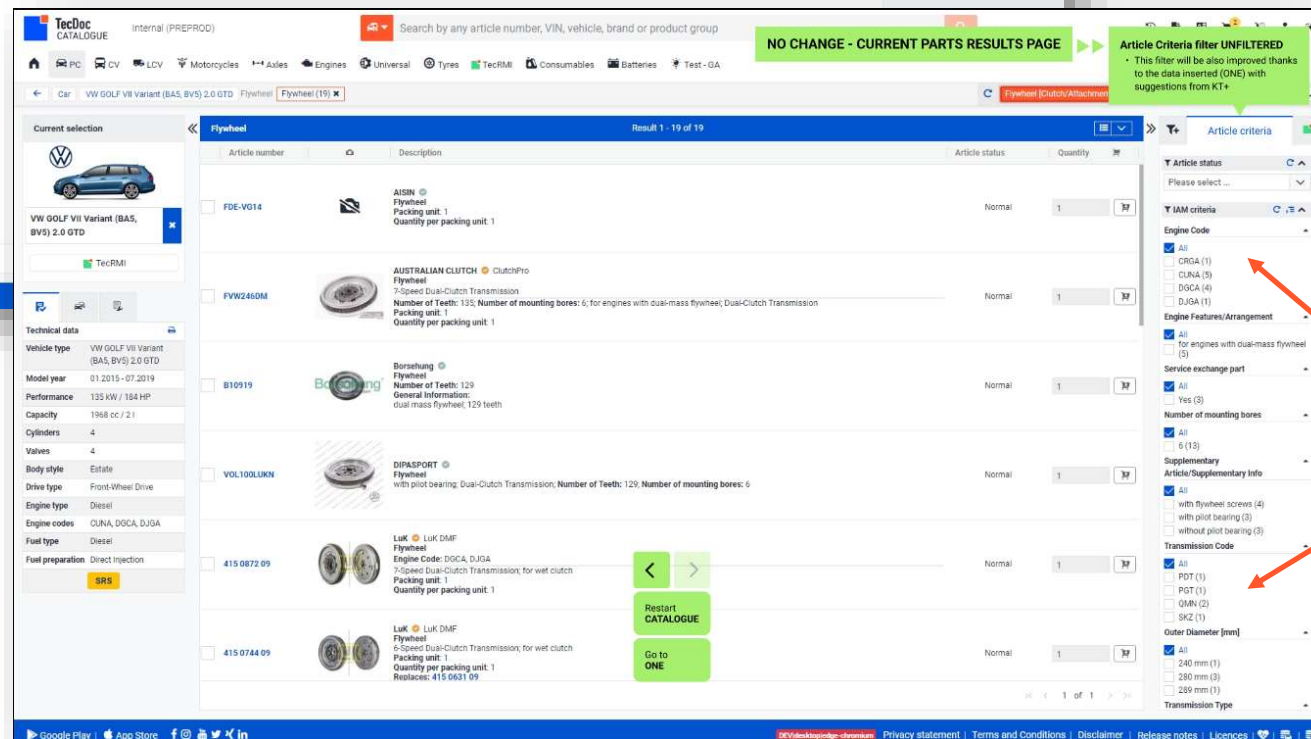
**VRM**

Engine code: CUNA  
Gearbox: POT  
Start&Stop: Yes

**With this approach**

- User gets results directly for his vehicle.
- Suppliers are "pushed to be in the good list" (by fixing their data using KT+ reference).

Enhanced view, automatic attribute and criteria selection due to available VRM criteria.



**NO CHANGE - CURRENT PARTS RESULTS PAGE**

**Article Criteria filter UNFILTERED**

- This filter will be also improved thanks to the data inserted (ONE) with suggestions from KT+.

**Article criteria**

Article status: Please select ...

Article criteria: Engine Code

- ☒ All
- ☐ CROA (1)
- ☐ CUNA (5)
- ☐ DGCA (4)
- ☐ DJGA (1)

Engine Features/Arrangement

- ☒ All
- ☐ for engines with dual-mass flywheel (5)

Service exchange part

- ☒ All
- ☐ Yes (3)

Number of mounting bores

- ☒ All
- ☐ 5 (13)

Supplementary Article/Supplementary Info

- ☒ All
- ☐ with flywheel screws (4)
- ☐ with pilot bearing (3)
- ☐ without pilot bearing (3)

Transmission Code

- ☒ All
- ☐ PDT (1)
- ☐ PGT (1)
- ☐ GMR (2)
- ☐ SKZ (1)


Outer Diameter [mm]


- ☒ All
- ☐ 240 mm (1)
- ☐ 280 mm (3)
- ☐ 289 mm (1)


Transmission Type


Traditional view, right panel manual attribute and criteria selection.


# Enhanced reference data in TecDoc ONE





 My profile


 My products


 Asset Manager


 Linkages


 System Settings


 Reporting


 Import


 Control Panel


 Translation Manager


 My Linking Targets

 Search or type / for available commands



 Save

 Close



5600 - AUDI A3 (8L1)

TecDoc Reference Data

preview

Make and Model

Make	5   AUDI
Model	1557   A3 (8L1)
Model Type	1.6
Model Code Description	

Engine

Engine Type Description	Petrol Engine
PKW Description	74
PHP Description	101
Engine Code Ids	[5074, 9990, 11588]
Engine Code Description	AEH,AKL,APF
Stroke	1.6
CC	1595
Cylinders	4
Valves	2

Date Range

Year Range	09.1996 - 05.2003
------------	-------------------

Body

Body Type Description	Hatchback
-----------------------	-----------

Digital Assets


KType-Plus


Plus Model	-
Country of Origin	D
Model Facelift	2002-01
Door	2, 4
Vehicle Platform	-
Gross Weight	1500
Vehicle Equipment Features	AirConditioning: Yes SRC: No StartStop: No SteeringGear: LR SteeringBox: THB CO2From: - CO2To: -
Wheelbase	-
European Vehicle Class	01


My Attributes


Internal ID	<input type="text"/>
Approval Date	<input type="text"/>
Company Label	<input type="text"/>
Internal Color Name	<input type="text"/>

Hide sidebar





 1 x

 1 x

 5560 x

 2 x

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QA

Tenant: vehicle\_maintenance

IDP Info

Release Notes

Data release

Disclaimer

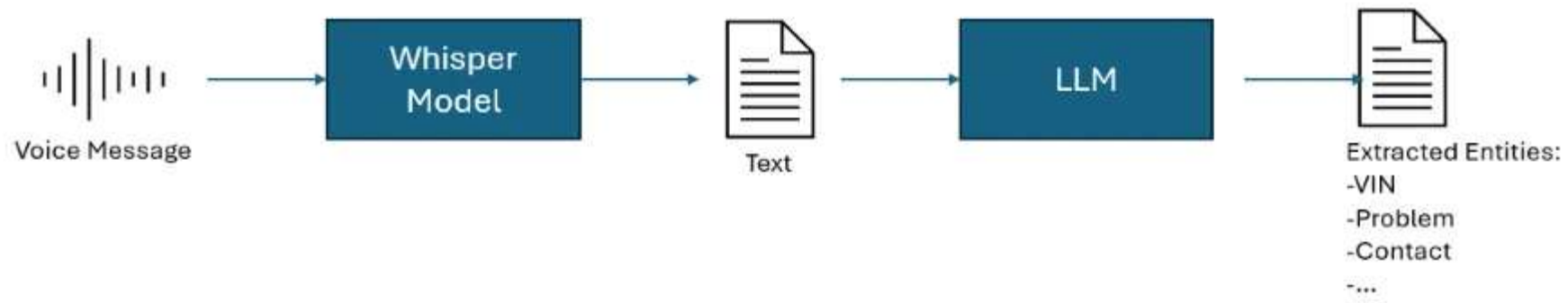
Privacy statement

Licences

alliance.net

**Ai used within TecAlliance**  
**..we have lots of idea's..**

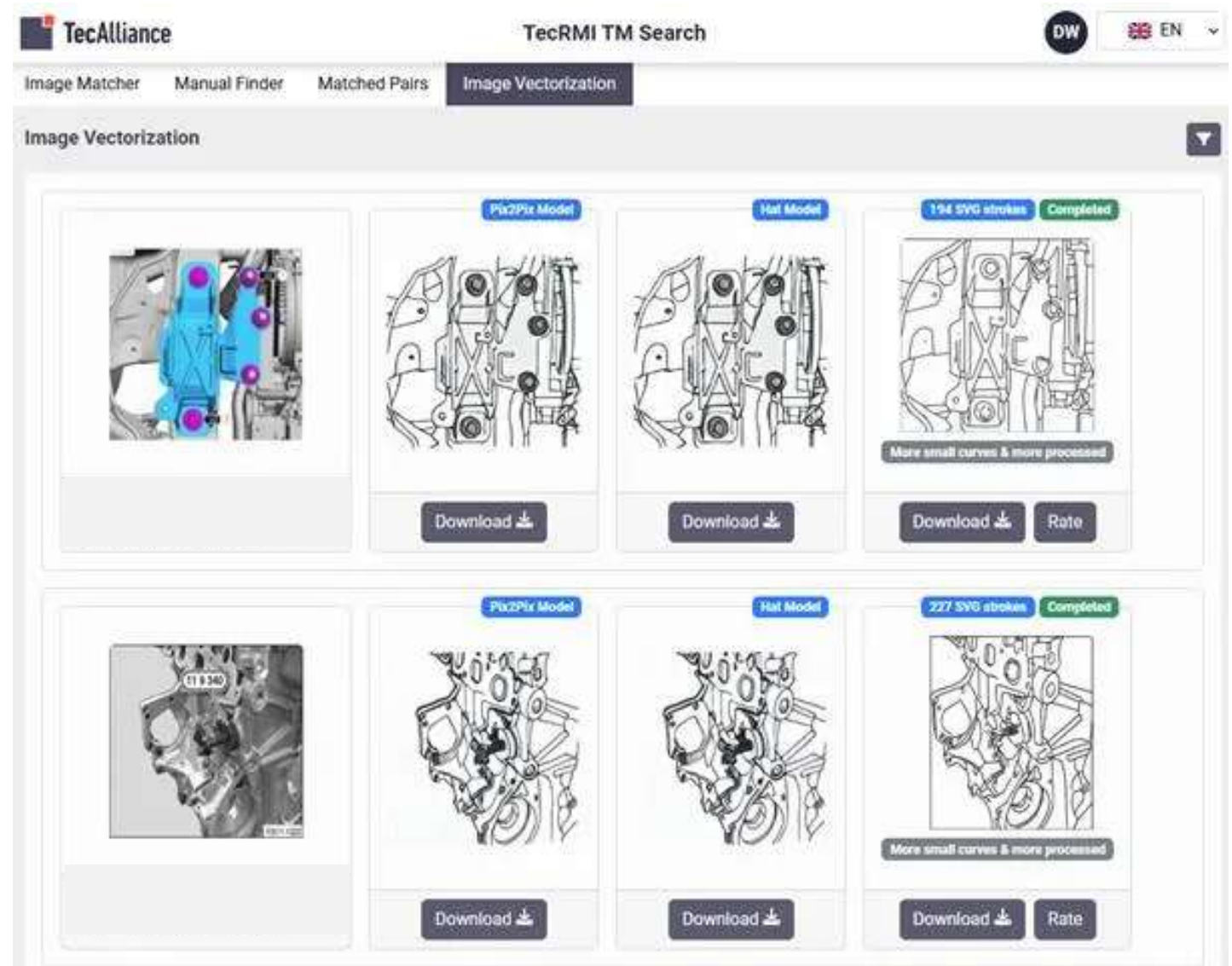
# Ai use case – Automated callcenter agent



# Ai use case – Image enhancement (vectorisation)

Objective: Creation of scalable vectorized images.

Trained a Pix2Pix model to transform OEM images from technical manuals into TA-style images





# Ai use case – Image generation

## OpenAI GPT-Image-1 model

Objective: Faster and more detailed generated images for manuals

In the attached image, you can see the results:




- Column 1: The original OEM input image.
- Column 2: The result generated by GPT-Image-1.
- Column 3: The manually created TA drawing by our graphic designers.
- Column 4: The output from our previously self-trained model.
- Columns 5 & 6: The OEM-TA reference pair used for style guidance.



# Ai use case – Image recognition

artikelnummer	34 023
merknummer	54023
omschrijving	ACCU
typeomschrijving	12u16Ah/330x230x120x227mm startaccu 1/pool 1
merk	BOSCH
type	L1ST.300
typecode	01
type	Bruis € 102,75 (Totaal € 8,00)
verval	1



0 092 M4F 400		Result 1 – 3 of 3	
Article number		Description	
<input type="checkbox"/> 0 092 M4F 400		<b>BOSCH</b> M4 Fresh Pack Starter Battery (Universal) Found via Article number (0 092 M4F 400) Voltage: 12 V, Battery Capacity: 16 Ah, Cold Length: 205 mm, Width: 72 mm, Height: 164 mm, Hold-down: 800, Terminal Type: Y2 Packing unit: 1 Trade numbers: M4 F40, YB16AL-A2, 12V 1 Replaces: 0 092 M40 400	
<input type="checkbox"/> 0 092 M40 400		<b>BOSCH</b> M4 Starter Battery (Universal) Found via Replaced number (0 092 M4F 400) Voltage: 12 V, Battery Capacity: 16 Ah, Cold Length: 205 mm, Width: 72 mm, Height: 164 mm, Hold-down: 800, Terminal Type: Y2 Packing unit: 1 Trade numbers: M4 040, YB16AL-A2, 12V 1 Replaced by: 0 092 M4F 400	
<input type="checkbox"/> TMBS1616		<b>IPSA</b> Starter Battery (Deep Cycle Battery) (Universal)   Deep Cycle Battery (Universal) Found via Comparable number (0092M4F400) Hold-down: ohne, Voltage: 12 V, Terminal Type: Y2, Positive Terminal right, Cold-test Current, EN: 220 A, Battery Capacity: 16 Ah, Terminal Placement: 0, Length: 205 mm, Width: 70 mm, Height: 162 mm Packing unit: 1 Quantity per packing unit: 1	






# Ai use case– Image recognition

Details

Typenvergelijk

Suggestieformulier

Artikelnummer	VV-361559
Verkort nummer	
Omschrijving	VERLAGINGSSET
Opmerking artikel	cür 30mm verlaagd
Merk	MAD
Systeem	
PopKode	00A
Prijs	Bruto € 186,30
Aantal	1




Details


Typenvergelijk

Suggestieformulier


Artikelnummer	4292628
Verkort nummer	
Omschrijving	HOOFDVEER ACHTER
Opmerking artikel	LEIJOPORS
Merk	
Systeem	
PopKode	00A
Prijs	Bruto € 81,80
Aantal	1



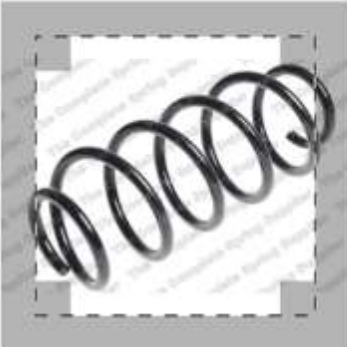





GroupID 190 = Suspensi...



GroupID 188 = Coil Spring





GroupID 188 = Coil Spring  
11561.0  
[VIEW](#)


# Ai use case – Image recognition


Details


Typevergelijk

Suggestieformulier

Artikelnummer	DSN1215
Verkort nummer	
Omschrijving	STARTMOTOR
Opmerking artikel	12v, 9 tanden, 1.0kw, nieuw onderdeel koud klimaat
Merks	DENSO
Systeem	NIUW
Papircode	00A
Prijs	Bruto € 202,00
Quantiteit	<input type="text" value="1"/>









GroupID 2 = Starter  
0 001 148 003

[VIEW](#)



GroupID 332 = Compres...  
21600P3215

[VIEW](#)




GroupID 1145 = EGR Valve  
EEG-5509


[VIEW](#)


# Ai use case – Image recognition

Uitvals

Artikelnummer	295055
Verkort nummer	
Omschrijving	KOELTEMPSENSOR
Opmerking artikel	behuizingskleurwit, 2-polig, m 12x1,5
Merk	BOUICORD
Systeem	
PopRode	00
Prijs	Bruto € 18,50
Aantal	<input type="text" value="1"/>









GroupID 412 = Sensor, w.  
50901

[GO VIEW](#)




GroupID 3971 = Flex Ho.  
57562

[GO VIEW](#)




GroupID 342 = Valve, co.  
V15-51-0002

[GO VIEW](#)




GroupID 3905 = Injector  
0 280 155 971

[GO VIEW](#)




GroupID 3843 = Hydrauli.  
EAT-ME-000A

[GO VIEW](#)



GroupID 3930 = Pump a.  
0 414 799 033

[GO VIEW](#)



GroupID 3902 = Injector  
39020260R

[GO VIEW](#)

# Ai use case – language detection in Attachements and documents

```
1 {
2   "brand number": 1,
3   "brand name": "A",
4   "file name": "A",
5   "language number": 255,
6   "language iso code": "None",
7   "file language": "None",
8   "DocTermNorm": "Installation Manual",
9   "evaluation result": "no",
10  "comment": "This document has no language required for the country. The language from table 231 for this document is ENGLISH.",
11  "total number of words": 153,
12  "detected languages": [
13    {
14      "text": "important fitting and warranty information ",
15      "language number": 4,
16      "language iso code": "en",
17      "language": "ENGLISH",
18      "approximate number of words": 5.0,
19      "percentage": 3.27
20    },
21    {
22      "text": "achtung! dieser anwendung befindet sich ein ring schlauch oder externen vorratsbeh\u00e4lter
23      tauschen sie den ring gegen den neuen aus. da\u00fcr m\u00fcssen sie den vorratsbeh\u00e4lter demon
24      nicht ausgetauscht wird, kann dies undichtigkeiten und daraus entstehenden ger\u00e4uschen alten ri
25      kann. entfernen sie den alten beim trennen h\u00e4ufig beh\u00e4lter verbleibt. setzen sie den neu
26      mit servo und dr\u00fccken sie ihn den vorratsbeh\u00e4lter. verwenden sie die klammer erneut, den b
27      sicherzustellen, dass die ausrichtung zwischen pumpe und einlassanschluss gerade ist, dieser anwendu
28      filter, der verstopft sein kann. das reservoir sollte zwingend gegen ein neues ausgetauscht werden.
29      m\u00f6glich. verwenden sie ausschlie\u00dflich das vom hersteller freigegebene . ",
30      "language number": 1,
31      "language iso code": "de",
32      "language": "GERMAN",
33      "approximate number of words": 138.0,
34      "percentage": 90.2
35    },
36    {
37      "text": "der ring der pumpe f\u00fchren. der ring, der der pumpe ",
38      "language number": 10,
39      "language iso code": "da",
40      "language": "DANISH",
41      "approximate number of words": 10.0,
42      "percentage": 6.54
43    }
44  ]
45 }
```

## KPI17

Translation of Documents  
(≥ 99% Compliance)

### What does it mean?

PDS suppliers must ensure that at least 99% of the provided document translations (e.g. "Service Information", "Manual", "Warranty Certificate") match the actual languages used

### Benefit:

Consistent and accurate translations ensure that essential product information is clearly understood across different countries, preventing misunderstandings at the Point of Sale.

### Advantage:

A standardised and reliable translation process enhances trust in data quality, facilitates smooth international business operations, and makes parts sales more efficient and sustainable.

# Conclusions





Product management tooling is growing into a multi disciplinary tool, inwhere data quality (supported with ML/Ai), still remains a specialist's skill.



In order to get reliable and representative results of any Ai/ML process, high quality, relevant and meaningful source data is the foundation for a succesful outcome.



There are no fast solutions or quicks wins, when it come to data quality. Ai will change the way we work, but for now, the human intervention still remains crucial for reliable results.

# Questions



# Thank you



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2025, June 18<sup>th</sup>.