Artificial Intelligence for Supply Chain
Supply Chain data opacity and ambiguity are issues that affect 100,000+ global companies

Large multinational corporations rely on ERPs or SRM Platforms for all their critical procurement processes where most of the relevant data in Purchase Orders, Invoices, Material Master Data and Catalog items is unstructured, multilanguage and sometimes even categorized in different taxonomy structures.

Crucial and large corporate initiatives succeed or fail based on data quality, like:

• Business Intelligence
• Spend Data Analysis for strategic procurement and sourcing optimization
• Purchased Material Master Data and stock Management

“80% of this data is unstructured, but most of the business value is in there” (Gartner)

The “holy grail” of spend management is the full and correct automated classification of spend data that drives 10% plus of potential saving (Aberdeen)

Digitalizing supply chain operations can “lower procurement costs by 20%, reduce supply chain process costs by 50% and increase revenue by 10%” (The Center for Global Enterprise - CGE)
The Complexity of Supply Chain Data

Cryptic & Domain specific

Multilingual

Paper бумага papir ورقة Kâğıt

Ambiguous

gasket for pump

pump with gasket

Manager

Purchase Orders

Invoices

Supplier Catalogs

Free-text orders

Contracts

Material Master Data

Free-text orders
Our solution

A comprehensive suite of applications for supply chain: cleansing and harmonizing existing data and creating new precise and unique data.

Creation of the right data from the beginning

1. Matcher
2. Classification Assistant
3. Master Data Creation Assistant

Specific spare part searched in multiple multilingual warehouses or catalogs
Corporate classification of an item (Material Group, “MG Prompt”) New spare part definition: complete, precise and unique (Material Smart Creation)

25+ Languages

Harmonization and precise classification of existing poor corporate data

1. Procurement Data Optimizer
2. Inventory Optimizer

Multilingual purchase order and invoices (Classification Engine for Spend Analysis)
Inventory of a multilingual warehouse (Deduplication Engine for Material Master)
A competitive edge hybrid technology

Unique in the market combining natural language Semantic Analysis with Artificial Intelligence in 25+ languages in order to structure heterogenous data

1. Deep Learning Tech to learn from examples, even from wrong ones
2. Knowledge Base engineering to support the technical context definition
3. Continuous automatic improvement through crowd-learning
4. A new language in a week
5. Proven over hundreds of millions of data sets
6. Very high throughput
7. 25+ languages
8. 95%+ precision
9. 4,000,000+ rules
10. 50,000+ suppliers
11. 3,500+ brands
12. 14 Million+ codes
13. 700,000+ patterns
14. Classification structure 60,000+ categories
15. Compatible with any ERP: SAP, JD Edwards, Microsoft Dynamics, etc
16. Fast and automated set-up
17. Easy to use

Artificial Intelligence
Dee Learning

Natural Language
Semantic Analysis

Deep Learning Tech to learn from examples, even from wrong ones
Knowledge Base engineering to support the technical context definition
Continuous automatic improvement through crowd-learning
Matcher gives back up to 10 most similar materials

<table>
<thead>
<tr>
<th>Top 10 similar items</th>
<th>Material code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schraube BS DIN 931 M12x30</td>
<td>2,7103087724</td>
</tr>
<tr>
<td>Torx® DIN 931 M12x30</td>
<td>4,7103080024</td>
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<td>H.V BS DIN 931 M12x30</td>
<td>2,7103083224</td>
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<tr>
<td>Screw DIN950 M4x21 x 42 INCH</td>
<td>111111111149399</td>
</tr>
<tr>
<td>Screw DIN950 M4x21 x 42 TE INCH</td>
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</tr>
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<td>Screw DIN950 M4x21 x 42 INCH</td>
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<tr>
<td>Olona ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁ ⹁</td>
<td>451057265</td>
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<tr>
<td>Schraube DIN931 M8 x 25 x 40</td>
<td>1111111111493999</td>
</tr>
<tr>
<td>Schraube DIN931 M8 x 25 x 40</td>
<td>1111111111493999</td>
</tr>
<tr>
<td>Schraube DIN931 M8 x 25 x 40</td>
<td>1111111111493999</td>
</tr>
</tbody>
</table>

- High-performance full-text search engine for unstructured and structured data contained in Client’s Material Master Data, Internal Catalogs, Frame Contracts;
- Cross-language engine that recognize and match equivalent items described in natural language
- Retrieval accuracy of 95% for each search
MG Prompt, perfectly integrated in the PR transaction, understands the natural language of the Requisitioner and proposes the 5 more consistent Categories over the Customer categorization system that can be:

- Standard (UNSPSC/eCl@ss)
- Custom Taxonomies
- Both

Accuracy of 95% on the proposed list of most suitable categories.
Real time classification support in the custom and/or standard taxonomy (UNSPSC, eCl@ss)

Search and check if an already existing, equal or similar Material is available in current Material Master Data:

- If the item already exist a duplicate creation is avoided,
- If the item doesn’t exist, the system support the creation with the right categorization and eventual technical attribute normalization.
TAM is a web-application for Material Master Data Governance and enable a continuous and automated data cleansing of purchased products.

Cleanse up historical master data:

- Find duplicates items
- Support enrichment
- Normalize descriptions

Keep clean future material master data:

- Categorize
- Warn on similar items
- Detect missing technical attributes
- Normalize descriptions
Cleansing and enrichment of Spend data (POs, IR, GR...):
• Enhanced categorization on:
  • Standard Taxonomy (UNSPSC/eCl@ss)
  • Custom Taxonomy
• Brand & Producer code extraction from line item description
• Supplier Group detection
• 25+ Languages under management – without any upfront translation to English

Massive Cleansing on historical data and automated periodic data refreshes with 95% Accuracy certified

**Front end options:**

**Spend Analytics/ BI tools already in place**: cleansed and enriched data ready to be exploited by customers’ stand alone Business Intelligence (BI) tool or embedded in Source to Pay platforms

**Spend Analytics ++**: Spend analysis for large enterprises developed by SAS Institute in collaboration with Creatives as part of SAS Continuous Monitoring solution for procurement optimization and fraud detection

**TSV 8**: stand alone Spend analysis tool developed by Add Value in collaboration with Creatives’ Technology
Non-invasive solution

“Add-on” applications working on top of the client’s ERPs / SRM using standard connectors

1. MATERIAL GROUP CLASSIFICATION
2. PARTS/CONTRACT SEARCH
3. MATERIAL MASTER DATA CREATION
4. MATERIAL MASTER DATA MANAGEMENT
5. SPEND ANALYSIS

P2P

ERP

MDM/MDG

INVENTORY

SPARE PARTS

SPEND ANALYSIS

PURCHASE ORDERS

CLASSIFIED PURCH. ORDERS

SPARE PARTS

PERIODIC UPD. PURCH. ORDERS

DEDUPLED SPARE PARTS

MATERIAL MASTER DATA MANAGEMENT

DATA OWNER

SPEND ANALYSTS

P2P

CLASSIFIED PURCH. ORDERS

PURCHASE ORDERS

INITIAL UPLOAD

SPEND ANALYSIS

PURCHASE ORDERS

INITIAL UPLOAD

MONTHLY UPD. PURCH. ORDERS

PURCHASE ORDERS

INITIAL UPLOAD

SPEND ANALYSTS

P2P

CLASSIFIED PURCH. ORDERS

PURCHASE ORDERS

INITIAL UPLOAD

MONTHLY UPD. PURCH. ORDERS

PURCHASE ORDERS

INITIAL UPLOAD

SPEND ANALYSTS
Huge bottom line benefits

To take better advantage of the Data Driven Transformation, it’s essential to have trusted, governed, relevant and authoritative data.

Recurring savings
2-10% of the year spending
Spend Analysis efficiency improvement

Quality improvement
30-50% of the Material Group precision
Huge efficiency improvement of the Supply Chain processes

Warehouse optimization
3-12%+ of the stock value
The revamping of material stock and the deduplication optimization are coupled with continuous and precise governance
Business model

Set-up project + SaaS

Set-up project

Learning from examples to build the Deep Neural Net and adapt the Semantic Knowledge Base

Depending on

#LANGUAGES
#TAXONOMIES,
#ITEMS

Elapsed

FROM
A FEW DAYS
TO
A FEW WEEKS

SaaS

Depending on

#LANGUAGES
#ITEMS
#USERs
#ERPs

Composed by

FIXED PART
+
PAY AS YOU GO

The variable part depending on the additional effective usage
Reference use cases:

Creatives’ applications are used by many prominent organizations from all around the world.
Our main customers

- BASF
- SIEMENS
- enel
- BRIDGESTONE
- Gestamp
- Heraeus
- KONICA MINOLTA
- CAF
- WACKER
- TRENITALIA
- Delphi Technologies
- AIRBUS
An intelligent assistant suggesting the Material Group classification structure of the company for Purchase Orders

19 languages
Danish, Dutch, English, French, German, Italian, Mandarin (Chinese), Portuguese, Russian, Spanish, Arabic, Bulgarian, Croatian, Czech, Finnish, Greek, Hungarian, Japanese, Norwegian, Polish, Swedish, Turkish

Suggestions
Indirect: 1 Mio Catalog/ 0,5 Mio Free text PO lines/year
Divisions already implemented
One SRM/One SRM China
Energy management
Customer’s structure
2.000+ Material Groups (ESN)
Accuracy
95%
Environment
1 centralized SRM
dozens of SAPs (6 main divisions)
1 centralized Data warehouse

“There is plenty of suppliers claiming to support supply chain with AI, but those guys coming from Verona are doing great things”

Thomas Holzner, Digital Program Manager, Siemens
At Data Intelligence technology forum 2018
An intelligent assistant suggesting the Material Group classification structure of the company for Purchase Orders

10 languages
English, French, Italian, German, Spanish, Portuguese, Dutch, Chinese, Korean, Japanese

Suggestions
250.000+ per year

Users
5.000+ in 18 countries

Customer's structure
1.700+ Material Groups based on eCl@ss

Accuracy
99%

Environment
1 SAP system

"MG Prompt is a powerful contribution for Intelligent-ERP transformation and enable Industry 4.0 in chemicals"
Andreas Abrath – Director Procurement 4.0 at BASF
Inventory Optimizer + Master Data Creation Assistant

A comprehensive Master Data Governance solution: data harmonization, classification and deduplication of several warehouses coupled with the Material Smart Creation to avoid mistakes forever.

8 languages
Italian, Spanish, Portuguese, English, German, Rumanian, Russian, Greek

“...The massive cleansing of material master data allowed ENEL to significantly reduce complexity and improve efficiency in spare stock management worldwide...”

Mario Mosca - Head Materials, Equipment and Logistic at Global Infrastructure & Network

Material Master Data
1.200.000+ items

Environment
2 target harmonized SAP systems
(source 8 SAP systems)

Users
2.000+
in 20 countries

Accuracy
95%
Procurement Optimizer

The engine categorizes according to Heraeus corporate Taxonomy and enriches the data with information such as brand and producer codes to enable price comparisons and supplier base reduction initiatives.

11 languages
English, German, Spanish, Russian, Romanian, Portuguese, Chinese, Japanese, French, Greek, Korean

Spending amount
1,6+ B€/year

Item / year
6 millions lines online

Accuracy
95%

Environment
1 SAP System
40 Countries
Creatives S.p.A.
We empower businesses
to smartly interpret their data opening unique technology doors.
Creatives’ headquarters are in Verona – Italy.
Subsidiary in Germany (Karlsruhe)
Local offices are located in Spain (Madrid) and France (Paris).

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