



**ABUDACO**

A PRODUCT OF



**DATA VILLAGE**

NIEDERRHEINISCHE SOFTWARE-MANUFAKTUR





## BACKGROUND

Nothing is more constant than **change**. To the same extent that the structure of a company changes, so does its IT environment. From medium-sized enterprises to multinational groups: The system and software environments of today's companies are often strongly heterogeneous.

In general, the data from different systems has a different structure and information content. It resembles more an **alphabet soup** than a readable and informative book. For centralised departments and Controlling it is difficult to keep track of things and to make the correct decisions in this disarray of data.

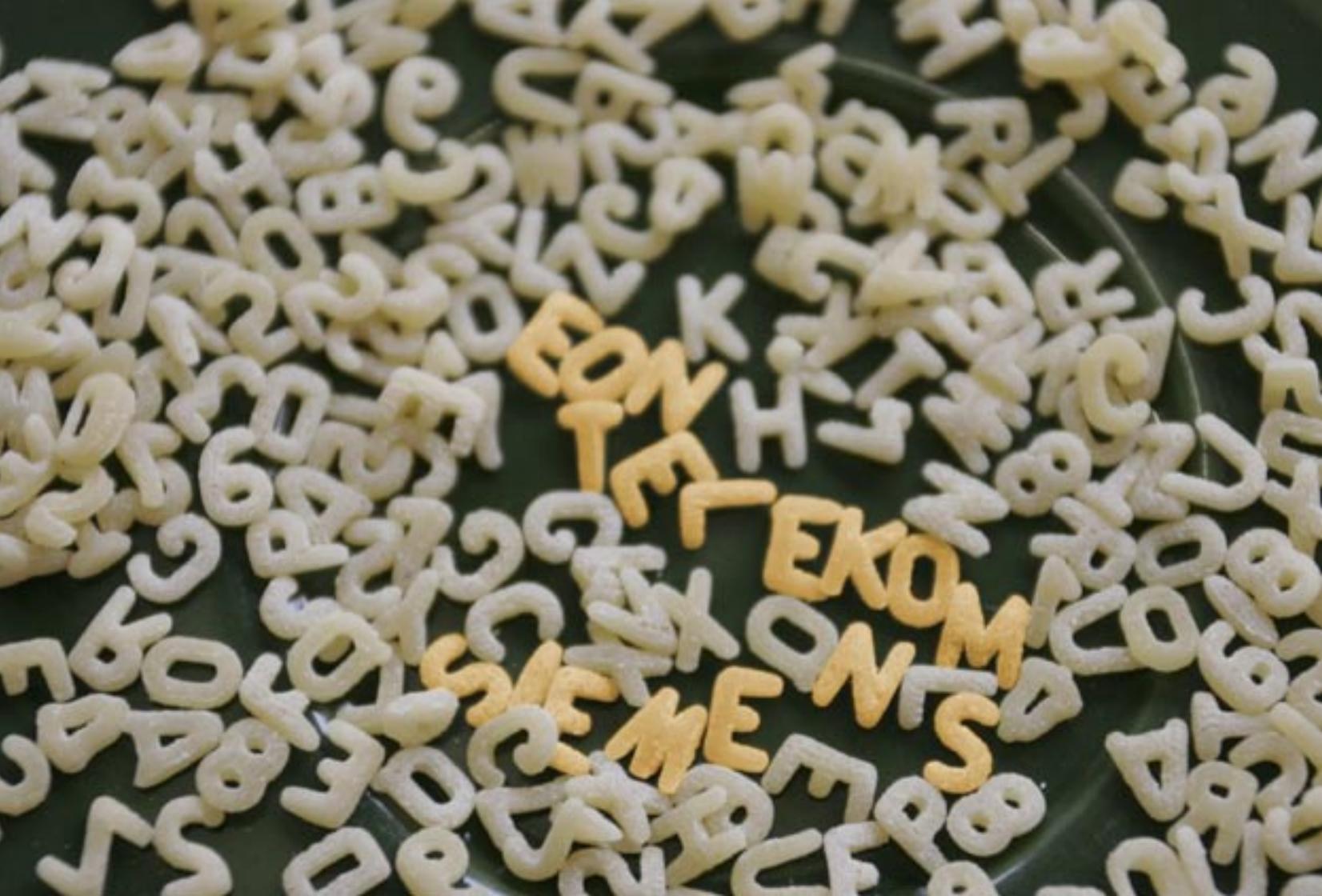
To stick to the alphabet soup example: After all, all the data is already in one pot. Loading data from different source systems into a central **data warehouse** such as SAP® BW is nowadays virtually regarded as an IT standard.

The data in a data warehouse is transferred into standardised structures and is processed for analysis.

However what is still missing is a tool to consolidate and harmonise the data, i.e. a tool for

### **Automated Business Data Consolidation**

or in short: **Abudaco**.



ECONOMY  
SIEMENS



## POSITIONING

### Abudaco

- is a tool to **automatically consolidate** master data and transaction data from different source systems
- is an **open framework** for development, test and comparison of different consolidation strategies
- offers intuitive, browser-based user interfaces, to make the inevitable manual work as **convenient and efficient** as possible
- is based on SAP® Netweaver™ -Technology: ABAP / BSP
- is where the data also is: in **SAP® BW** (as add-on)

### Application Scenarios

- Global Spend Reporting
- CRM Analytics
- Quality inspection of migration data
- Consolidation of SAP® R/3 Systems





## EXAMPLE: GLOBAL SPEND REPORTING

### Global Spend Reporting

is one of the main fields of application of **Abudaco**. Global Spend Reporting means analysing companywide purchasing volumes with regard to the following dimensions: supplier, material and purchasing organisation.

The main objective of Global Spend Reporting is to supply the central purchasing groups with transparent and significant data, so that they can recognize and leverage **bundling potentials** in purchasing.

Abudaco supports Global Spend Reporting in SAP® Business Warehouse (BW) with the modules

- Abudaco Supplier Consolidation
- Abudaco Line Item Classification

The following pages describe how a Global Spend scenario based on SAP® BW is set up with the help of these two modules.



## SUPPLIER CONSOLIDATION

A standard report for each purchasing information system is the so-called **Top-N Supplier** report. This report answers the question: Which are our most important suppliers and for what amount do we purchase from them each year?

Without supplier consolidation, this question can only be answered with regard to the local supplier numbers from each source system. As every supplier can be used in several source systems and, as in this case normally neither supplier numbers nor texts correspond, the same supplier will appear respectively often in the TOP-N report.

For a truly significant TOP-N supplier report, the different entities of the same supplier have to be summarised (consolidated) in one line of the report.

Figure 1: TOP-N report without supplier consolidation

System	Supplier (local)	Spend 2005
01	0056024675 McDonalds Deutschland	12.057.000 EUR
01	0065068040 SKT Automatismung	10.900.512 EUR
02	000104456 SAP Aktiengesellschaft	10.120.900 EUR
03	0021009283 Siemens AG, München	9.722.013 EUR
01	0055009043 Dyckerhoff Fertigkeiten Saar	9.566.230 EUR
02	0001005932 IBM Deutschland GmbH	9.117.030 EUR
03	0021006374 Procter & Gamble	8.600.200 EUR
03	0021019884 Schenker Deutschland GmbH	8.945.892 EUR
01	0066006303 IBM Int. Business Machines	4.012.500 EUR
01	005603992 SAP AG, Systeme Anweisungen Programme	3.689.010 EUR
02	0001060054 Gibl. Lennartz GmbH & Co. KG	3.548.400 EUR
02	0001017932 SIEMENS Aktiengesellschaft	2.660.790 EUR
03	0021007003 SAP Deutschland GmbH & Co. KG	2.100.000 EUR
03	002100696 SAP AG	1.934.783 EUR
01	0055001313 DATA VILLAGE GmbH & Co. KG	1.309.550 EUR
01	0056006645 Siemens A.G.	870.000 EUR
01	0056012776 E. JAEGER GMBH & CO KG, Baustoffe	560.022 EUR
02	0001000455 Compuser GmbH	448.230 EUR

In principle, the SAP® Business Warehouse (BW) permits such a summary by using navigation attributes. However, with the standard functions of SAP® BW alone it is not possible to determine automatically which supplier lines belong together.



Figure 2: TOP-N Report with supplier consolidation

The **Abudaco Supplier Consolidation** module takes on this task. Abudaco analyses names and addresses of the suppliers and summarises them into appropriate groups. Each group is assigned a unique supplier number independent of the source system. In addition, a unique text and, if necessary, other attributes are selected.

In this manner a true global Top-N supplier report is generated that goes beyond system boundaries. The level on which the suppliers should be summarised for reporting is dependent on the requirements of the central procurement department or the different user groups.

If purchasing e.g. on a regional level (Europe, APA, North America) should be bundled, then the suppliers also have to be consolidated on a regional level.

Supplier (cons)	Spend 2005
CV 10000001 SAP AG	15.944.593 EUR
CV 10000000 Siemens AG	13.252.803 EUR
CV 10006339 IBM Deutschland GmbH	13.129.530 EUR
CV 10008002 McDonalds Deutschland	12.057.000 EUR
CV 10001166 SDT Autovermietung	10.060.612 EUR
CV 10000354 Cyckerheff Fertigteile Saar	9.566.230 EUR
CV 10009000 Procter & Gamble	8.600.200 EUR
CV 10002917 Schenker Deutschland GmbH	6.945.892 EUR
CV 10007195 Gebr. Lennartz GmbH & Co. KG	3.548.400 EUR
CV 10002807 SAP Deutschland GmbH & Co. KG	2.100.000 EUR
CV 10001313 DATA VILLAGE GmbH & Co. KG	1.309.650 EUR
CV 10000005 E. JAEGER GMBH & CO KG, Baustoffe	500.022 EUR
CV 10006220 Companel GmbH	449.230 EUR

With Abudaco it is possible to consolidate suppliers on the following levels:

- on address or D-U-N-S® level
- nationwide
- on a regional level (Europe, APA, North America, ...)
- worldwide



## Line Item Classification

As in the case of the suppliers, the same problem also occurs in the product dimension, i.e. that materials or product groups have different numbers, texts and attributes in different source systems.

To make matters worse, depending on the purchasing process and document type, some purchasing documents do not bear any material number or even product group. Even the line item text is in many cases insignificant. Therefore a typical BW (Global) Spend Report on the product dimension without automatic line item classification looks like a **Swiss Cheese**.

The aim of line item classification is to classify each document line item irrespective of which fields have actually been filled in into a classification system such as eCl@ss, UNSPSC, or a customer scheme.

Figure 3: Spend Report without line item classification

Purchasing Volume by Commodity (local)				
System	Material Group	Material (local)	Item Description	Spend 2005
Q3	3MCNI	30004465	Monitor Elizo T566 17 Zoll	12.980 EUR
Q2			4te	12.090 EUR
Q1			see Inv. no. 495738499	8.990 EUR
Q1			Hardware for SINVA 2000 WebServer	7.905 EUR
Q2	7790		Dell FlatScreen-Monitor	7.099 EUR
Q1	3KJ67	1440012532	Laptop HP Evo N600c	5.079 EUR
Q1			Mr. Blender	5.070 EUR
Q2	1012	560065323	HP Laserjet 2100 Superchar 11754950	3.120 EUR
Q1			Periodic Maintenance Dell PC's	3.012 EUR
Q1	3ND57	1440007639	Hydro Memory	2.860 EUR
Q1	3NET	1440006675	Patchfield, BTR-DAT300, 24 Port	1.466 EUR
Q3	3GF78	30014310	DVD +RW, 4.7 GB Jewel Case	1.250 EUR
Q2	1023	560006990	Epson Scanner GT1000	1.200 EUR
Q2			On site corrective maintenance	880 EUR
Q1	3MCNI	1440001992	ADI Monitor A7 15	770 EUR
Q1	3ND68		Memory extension 6GB	700 EUR
Q2	2561	560012276	Storage battery for Compaq EVO 6500	660 EUR
Q1	3SCAN	1440005836	P370 Scanner Carrier	650 EUR
Q1			Repair HP Scanner	550 EUR
Q2	9078	560002398	Printer LD-580 24 Needle	548 EUR
Q2	3390	560007639	PCMCIA ISDN Fritz-Card, AYM	400 EUR
Q1	3VF45	1440004310	IBM Terminal Keyboard	354 EUR
Q1	3MCUSE	1440009004	Logitech Mouse Cordless Mouseman Optical	345 EUR
Q2	30F70	90005019	DVD -RW, 4.7 GB Jewel Case	255 EUR
Q1	3NET		Network switch	210 EUR
Q2	3400	560000100	Connector RS08 V	122 EUR
Q2	4711	560001178	LWL Duplex Patch cable	89 EUR
Q1	3MCUSE	1440007639	Pilot Wheel Mouse	79 EUR
Q1	24KL4	1440073297	Cable/Electro cleaner WBC 5 liquid 1L	65 EUR
Q2	3HHCD	90006969	Blank CD 26 IMATION 700MB	40 EUR
Q3	50H05	90020649	Switch PCF-1000-101M female	25 EUR
Q1	3NET		Special cable 1m length	15 EUR



Figure 4: Global Spend Report without line item classification

For this purpose the Abudaco **Line Item Classification** module uses an explicit rule base that allocates a unique classification to specific combinations of characteristic values or key words. The rule base can be extended from simple supplier and key word rules to complex combinational rules (e.g. supplier, product group, company code).

In addition, the rule-based approach can be combined with key word-based tools such as the eC@ss key word register or with statistical tools.

As a result of the document classification, a true Global Spend Report of the product hierarchy is generated.

eClass	Spend 2005
Global Spend (eClass)	
eClass 5.1	475 944 593 EUR
17 Machine, device (for special applications)	473 865 EUR
18 Equipment f. mining, metallurgical plant, rolling mill & foundry	112 500 EUR
19 Information, communication and media technology	2 452 570 EUR
1901 Hardware (inform. technology)	458 733 EUR
1902 Peripheral device	51 540 EUR
190201 Monitor (information technology)	17 872 EUR
190202 Printer	19 963 EUR
190203 Scanner	4 372 EUR
190204 Input device (PC accessory)	6 843 EUR
190205 Multimedia (information technology)	2 500 EUR
1903 Accessories for hardware and peripheral devices	66 875 EUR
1904 Software	103 520 EUR
1905 Hardware communication technology	1 558 273 EUR
1907 Receiver technology	12 340 EUR
1908 Entertainment electronics	118 411 EUR
1909 Reprotechnics	18 300 EUR
1910 Photo technology, video technology	22 657 EUR
1911 Microfilming	1 243 EUR
1912 POS display (electronic)	778 EUR
20 Packing material	260 847 EUR
21 Tool	3 793 806 EUR
22 Construction technology	43 965 641 EUR
23 Machine element, fixing, mounting	8 628 943 EUR
24 Office products, facilities and technics, papeterie	5 667 133 EUR
25 Device	80 642 412 EUR
26 Energy, extraction product, secondary raw materials and residues	155 945 823 EUR
27 Electric engineering, automation, process control engineering	12 500 520 EUR
28 Automotive technology	6 955 397 EUR



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## SUPPLIER CONSOLIDATION & D-U-N-S®-PROCESS

### D-U-N-S®-Process

In order to uniquely identify their suppliers, many companies use the so-called **D-U-N-S® number**, which is allocated by the American company D&B.

They send their vendor masters in a special format to D&B and in return receive the allocated D-U-N-S® number and also additional information on the suppliers. The SAP® Business Warehouse supports this process with suitable interfaces.

On demand, the Abudaco Supplier Consolidation takes any existing D-U-N-S® numbers into consideration. In addition, the D-U-N-S® process can be optimised, validated and completed by using the Abudaco Supplier Consolidation module.

### Optimisation

- Preliminary consolidation of suppliers that are to be sent to D&B (for reduction in costs)
- Bridging the time gap until allocated data returns from D&B

### Validation

- Identification of potential misallocations

### Completion

- Matching suppliers that cannot be allocated by D&B
- Consolidation of D&B allocations at a higher level (e.g. nationwide, regional, worldwide)





## SOFTWARE ARCHITECTURE

A well thought-out **software architecture** is crucial for the flexibility and maintainability of a software product such as Abudaco. Due to a strong modular structure individual components can be simply added or replaced. Small, firmly defined interfaces permit the simple integration of e.g. customer specific consolidation methods.

### Data Village Basic Package

All functions and methods which can be used independent of Abudaco are summarised in the basic package of Data Village.

This includes many sensible little helpers that have proved beneficial both in the project implementation phase and also after go-live.

### Abudaco Framework

Abudaco Framework is the **object-independent** basis of Abudaco. It contains the ABAP logic to manage all basic objects, the persistence layer, the generation logic for loading and extraction programs, and also batch programs e.g. for the consolidation run.



## SAP BW Web Application Server

SAP BW Application

Data Village Basic Package

Abudaco Framework

**object-  
independent**

Abudaco  
Consolidation methods

Customer-specific  
Consolidation methods

**object-  
dependent**

User Interfaces (BSP)



## Consolidation Methods

The **object-dependent** consolidation methods are hooked into the Abudaco framework by means of a specific object-independent interface. The scope of supply of Abudaco includes methods for supplier consolidation and for line item classification.

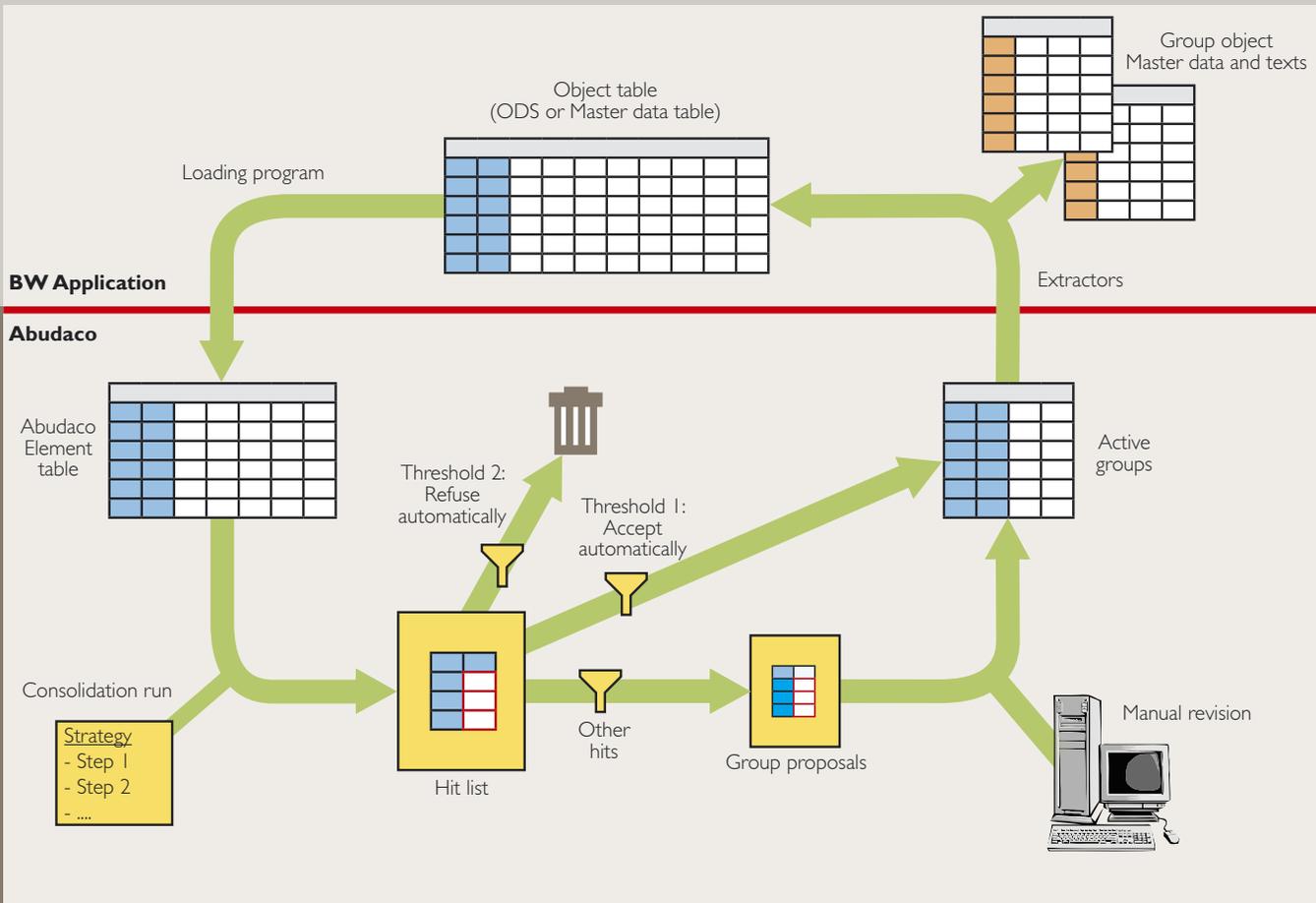
Customer specific consolidation methods can be integrated into Abudaco via the same interface and be combined with the Abudaco standard methods.

As the Abudaco framework provides all the necessary functions to load, manage and update the data, customers who are going to develop their own consolidation methods can focus on the actual consolidation logic.

## User Interfaces

The realisation of the user interface implements the familiar **Model-View-Controller** (MVC) pattern with the help of SAP® Business Server Pages (BSPs).

The advantage of this approach is that the application and user logic remain strictly separated from one another; however they can be shipped with the same transport request and can be corrected with the same support package.





## BASIC PROCESS

The Abudaco basic process begins and ends respectively with the InfoProvider containing the data to be consolidated. This can be any master data table or any ODS object.

The basic process itself consists of four steps:

- Loading the data to be consolidated
- Automatic consolidation run
- Manual processing of proposals / Quality inspection
- Updating the consolidation results

The advantage of this cyclic approach compared with a sequential enhancement in the update rules is that historical data can also benefit from an improvement of the consolidation algorithm or the rule base.



## Loading the Data to be Consolidated

The data to be consolidated is loaded via a generated loading program from the InfoProvider into the Abudaco element table.

The **element table** contains the key fields and all other fields of the InfoProvider that are relevant for consolidation.

Due to the redundant storage of the elements in Abudaco, a mutual interference of the standard BW loading processes with the consolidation process is avoided.

## Automatic Consolidation Run

During a consolidation run, a consolidation strategy is applied on a specific number of elements (work package). A strategy consists of a sequence of consolidation steps, which are carried out one after the other. The result of the consolidation run, the so-called **hit list**, is stored with the relevant hit probabilities (-100% to +100%) in the database.



## Manual Processing of Proposals

Taking already existing groups in to consideration, new **group proposals** are generated from the hit list. Groups with a hit probability above a specific threshold (Threshold 1) are confirmed automatically. Hits with a probability below the lower threshold (Threshold 2) are ignored.

Only the groups with hit probabilities between the two thresholds have to be reviewed manually.

For this purpose there are appropriately optimised user interfaces that make this unloved but necessary task as convenient and efficient as possible.

Finally, all the automatically or manually confirmed groups are activated with one click.

## Updating the Results

The active group allocations are written into the InfoProvider by means of generated extractors (DataSources). If new attributes or texts have been determined for a group, then these are also updated into the relevant master data table or text table by means of generated extractors.

After this the consolidation information is available in the InfoProvider for **reporting**.



FIND 1  
IF sy - subtr = 0  
e\_simplipe  
EXIT  
EMDIP



## TECHNICAL DETAILS

From a technical point of view Abudaco is a classic **add-on** to SAP® Business Warehouse. The basic installation is carried out without any modifications by importing a transport request.

The realisation of Abudaco is based on sound and proved **SAP® Netweaver™** technology. The application logic has been completely implemented in ABAP. The browser-based user interfaces have been realised with the help of Business Server Pages (BSPs). They can be integrated seamlessly into a portal such as SAP® Enterprise Portal 6.0, for example.

The fact that Abudaco is provided as an add-on to SAP® BW and thus resides in the same system as the data to be consolidated,

has a positive effect on the system requirements and also on the operational costs.

### System requirements

BW-Release	SAP® BW 3.1 +
Client	MS Internet Explorer 6.0 +
Additional Hardware (CPU, Memory)	<b>none</b>
Additional Disk space	10-50 GB

In particular, no additional servers, whose **operating costs** quickly rise to a six-figured amount annually, are necessary for installation and operation of the Abudaco software. This is one of the greatest advantages of Abudaco compared with similar positioned products from other software vendors.





**DATA VILLAGE**

NIEDERRHEINISCHE SOFTWARE-MANUFAKTUR

## THE COMPANY

**Data Village** is specialised in the consulting and software development business fields relating to SAP® Business Warehouse.

Data Village was founded in 2003 by the former SAP employee Dr. Jürgen Bey. The company is situated in the town of **Geldern** in the Lower Rhine area.

Our expertise is specifically focussed on purchasing and Global Spend Reporting. We have more than 5 years of experience in designing and implementing SAP® BW Global Spend solutions of all sizes.

This wealth of experiences flows directly into the software we develop such as e.g. Abudaco.

The addition „Niederrheinische Software-Manufaktur“ (Software Manufacturing from the Lower Rhine area) emphasizes what is of great significance to us when developing our products.

Instead of off-the-shelf solutions, we focus on tailor-made, practicable solutions that have been created with much care and attention to detail as is expected from a **manufactory**.



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