

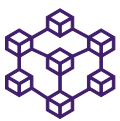
MAKING THINGS RUN

Making Compliance smart

targens 

Product Information

Smaragd ICS –
Intelligent Customer
Segmentation



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» Sovereign compliance solutions on the highest level. «

SMARAGD ICS

Intelligent Customer Segmentation

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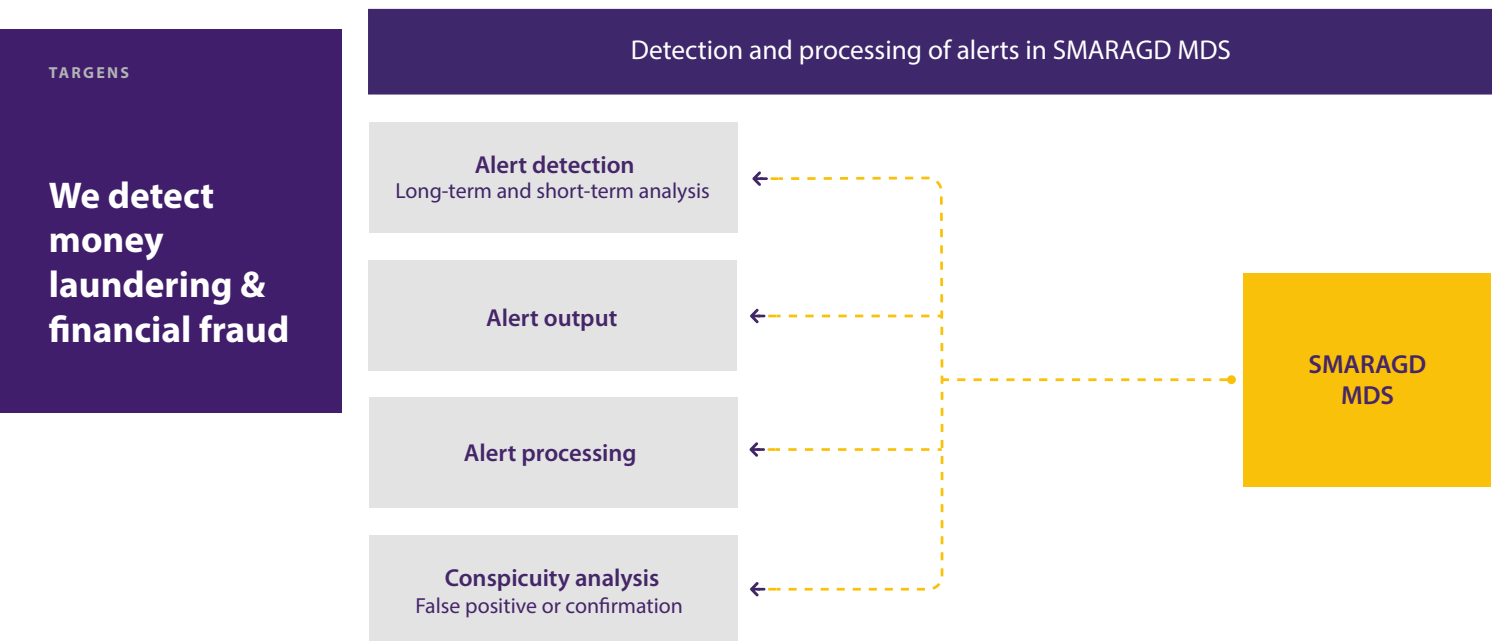
Introduction

SMARAGD ICS is an AI-based extension of the SMARAGD MDS functionalities, which enables the segmentation of clients based on their transactional behavior. The goal is to further increase the quality of hits and reduce the workload for the compliance department by optimizing the detection and processing of alerts.

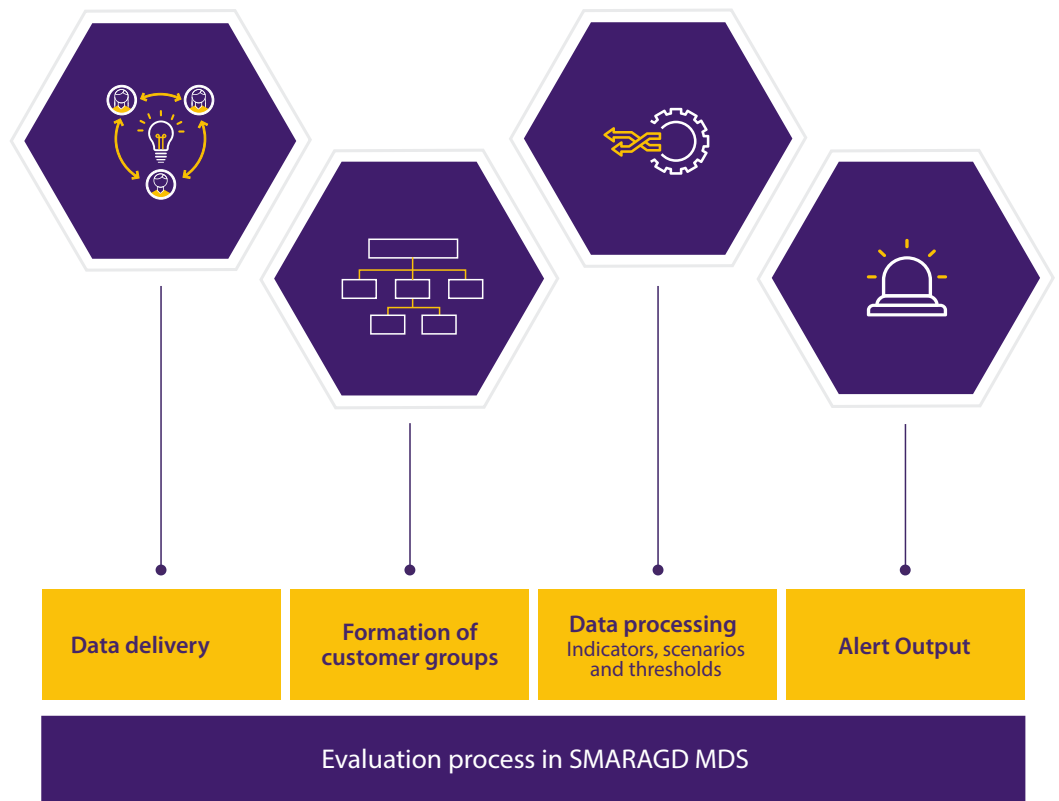
2 About SMARAGD MDS

SMARAGD MDS (Monitoring Detection System) is a product for the monitoring and detection of money laundering and financial fraud. It uses complex long-term and short-term analyses to check business activities of customers on a daily basis. All information, necessary for the explanation, is recorded. If a conspicuity relevant to money laundering is detected, the information will be provided to the compliance officer for further processing.

Detection and processing of alerts is an important topic of SMARAGD MDS.



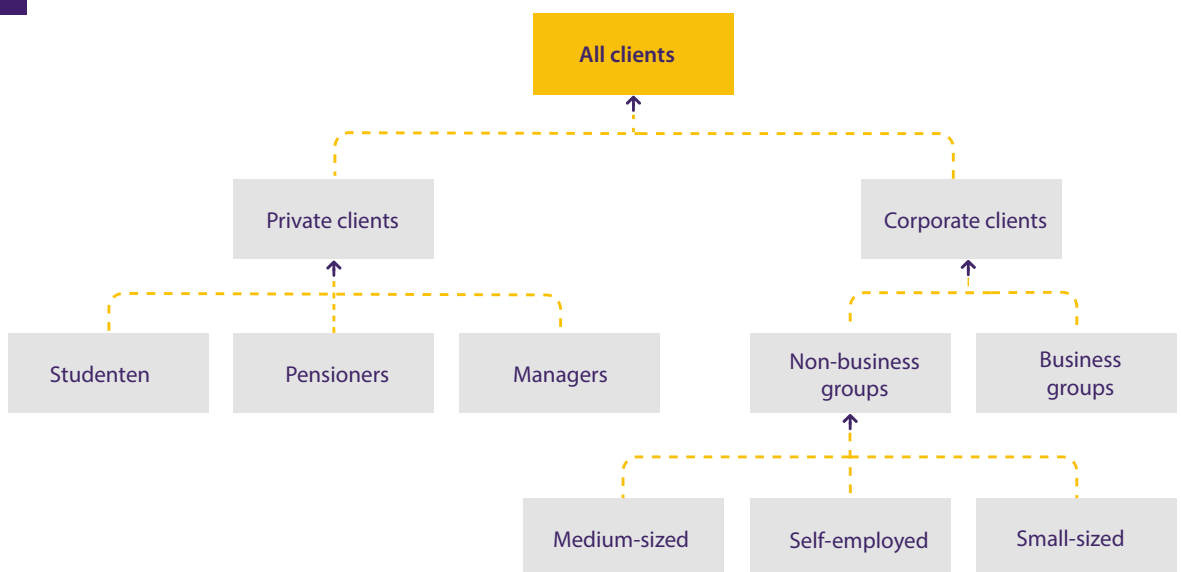
Based on freely definable rules, all customers and account properties as well as transaction behavior and relationships between customers can be analysed by SMARAGD MDS. An alert for processing will be created if there is a deviation from the customer's normal behavior.



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We check the business activities of our customers

SMARAGD MDS uses the formation of customer groups and definition of their thresholds to detect unexpected behavior and deviation from the typical behavior of the comparison group. Customer groups are structured hierarchically and determined by the compliance department according to static criteria. Customer group classifications tend to change quite rarely or never. Each indicator in each customer group has its own threshold value. This is crucial for estimation, whether a client is conspicuous or not.



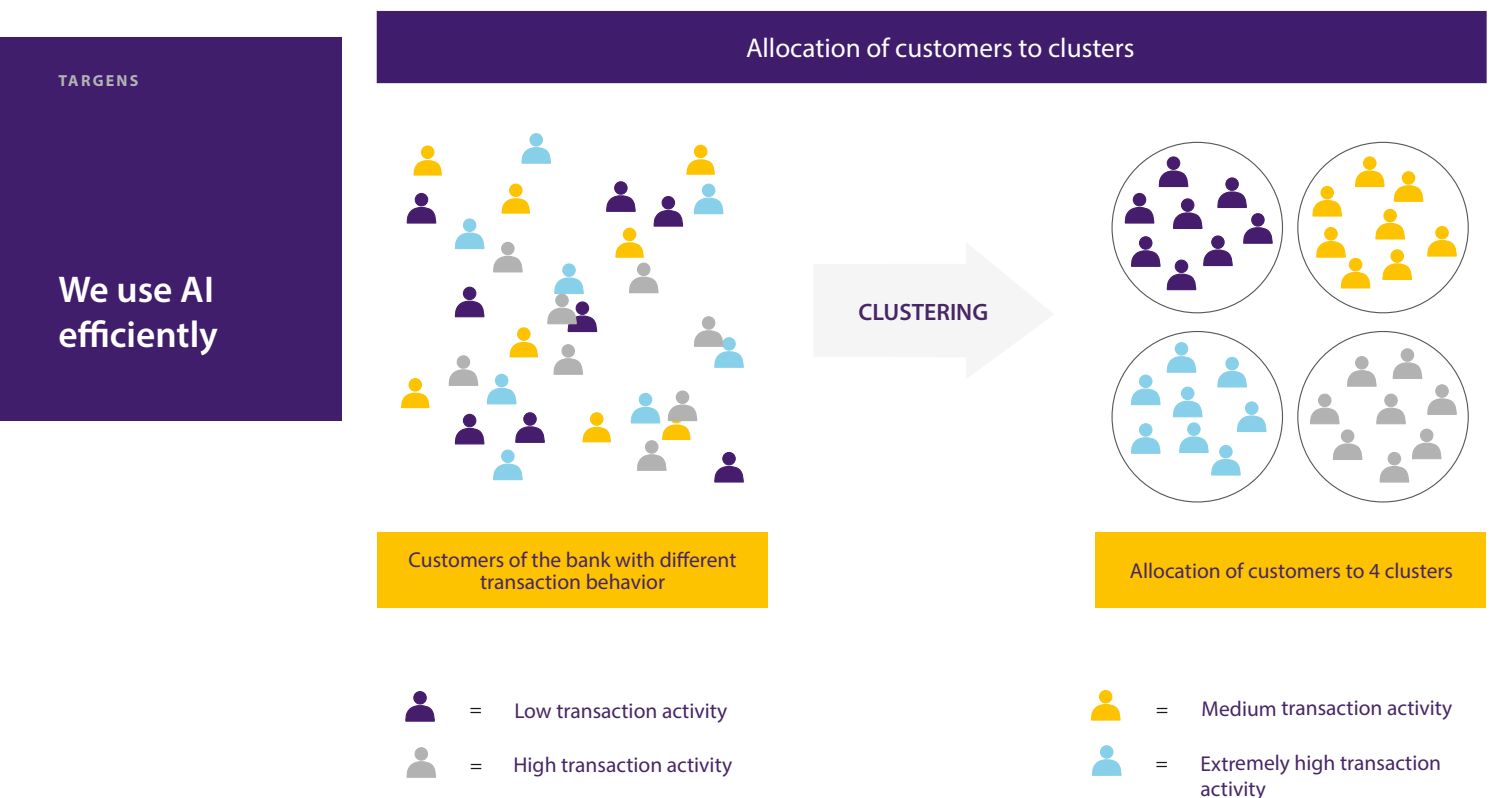
Customer group tree in SMARAGD MDS

In the static classification of customers, the actual transaction behavior is not taken into account. The income and the related payment behavior of customers within a customer group can be very different. However, since the customers are checked according to the same threshold, the number of false positives is often very high. The correct allocation of customers and precise definition of customer groups is therefore very important. These and other product-related restrictions led to the development of SMARAGD ICS.

The functionality and added value of this solution are explained below in more detail.

3 Functionality of SMARAGD ICS

SMARAGD ICS is an additional module, which is available in SMARAGD MDS and is configured according to customer requirements. With this module, customers with similar transaction behavior are allocated to the same clusters automatically.



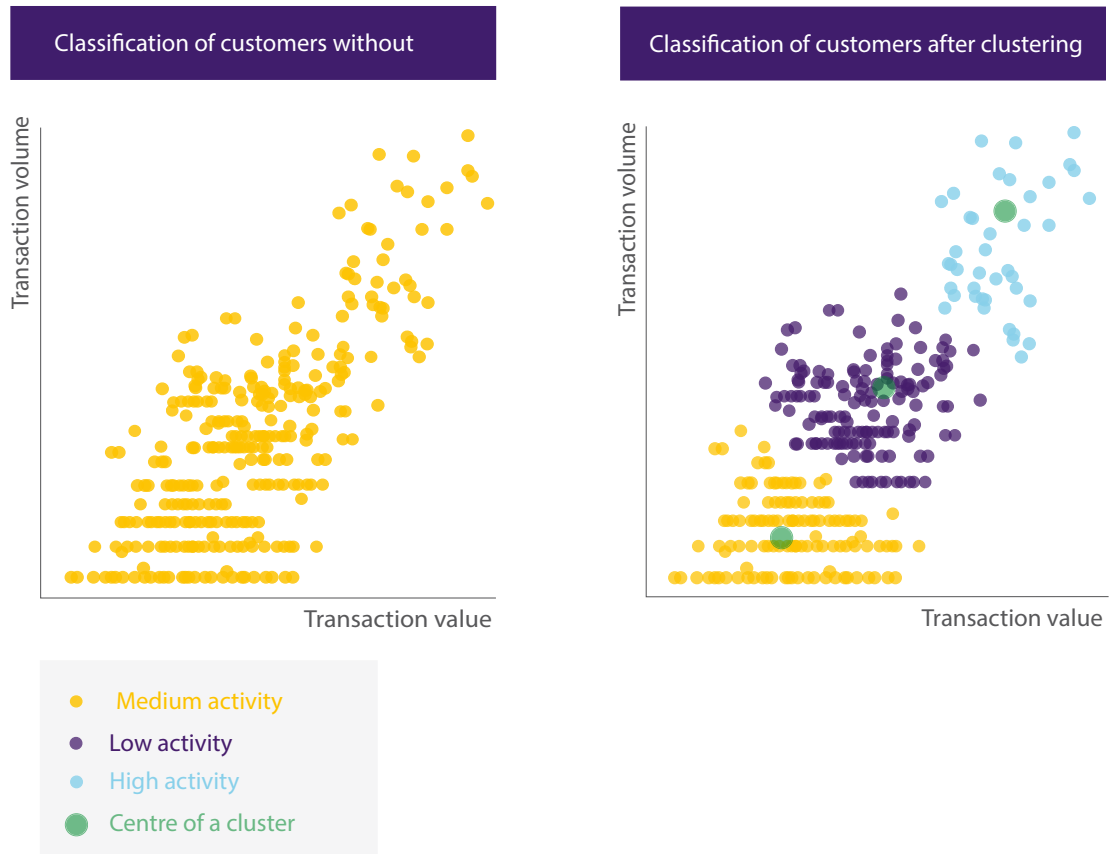
In cooperation with targens, the compliance department determines the clustering variables (e.g. sum of transactions / number of transactions). Various criteria are considered during configuration. The influencing variables are selected in such a way that the result of the clustering is optimal from a technical point of view and the similarity of customers within each cluster is as high as possible.

In addition to influencing variables, the number of clusters can also be adjusted. The number of clusters depends on the data: the more observations there are, the more useful subdivision there is. Therefore, clusters with only few observations should be avoided.

The following example shows the allocation of customers to suitable clusters.

Transaction volume: Sum of all transactions per customer and year

Transaction value: Number of transactions per customer and year



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We build meaningful customer groups

In this example, customers are divided into three clusters: low, medium and high transaction activity. The cluster centers (average of transaction volume and transaction value) are marked in green. The clusters and their centres are the result of the Clustering. Each customer is allocated to the closest cluster.

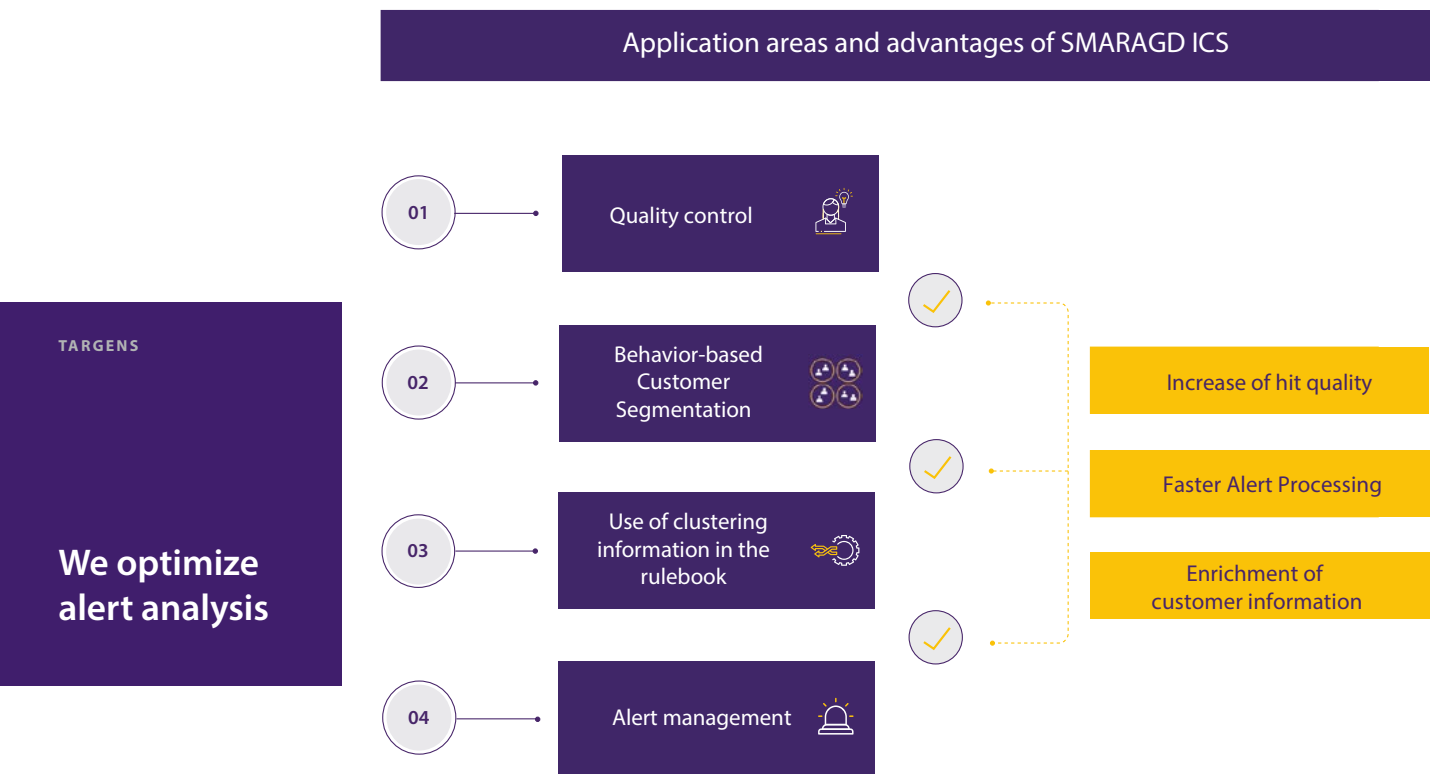
In clustering, customers are distinguished by:

- **New Customer:** customer has not previously been clustered
- **Old customer:** customer has already been clustered
- **Delta customer:** customer has changed the cluster

The result of the clustering is stored according to audit requirements. A report, which allows quality assurance, is provided to each clustering. In addition to statistical indicators, a chart of the cluster result is also included.

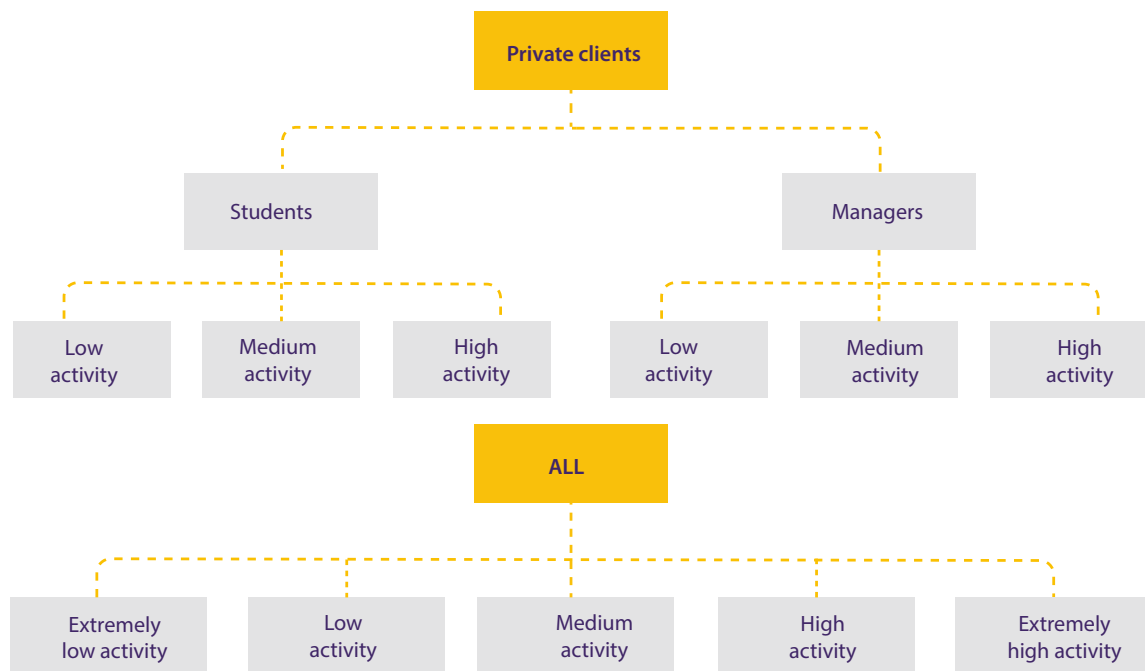
4 Application areas of SMARAGD ICS

SMARAGD ICS is an optional addition to SMARAGD MDS. Up to five different clustering configurations are available, whereby the definition of the respective variable is freely selectable. The customer information, determined in this step, can be used in many ways. Essential applications are the use in the SMARAGD MDS rulebook and better evaluation and analysis of the alerts.



4.1 Behavior-based Customer Segmentation

The goal of SMARAGD ICS is behavior-based customer segmentation. SMARAGD ICS enables customers to be divided into suitable clusters (e.g. number/volume of foreign transactions) according to their actual transaction behavior. These clusters can in turn be used in the definition of customer groups. This means that all customers within a customer group have similar payment behavior and can therefore be checked more targeted by a unified threshold value. This reduces the number of false positives and improves the quality of the hits in SMARAGD MDS.



4.2 Quality control with outlier analysis

Before clustering takes place, the quality of existing data is checked. This includes an outlier analysis. Customers who have a different transaction behavior in comparison to the rest of the data are identified as outliers and can be reported in a separate document. For these customers an outlier flag in SMARAGD MDS is set. The compliance department can check the correctness of the data and make the necessary changes.

4.3 Use of clustering information in the rulebook

Information about outliers can also be applied to indicators. To reduce the rate of false positive, special indicators can be defined for the outliers.

Customers are re-clustered after a certain period of time. If a customer changes his cluster (e.g. from „low transaction activity„ to „medium transaction activity“), he is marked with a change flag. This information can also be taken into account in the indicator definition.

4.4 Alert management with transaction-based KPIs

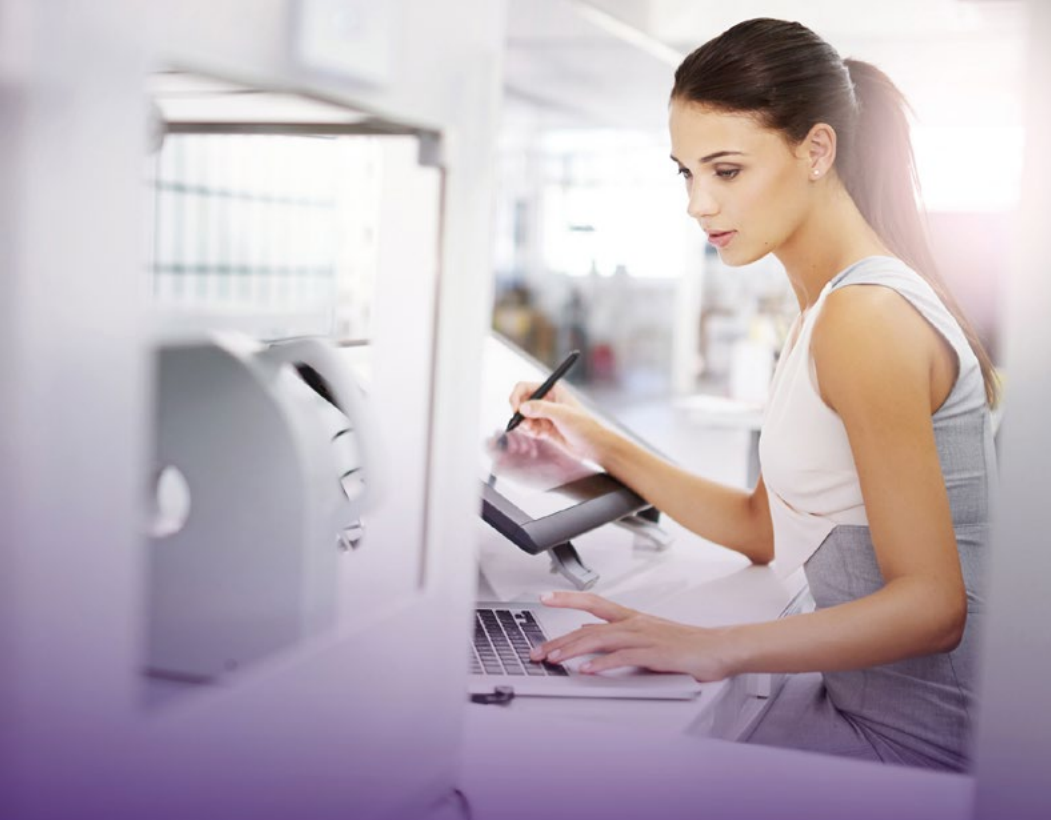
On the basis of clustering configurations selected by the compliance department, different KPIs are available for each customer. Therefore, not only the current, but also historical transaction behavior of the customer can be assessed better. Definition of variables (total sales, foreign sales, outgoing/incoming payments, etc.), the respective classification to a cluster (low, medium, high activity) or a change of the cluster can help among others with alert analysis and decision-making.

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Wir bieten
zusätzliche KYC-
Kennzahlen

| Kundennr. | Cluster Index 1 | Outlier Flag 1 | Wechsel Flag 1 | Datum der letzten Segmentierung 1 | Mittelwert je Variable (pro Cluster) 1 |
|---------------|-----------------|----------------|----------------|-----------------------------------|--|
| C-CCS-000-P18 | 4 | Ja | Nein | 31.01.2019 | TRAN_COUNT=4, TRAN_VOLUME=100000 |
| C-CCS-305-P01 | 2 | Nein | Ja | 15.02.2019 | TRAN_COUNT=2, TRAN_VOLUME=1000 |
| C-CCS-301-P01 | 2 | Nein | Ja | 15.02.2019 | TRAN_COUNT=2, TRAN_VOLUME=1000 |
| C-CCS-000-P16 | 4 | Nein | Nein | 31.01.2019 | TRAN_COUNT=4, TRAN_VOLUME=100000 |
| C-CCS-000-P14 | 3 | Nein | Nein | 31.01.2019 | TRAN_COUNT=3, TRAN_VOLUME=10000 |
| C-CCS-000-P15 | 3 | Nein | Nein | 31.01.2019 | TRAN_COUNT=3, TRAN_VOLUME=10000 |
| C-CCS-000-P13 | 2 | Nein | Nein | 31.01.2019 | TRAN_COUNT=2, TRAN_VOLUME=1000 |
| C-CCS-000-P10 | 1 | Nein | Nein | 31.01.2019 | TRAN_COUNT=1, TRAN_VOLUME=100 |
| C-CCS-000-P12 | 2 | Nein | Nein | 31.01.2019 | TRAN_COUNT=2, TRAN_VOLUME=1000 |
| C-CCS-000-P11 | 1 | Nein | Nein | 31.01.2019 | TRAN_COUNT=1, TRAN_VOLUME=100 |
| C-CCS-000-P17 | 4 | Nein | Nein | 31.01.2019 | TRAN_COUNT=4, TRAN_VOLUME=100000 |

1 = Low activity
2 = Medium activity
3 = High activity
4 = Extremely high activity



SMARAGD



With the targens product line SMARAGD Compliance Suite as an intelligent software solution we support companies in the fields of finance and corporates in their fight against financial crime and fraud. Innovative AI components are also used in our products.

making things run.

As an expert consultancy for banking, compliance and digital innovation, targens is the leading provider of consulting and software solutions. Based in Germany and Switzerland, the company has 30 years of experience in the development of internationally proven compliance services for financial institutions with futuristic and disruptive technologies. Using artificial intelligence and blockchain technology to create innovative products that provide the highest possible value to our clients. With its consulting portfolio, targens supports clients in their banking and corporate management, trading activities and the safeguarding of business processes.

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