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Read the original article here:
<http://bit.ly/swiss-customs>

Business Rules in the e-dec System of Swiss Customs

Is the declared value of an automobile imported into Switzerland plausible or is the importer attempting to cheat at customs? With a continuously updated catalog of about 700 business rules in the customs clearance solution, the e-dec system automatically checks if everything in the customs declaration is correct.

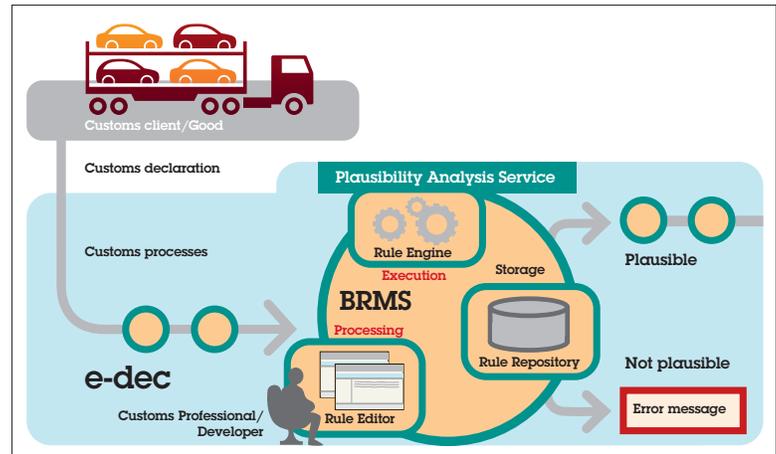
E-dec is a service-oriented e-government platform of the Swiss Federal Customs Administration. E-dec is developed by the Federal Office for Information Technology (BIT) and has been in operation since 2006. The Swiss government requires companies to declare all imported or exported goods. Today, 96.5% of these declarations take place electronically with the e-dec system. The information systems of the companies who import or export contain a module which communicates with e-dec. Over 1500 systems are connected to e-dec, processing approximately 200,000 declarations per day. Through the importing of goods, e-dec accounts for customs duties and value added tax of about 23 billion Swiss Francs per year.

Electronic Customs Clearance

How does electronic customs clearance work? For example, a Swiss dealer wants to import automobiles from Germany into Switzerland. The entire business process, from purchase at the manufacturer to sale to the customer, is transacted in the dealer's information system. At a point in this process an electronic customs declaration is prepared and sent to the e-dec system. Such a declaration is a very comprehensive electronic document which is composed of up to 200 data elements per contained good. For example, the value and weight of the good must be declared, or in the case of automobiles, the vehicle identification number. E-dec automatically processes this message and sends back the necessary documents for the import within a few seconds.



The customs declaration—e.g. for an automobile—undergoes a process in e-dec composed of several services. One of these is the plausibility analysis service which checks whether the information from the customs client is correct, e.g. is the value of the automobile plausible?



The business rules for checking the customs declaration are recorded by the customs professional in the rule editor and stored in the rule repository. In the plausibility analysis service, the rule engine compares the information of the customs client with the business rules stored in the repository within fractions of a second. For example if the specified value of the automobile is too low, the plausibility analysis generates an error message.

Business rules for plausibility analysis

The e-dec platform consists of various processes (e.g. import, export, postal traffic) which are composed of different services. One of these services is plausibility analysis (see graphic). This plausibility analysis service checks—in a fraction of a second—the technical correctness of the transmitted data on the basis of a variety of business rules. In the case of the aforementioned automobile import the service checks, among other things, whether the vehicle identification number has been specified for each vehicle and whether the declared import value lies within a specified realistic range.

Currently there are around 700 business rules. These rules change at regular intervals on the basis of statutory regulations and the requirements of various federal agencies. Thus one important requirement is a flexible adaptation of the rules independently from regular software release cycles.

Flexible Administration of the Rules with BRMS

How can so many rules be efficiently and reliably developed, tested, administered and deployed? Since 2006 the Swiss Federal Office for Information Technology (BIT) has been using a Business Rule

Management System (BRMS) for this task. In July 2011, the plausibility analysis service was redeployed to the IBM WebSphere JRules Business Rule Management System (BRMS).

For administration purposes, all business rules are stored in a central repository. Various rule editors allow developers and customs professionals to jointly create new rules or adapt existing ones. These rules are then tested and released for deployment to the production environment. Thus, in a short period of time changes can be quality assured and put online.

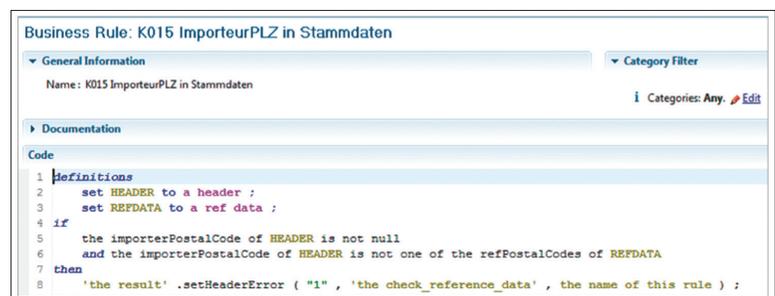
The customs clients must be familiar with the plausibility rules in order to make correct declarations. The BRMS generates detailed rule reports which are made available to clients on the Swiss Customs website.

Benefits of the BRMS at e-dec

Is the use of a complex BRMS worth it? The following benefits were apparent from the experience at e-dec:

- The plausibility analysis service and the rules contained therein are reused by several customs clearance processes, which increases the efficiency of the administration of the business rules.
- The business rules systems provides a good overview of the rules in all stages of development. This contributes to quality assurance.
- The web-based user interface enables customs professionals to administer the rules. This guarantees flexibility and speed in the adaptation of the rules.
- The rule execution provides extremely high performance and is very scalable.
- The BRMS itself did not require development and was able to be very quickly integrated into e-dec.

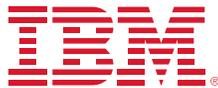
The architectural approach for administration and execution of business rules and the specific product selected have proven themselves in practice. The use of a BRMS in other systems of the Federal administration with business rules can bring various advantages and is recommended by the e-dec team.



```
Business Rule: K015 ImporteurPLZ in Stammdaten
General Information
Name: K015 ImporteurPLZ in Stammdaten
Category Filter
Categories: Any Edit

Documentation
Code
1 Definitions
2 set HEADER to a header ;
3 set REFDATA to a ref data ;
4 if
5 the importerPostalCode of HEADER is not null
6 and the importerPostalCode of HEADER is not one of the refPostalCodes of REFDATA
7 then
8 'the result' .setHeaderError ( "1", 'the check_reference_data', the name of this rule ) ;
```

Example of a business rule in the rule editor in IBM WebSphere JRules (Screenshot).



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Somers, NY 10589
U.S.A.

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