

**[BI BRIEF]****mayato fact sheets in the area of business intelligence and customer relationship management**

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Management summary

Many large and midsize companies have extensive SAP system landscapes that they use to help manage their central processes. At the same time, many of these companies use software from the provider SAS in the area of business intelligence, for example, for analytical applications such as fraud detection, risk analysis, campaign management, and marketing automation, but also for fundamental reporting activities. Astonishingly, these analyses are largely isolated from the transactional SAP processes in many companies – in other words, most enterprises make little use of the many types of data from the SAP systems when they perform their SAS analyses. In addition, only a small minority feed the results of these analyses back into their business processes. The potential that lies in dovetailing transactional SAP applications and analytical SAS applications frequently remains untapped. But what many companies and users do not realize is this: Closely integrating SAS analyses with SAP data and processes is not a fundamental problem. For many years now, SAS has been providing flexible and robust interfaces to SAP systems. With the help of these interfaces, data can be retrieved from any tables in the SAP system (regardless of whether it's ERP, BW, CRM, or another SAP product). In addition, SAP standard interfaces (BAPIs) can be called. This thus makes it possible to use the encapsulated application logic of the SAP system – when the data is read or when the results are written back. Because it is still possible to make any remote function calls (RFCs) to SAP systems and because ABAP-based RFC modules can also be created in the SAP system on a project basis, integration can also be enhanced and adapted for individual purposes. It is particularly easy to access SAP data if the company has SAP BW: First, because SAS provides a special interface for this, which retrieves the rich metadata available in BW. And second, because SAP provides a large number of standard extractors for ERP and other transactional systems. The data needed for analyses often already exists in SAP BW in an easy-to-export form. However, companies should definitely take careful note of SAP's license regulations: These forbid scenarios in which SAP BW is installed only as a data export channel, without a significant number of users.

Facts and recommendations

The *SAS Data Surveyor for SAP* enables access to all the tables and all the RFC modules in an SAP system. For connecting an SAP BW system, the Data Surveyor also supports the interpretation of BW metadata, a delta mechanism, the extraction of hierarchies, and other special functions. The license is purchased as an add-on to the Data Integration Server, that is, to the data integration layer of the SAS environment. As well as client plug-ins for the Data Integration Studio and the SAS Management Console, the license also includes server components on the SAS and SAP side. On the SAS side, an *Access* add-on is installed on the SAS Workspace Server and represents the central runtime component. Some RFC modules – specially developed by SAS using SAP technology – need to be imported to the SAP system and are made available as an SAP transport by SAS. To access the SAP system, SAS clients and server need an RFC server, which is also part of the client plug-in.

Tables are accessed using a central function module and are usually very fast and suitable for extracting mass data. SAS envisages a scenario in which SAP data is replicated in a data model on the SAS side. For example, an InfoCube from SAP BW is read, decomposed (including the complete master data tables), and transferred to the SAS application, where it is put back together in the usual format. For this reason, real-time access to InfoCubes is not really recommended. However, dynamically reading individual SAP tables for special SAS applications is fundamentally possible.

For some SAP applications (SAP FI and SAP HR), SAS provides solution adapters, in other words, preconfigured SAP accesses. Nevertheless, in most cases users will need at least a rough knowledge of the relevant data model on the SAP side to be able to select tables and fields. Because the SAP standard data model is often greatly enhanced in projects, general SAP knowledge is not usually sufficient. Instead, it is better to consult the experts from the relevant SAP team in the company. Often, interpreting the data model at table level can become trickier as a result of Customizing or dependencies on special SAP application logic. In such cases, I would recommend the method that involves calling BAPIs - the official SAP application interfaces. However, such BAPIs do not exist for all applications. Where they do exist, they may have substantial limitations – in terms of function, but particularly with regard to performance and mass data capability. It is therefore a good idea to consider “normal” RFC modules – and SAP provides a large number of these. Although their compatibility is not guaranteed after upgrades, many of them are mature and can generally be regarded as stable. Of course, it is possible to custom-build suitable modules. If the data required for SAS analyses already exists in BW, it is almost always preferable to access BW rather than to extract the data directly from the transactional systems – especially because the data in BW often exists in a form that is suitable for analysis purposes. Furthermore, this puts less strain on the transactional system. And last but not least, the SAS interface to BW provides special functions, such as a delta mechanism (*change data capture*), which extracts only the delta information from BW, making delta handling much easier. In some cases, extraction using SAP BW may be so advantageous that it might even be worth loading additional information into SAP BW first, before the data is updated to SAS.

Conversely – that is, if you want to import data such as a customer score or a target group into the SAP system – RFC modules and BAPIs are also available. To avoid any risk of impairing the consistency and correctness of the transactional data basis, SAS does not provide a way of writing data directly to the tables underneath the SAP system. Likewise, updating data to the SAP system using RFC should only be done in close cooperation with developers and system administrators on the SAP side, because system performance may suffer greatly if processes are triggered within the SAP system – and other processes may be affected as a result.

For smaller quantities of data and targeted minor queries, SAS also enables access to SAP BW data using OLE DB for OLAP, within the SAS Enterprise Guide. No additional license is required for this. However, the interface is designed only for OLAP-type queries from individual users with small quantities of data and, for performance reasons, is not recommended for extracting large volumes of data from BW. Finally, SAS can also access the database underneath the SAP system – although such practice will probably not comply with the IT standards in most companies.

It is not possible to make general predictions about ROI. For the calculation, it can be assumed that initial costs (license for the Data Surveyor and the first implementation project) will amount to a six-figure sum (in euros). Follow-on projects can then extract further data from SAP with very little extra work. A Data Surveyor implementation should therefore be planned as a long-term investment.

More information

- › SAS provides detailed material about integrating SAP at <http://support.sas.com>.