

www.archive.org
415.561.6767
415.840-0391 e-fax

Internet Archive
300 Funston Avenue
San Francisco, CA 94118

AFFIDAVIT OF CHRISTOPHER BUTLER

1. I am the Office Manager at the Internet Archive, located in San Francisco, California. I make this declaration of my own personal knowledge.

2. The Internet Archive is a website that provides access to a digital library of Internet sites and other cultural artifacts in digital form. Like a paper library, we provide free access to researchers, historians, scholars, and the general public. The Internet Archive has partnered with and receives support from various institutions, including the Library of Congress.

3. The Internet Archive has created a service known as the Wayback Machine. The Wayback Machine makes it possible to surf more than 450 billion pages stored in the Internet Archive's web archive. Visitors to the Wayback Machine can search archives by URL (i.e., a website address). If archived records for a URL are available, the visitor will be presented with a list of available dates. The visitor may select one of those dates, and then begin surfing on an archived version of the Web. The links on the archived files, when served by the Wayback Machine, point to other archived files (whether HTML pages or images). If a visitor clicks on a link on an archived page, the Wayback Machine will serve the archived file with the closest available date to the page upon which the link appeared and was clicked.

4. The archived data made viewable and browseable by the Wayback Machine is compiled using software programs known as crawlers, which surf the Web and automatically store copies of web files, preserving these files as they exist at the point of time of capture.

5. The Internet Archive assigns a URL on its site to the archived files in the format [http://web.archive.org/web/\[Year in yyyy\]\[Month in mm\]\[Day in dd\]\[Time code in hh:mm:ss\]/\[Archived URL\]](http://web.archive.org/web/[Year in yyyy][Month in mm][Day in dd][Time code in hh:mm:ss]/[Archived URL]). Thus, the Internet Archive URL <http://web.archive.org/web/19970126045828/http://www.archive.org/> would be the URL for the record of the Internet Archive home page HTML file (<http://www.archive.org/>) archived on January 26, 1997 at 4:58 a.m. and 28 seconds (1997/01/26 at 04:58:28). A web browser may be set such that a printout from it will display the URL of a web page in the printout's footer. The date assigned by the Internet Archive applies to the HTML file but not to image files linked therein. Thus images that appear on a page may not have been archived on the same date as the HTML file. Likewise, if a website is designed with "frames," the date assigned by the Internet Archive applies to the frameset as a whole, and not the individual pages within each frame.

6. Attached hereto as Exhibit A are true and accurate copies of printouts of the Internet Archive's records of the HTML files or PDF files for the URLs and the dates specified in the footer of the printout (HTML) or attached coversheet (PDF).

7. I declare under penalty of perjury that the foregoing is true and correct.

DATE: 9/11/18

Christopher Butler

CALIFORNIA JURAT

See Attached Document.

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of San Francisco

Subscribed and sworn to (or affirmed) before me on this

11 day of September, 2018, by

Christopher Butler,


proved to me on the basis of satisfactory evidence to be the person who appeared before me.


Signature: Laurel Karr



Exhibit A

[HOME](#) | [SITE MAP](#) | [SEARCH](#) | [WORLDWIDE](#) | [SHOP](#) | [WRITE US](#) | [INTERNATIONAL](#)





a better Return on INFORMATION

[Return On Information](#)
[Year 2000](#)
[EURO](#)
[Small Business](#)
[Business Framework](#)
[Internet / Intranet](#)
[Industry Solutions](#)
[Products](#)
[Implementation](#)
[Service & Support](#)

[Investors](#)
[Press](#)
[Partner](#)
[Employment](#)
[Mall](#)
[Events](#)
[About SAP](#)

SAP Worldwide:

International
Argentina
Australia

GO !

© SAP AG 1997

Strong Performance in Second Quarter

SAP repeated its strong Q1 performance in the second quarter of this year. Substantial demand for business enterprise software and continuing favorable exchange rates enabled SAP to grow its Q2 revenue and pretax profits at much the same rate as in the first quarter. SAP does not, however, expect to sustain these growth rates over the remainder of the year because of the high 1996 reference level. Exact figures will be announced on July 24, 1997.


Bayer to Implement SAP's R/3 Worldwide

Germany-based Bayer AG [has selected R/3](#), SAP's integrated suite of client/server business applications, for its new enterprisewide information system. The group will implement the software throughout its worldwide organization.

Carl Zeiss Completes Six-Month R/3 Implementation On IBM System/390 Platform

The [implementation at Carl Zeiss Jena](#), a worldwide leader in the fields of optics, precision engineering and electronic visualization equipment and tools, was completed in only six months

SAP DELIVERS EARLY SHIPMENT OF SAP RETAIL



Enthusiastic pilot sites worldwide embrace new global supply chain solution

SAP has announced the shipment of its

SAP Retail solution in North America. [Read the SAPINFO Magazine \(06/97\)](#) for more information.

SAP provides Internet applications for public administrations

SAP AG [provides](#) an Internet component in its SAP Public Sector industry solution containing workflow-driven Internet and intranet applications for public administrations.

[HOME](#) | [SITE MAP](#) | [SEARCH](#) | [WORLDWIDE](#) | [SHOP](#) | [WRITE US](#) | [INTERNATIONAL](#)





INDUSTRY SOLUTIONS

Supporting Your Industry




Remaining competitive in today's markets means having the flexibility to take on new business opportunities, while minimizing costs and improving customer service. Sharing information within and beyond the boundaries of your enterprise is essential to reduce time-to-market and maintain a competitive edge in today's global market place.


You require software that helps you meet these critical business challenges, while also addressing the unique aspects of your industry. SAP is committed to supporting our customers to meet these challenges. The SAP Business Framework provides a proven solution to support your enterprise-wide business processes and your unique industry needs. It gives you a flexible business infrastructure and the capabilities to respond quickly to change, expand into new markets and take advantage of new business opportunities, like internet-based commerce.


The SAP Business Framework is more than software, it is a strategic business solution. The components of our solution bring together leading-edge technology and business software, with industry consultants, software partners, and SAP services. The strength of these components is reinforced by our Industry Centers of Expertise, close customer dialog and partner alliances, which guarantee quality solutions and market-oriented development.

With its comprehensive functionality and advanced technology, our software provides a complete business framework to not only streamline your distributed supply chain processes, but also to support you in building a virtual company, seamlessly integrating your enterprise with your network of customers


[Overview](#)
[Media Center](#)


 [SAP Aerospace & Defense](#)


 [SAP Automotive](#)

 [SAP Banking](#)

 [SAP Chemicals](#)


 [SAP Consumer Products](#)


 [SAP Healthcare](#)


 [SAP High Tech & Electronics](#)


 [SAP Insurance](#)


 [SAP Oil & Gas](#)

 [SAP Pharmaceuticals](#)


 [SAP Public Sector](#)


 [SAP Retail](#)

 [SAP Telecommunications](#)

 [SAP Utilities](#)

[HOME](#) | [SITE MAP](#) | [SEARCH](#) | [WORLDWIDE](#) | [SHOP](#) | [WRITE US](#) | [INTERNATIONAL](#)






INDUSTRY SOLUTIONS

SAP Banking - the Industry Solution from SAP

[Back](#)



SAP Banking

[Overview](#)
[Media Center](#)

[News](#)
[Customers](#)
[Contact Us](#)
[Events](#)
[Business Issues](#)

Solution
[SAP Banking: Industry Solution](#)
[R/3 Core Financial Management](#)
[Internet & Intranet](#)
[Human Resources](#)
[Complementary Software](#)
[Service & Support](#)

The Banking industry is passing through a period of profound change. Traditional business practices of banks are being challenged by the willingness of customers to forsake their banking allegiances. World-wide, and particularly in Europe, national boundaries are disappearing giving aggressive institutions greater opportunity for cross-border business, but at the same time, introducing a further set of regulatory requirements, an increase in products and lines of business, and a greater need for closely targeted management information.

The changes in the structure of the industry is shifting the emphasis of management from transaction orientated systems towards networked information systems which can effectively report and analyse the basic transaction data.












Within the Business Framework, the SAP Banking solution provides you the ability to unify the mass of financial data generated from diverse operations and to be able to take business decisions based on consistent information. Extending SAP into the operations of the business, customers have the opportunity to build their IT infrastructure with the kind of flexibility which enables the organisation to monitor and control the key performance measures which allows management to execute the strategic and tactical moves which ensure competitive advantage.

The SAP advantage is further extended with the availability of business process tools like the Business Engineer, the industry expertise of the staff of the Financial Services Group in the USA and the Industry Centre of Expertise in Europe, the range of

- [SAP in Financial Services-Strategy Update](#)
- [SAP Banking - Industry Specific Components](#)
- [Critical Business Issues](#)
- [R/3 Core Financial Management](#)



SAP Banking

Literature

 Overview SAP Banking	661 KB (English)
 SAP in Financial Services - Strategy Update	232 KB (Handout, English)
 SAP's Profitability Analysis for Banks Detlev Nitsche, SGZ Bank	558 KB (Handout, English)
 Networked Business in Financial Services Prof. Dr Hubert Österle, IWI, St. Gallen	243 KB (Handout, English)
 CO Controlling	474 KB (Fact Sheet, English)
 CO Controlling	445 KB (Fact Sheet, German)
 CO Controlling	280 KB (Fact Sheet, French)
 CO Controlling	113 KB (Fact Sheet, Spanish)
 FI Financial Accounting	358 KB (Fact Sheet, English)
 FI Financial Accounting	371 KB (Fact Sheet, German)
 FI Financial Accounting	358 KB (Fact Sheet, French)
 FI Financial Accounting	104 KB (Fact Sheet, Spanish)
 inSight for SAP-EIS	456 KB (Fact Sheet, English)
 inSight for SAP-EIS	170 KB (Fact Sheet, German)
 IS-IS Darlehen	372 KB (Fact Sheet, German)
 IS-IS Immobilien	376 KB (Fact Sheet, German)
 IS-IS Immobilien	2.3 MB (White Paper, English)
 IS-IS Immobilien	2.3 MB (White Paper, German)
 IS-IS Wertpapiere	396 KB (Fact Sheet, German)

	MM Materials Management System	458 KB (Fact Sheet, English)
	MM Materials Management System	153 KB (Fact Sheet, German)
	MM Materials Management System	119 KB (Fact Sheet, French)
	MM Materials Management System	75 KB (Fact Sheet, Spanish)
	SAP Business Workflow	585 KB (Fact Sheet, English)
	SAP Business Workflow	751 KB (Fact Sheet, German)
	TR-CM Cash Management	332 KB (Fact Sheet, English)
	TR-CM Cash Management	163 KB (Fact Sheet, German)
	TR-TM Treasury Management	426 KB (Fact Sheet, English)
	TR-TM Treasury Management	86 KB (Fact Sheet, German)
	IS-B Industry Solution for Banks	(Functions in Detail, English)
	IS-B Einzelgeschäftskalkulation / Meldewesen	(Functions in Detail, German)
	Success Worldwide	

Functions in Detail: Industry Solution for Banks

 Title	(Size: 91 KB)
 Content	(Size: 31 KB)
 Introduction	(Size: 41 KB)
 Integration into the SAP Environment	(Size: 124 KB)
 IS-B Architecture	(Size: 229 KB)
 IS-B Application Functions	(Size: 582 KB)
 Cross-Application Features	(Size: 22 KB)
 Implementation Strategy	(Size: 33 KB)
 Glossary	(Size: 48 KB)

https://web.archive.org/web/19970724150943/http://www.sap.com:80/products/industry/banking/media/pdf/13539_ti.pdf

Funktionen im Detail

System R/3[®]

IS-B

**THE SAP
INDUSTRY
SOLUTION
FOR BANKS**



https://web.archive.org/web/19970724150951/http://www.sap.com:80/products/industry/banking/media/pdf/13539_co.pdf

©Copyright 1995 SAP AG. All rights reserved.

No part of this description of functions may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

WINDOWS® and EXCEL® are registered trademarks of Microsoft Corporation.

OS/2® is a registered trademark of IBM Corporation.

OSF/Motif® is a registered trademark of Open Software Foundation.

ORACLE® is a registered trademark of ORACLE Corporation, California, USA.

INFORMIX®-OnLine *for SAP* is a registered trademark of Informix Software Incorporated.

SYBASE® is a registered trademark of Sybase Inc.

ADABAS® is a registered trademark of Software AG

SAP®, ABAP/4®, SAPoffice®, SAPmail®, SAP-EDI®, SAP Business Workflow®, SAP ArchiveLink®, InterSAP®, SAPaccess® are registered trademarks of SAP AG

All rights reserved.

Contents

Preface	v
 Introduction	 1-1
The Aims of the Banking Industry Solution IS-B	1-2
 Integration into the SAP Environment	 2-1
Overview of the SAP Standard Systems	2-1
SAP Standard Systems	2-3
 IS-B Architecture	 3-1
Scope of the System	3-1
Features of the R/3 Basis System	3-3
Software and Hardware	3-5
 IS-B Application Functions	 4-1
Setting Up Basic Data	4-4
Master and Movement Data	4-12
External Data Transfer	4-15
Bank Controlling	4-19
Single Transaction/Single Position Costing	4-20
Costing Components	4-25
Bank Profitability Analysis	4-35
Regulatory Reporting	4-41
Risk Management	4-43
Sample Bank and Sample Reports	4-50
 Cross-Application Features	 5-1
Number Assignment	5-1
Matchcodes	5-2
Authorization Concept	5-3

Implementation Strategy	6-1
Advantages of a Software Service	6-1
Sales	6-2
Training	6-3
Consultancy	6-4
Further Services	6-5
Further Steps	6-6
 Glossary	 G-1

Banking Today

For the banking industry, the period since the end of the eighties has been one of radical change in terms of business policy. This period has been characterized by a reorientation towards income and risk management. Since this involves vast quantities of information, a comprehensive and integrated control system will be essential for profit-oriented banks in the future.

Given today's increasingly decentralized organizational structures (customer groups, profit centers), what is required is both increased information availability at a local level and a standardized central banking system to collate the resulting local decisions. Questions such as where, with what product, and with which customer group how much is earned are key factors for determining business policy. To be able to answer such questions, banking executives must be able to accurately estimate the potential and actual profit margin for each transaction i.e. which costs are incurred by each transaction and how much revenue will be generated. A market rate approach to transfer pricing enables executives to coordinate and control decentralized units in interest-related operations on the basis of single transaction valuations.

Another important consideration is the increasing focus on risk management. The current lively debate about what constitutes an effective risk management system reflects a growing realization that the assessment and control of risks is a crucial factor in the success of any business in the nineties. In view of the increasing use of derivative instruments and the resulting complexities, this is likely to remain a central issue.

To limit the risk involved in individual transactions, banks also require information for assessing and valuating operating risks. With this in mind, IS-B provides a system for determining market risks, which are quantified using a money-at-risk approach.

In addition to the (internal) information requirements outlined above, banks regularly have to provide information to external supervisory authorities to comply with statutory regulations.

Constant adjustments to meet changing business and legal requirements and the related maintenance costs, have led to a significant rise in data processing development costs in the reporting area, which in turn lends urgency to the demand for high-performance standard products.



https://web.archive.org/web/19970724150958/http://www.sap.com:80/products/industry/banking/media/pdf/13539_01.pdf

Introduction

The Aims of the Banking Industry Solution IS-B

SAP is a leading software house for standard business solutions in the areas of accounting, logistics and human resources management. Its new Industry Solution for Banks (IS-B) provides a tool for dealing with industry-specific requirements in the areas of controlling, risk management and regulatory reporting.

SAP's wealth of experience in developing standard commercial software and the modern development platform of the company's new product range, "R/3", provide a firm foundation for its bolt-on Banking Industry Solution.

R/3 application

R/3 is characterized by its client/server architecture, relational databases and graphical user interface, as well as by its compliance with technical and business standards.

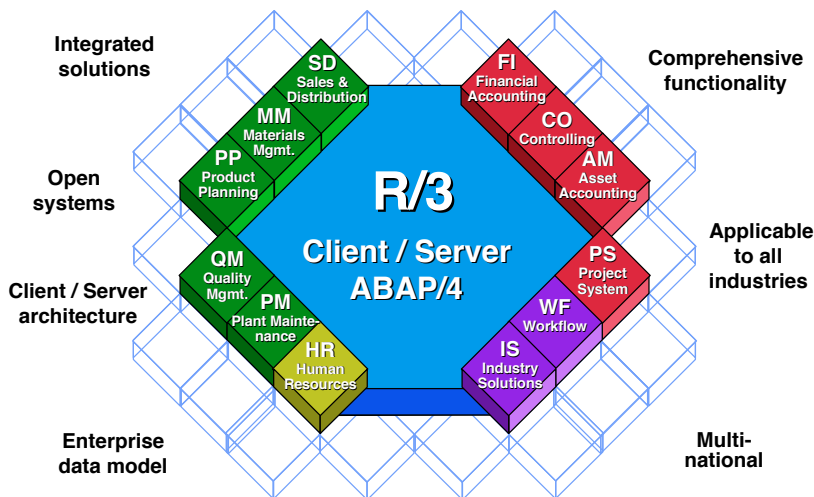


Figure 1-1: SAP products

The client/server architecture allows you to integrate IS-B with both existing banking systems and already implemented SAP R/2 and R/3 applications. The advantage of such a bolt-on solution is that it is independent of central DP resources while still providing full functionality as well as standard and individual evaluations. What is more, because the Industry Solution - Banks is fully integrated in the SAP R/2 and R/3 product ranges, banks with an integrated set-up can smoothly and efficiently carry out work processes which extend beyond the core areas.

Client/Server architecture

Standard software IS-B, developed as a 'state-of-the-art' standard industry solution, gives banks the opportunity of avoiding the cost and technical difficulties involved in individual developments. By working together with the consultants C&L Unternehmensberatung GmbH and international credit institutions, SAP has developed a product which meets the modern bank's concrete need for up-to-date and accurate control information.

Components IS-B is an application for the back office area (internal accounting and regulatory reporting) and incorporates the following new SAP components:

- ☐ Controlling, including:
 - Single transaction costing
 - Bank profitability analysis
- ☐ Risk management, including:
 - Interest rate risk
 - Currency risk
 - Other price risks
 - Specific option risks
- ☐ Regulatory reporting, which provides an interface to country-specific products

IS-B is a new module in SAP's integrated system which you can bolt on to existing SAP modules.

Data pool The database for IS-B is a data pool used by all components, which are fed with transaction data via an interface to the bank's operational systems.

Aims The aim of the Banking Industry Solution is to provide banks and financial institutions with tools for:

- ☐ the source-related assignment of revenues and expenses to transactions
- ☐ a consistent costing approach applying to both single transactions and the bank's overall result
- ☐ a uniform risk definition for market risks
- ☐ accurate, up-to-the-minute control information

The modular structure means that each bank can set up the industry solution according to its own particular requirements, as well as extend the application on an “as needs” basis.

Modular structure

The Industry Solution for Banks is founded on the R/3 basis system, providing the user with the whole range of R/3 functions and features.

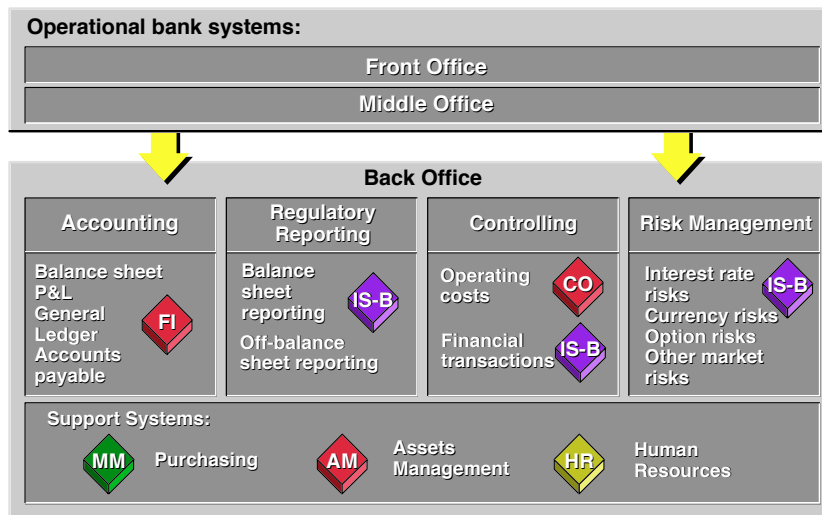


Figure 1-2: SAP solutions

You can supplement IS-B with the following SAP standard components:

- ☐ Financial Accounting including General Ledger
- ☐ Cost Accounting including Cost Center Accounting, Activity-Based Costing, Profitability Analysis and Order/Project Accounting

What does the Banking Industry Solution add to the standard components?

- ☐ Bank profitability analysis
- ☐ Risk analysis - assessment of risks specific to the banking sector
- ☐ Reporting - transmission of information for reporting purposes



https://web.archive.org/web/19970724151009/http://www.sap.com:80/products/industry/banking/media/pdf/13539_02.pdf

Integration into the SAP Environment

Overview of the SAP Standard Systems

The Industry Solution for Banks (IS-B) is an integral part of the SAP banking control strategy linking external and internal accounting systems. In addition to IS-B, the SAP banking control strategy incorporates the following modules:

Integration

- ☐ Financial Accounting (R/3-FI and R/2-RF)
- ☐ Asset Accounting (R/3-AM and R/2-RA)
- ☐ Cost Center Accounting (R/3-CO-CCA and R/2-RK-S)
- ☐ Profitability Analysis (R/3-CO-PA and R/2-RK-E)
- ☐ Order/Project Accounting (R/3-CO-OPA)
- ☐ EIS (Executive Information System, R/3-CO-EIS)
- ☐ Activity-Based Costing (R/3-CO-ABC and R/2-RK-D)
- ☐ Treasury Management (R/3-TR-TM)

These established SAP standard systems for internal and external accounting are not included in IS-B. However, bearing in mind the advantages of an integrated system, it makes sense to embed IS-B within these standard modules.

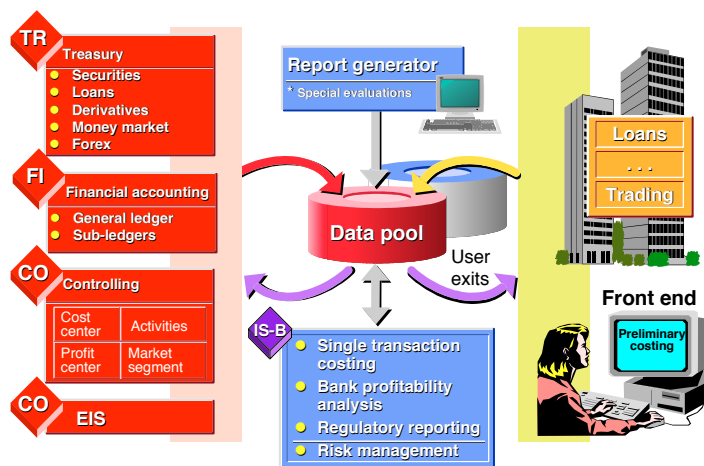


Figure 2-1: Model of an integrated system

You can also supplement your integrated system with further SAP standard modules such as:

- ☐ Materials Management (R/3-MM),
- ☐ Human Resources Management (R/3-HR)

Both these modules can also be implemented independently.

Financial Accounting To integrate IS-B, posted account assignment information from the SAP Financial Accounting and Cost Accounting systems is fed to IS-B from a data pool.

Cost Accounting The Cost Accounting system is designed to cover all internal cost controlling requirements. It is dialog-oriented and a central part of the integrated SAP system, although it can also be implemented as a stand-alone system. Within the Cost Accounting module, various cost accounting systems can run in parallel. Furthermore, costs are transferred automatically from Financial Accounting, Asset Accounting, Materials Management and Human Resources Management.

If no SAP standard applications, such as Financial Accounting (FI) and Controlling (CO) are in use, the data pool is supplied with the above information via the standard interface.

Bank Profitability Analysis Transaction data from the operational banking applications is transferred, together with the results calculated in Single Transaction Costing, to the Bank Profitability Analysis system, where it is evaluated according to selected aggregation levels or views.

Bank Profitability Analysis uses the edited results from Single Transaction Costing. This information can also be made available to a wider range of users beyond the industry solution. The evaluation process is then carried out by the standard SAP Profitability Analysis system.

What role does IS-B play in the integrated system?

IS-B adds industry-specific functionality to the standard applications in the SAP internal and external accounting system.

SAP Standard Systems

Financial Accounting

The Financial Accounting module is designed for the computer-based management of the general ledger and the subledgers and can accommodate a large number of different charts of accounts.

Since the Financial Accounting system has been consistently developed on the basis of a realtime processing concept, you can enter and validate data as well as carry out account assignments in the knowledge that integrated applications (such as Asset Accounting and Cost Accounting) will be simultaneously updated. You can also display up-to-the-minute financial accounting data, such as individual account balances, balance sheets or ratio analyses. The integrated reporting functions give you the flexibility to display accounting data from various points of view.

Realtime processing

You can calculate average balances on account level using an additional function in Special Ledger (FI-SL). Balance sheet reporting on a daily basis is also possible.

Average data

The Financial Accounting system is a document-based realtime system for all charts of accounts.

Data Flow if the SAP Financial Accounting System is also Implemented

Interface from Financial Accounting to IS-B

Direct account assignment

Due to the integration of Financial Accounting and Bank Profitability Analysis, you can directly assign G/L account postings to a profitability segment (this is the smallest evaluation unit and is identified by a certain set of characteristics such as product YZ, branch ZZ, which you have defined). You can then set the G/L accounts in such a way that users are required to enter a profitability segment on posting.

The following information can be entered in Financial Accounting and transferred to IS-B:

- ☐ additional account assignments
- ☐ average balances of G/L accounts

- ☐ reconciliations with the profit and loss account (P&L)
- ☐ information relevant for reporting, such as G/L account balances

Interface from IS-B to Financial Accounting

Information stored in the data pool is not additionally transferred to Financial Accounting.

The integration of Financial Accounting and Bank Profitability Analysis enables you to carry out direct account assignments for G/L account postings.

Data Flow if the SAP Financial Accounting System is not Implemented

Direct posting Additional account assignments which are normally carried out in the Financial Accounting system, if it is implemented, can also be carried out in the Bank Profitability Analysis system if you post directly to the profitability segments, either manually or via batch input.

Average data You can calculate average data for interest-free balances using the same method as for other single transactions. The posting balances of a balance sheet position (e.g. real estate) or the posted items and the balance carried forward for that position are transferred to IS-B so that the posting balance can be calculated.

You can directly assign net interest income from the profit and loss statement to the profitability segment 'Total bank'.

If the Financial Accounting system is not implemented, you can use direct postings to carry out account assignments.

Cost Accounting

Cost Accounting The main functions of Cost Accounting are:

- ☐ creation and administration of cost center master data
- ☐ definition and maintenance of statistical values
- ☐ assignment of posting data to accounts

- ☐ activity planning and planning of primary and secondary cost elements
- ☐ transfer postings, distributions, assessments and allocations from one cost center to another
- ☐ reporting in connection with individual report definitions

The Cost Accounting system supports the planning, monitoring, control and settlement of the activity units and responsibilities within a business operation.

Procedure if the SAP Cost Accounting System is Implemented

Actual and planned costs are usually displayed on cost center level rather than on single transaction level. You can transfer them from the cost center to any of the summarization levels (e.g. summarization by profit center) in Bank Profitability Analysis. This allows you to compare the standard unit costs calculated in IS-B, with actual costs from Cost Accounting. In a future enhancement, Cost Accounting will be immediately adjusted by standard unit costs in IS-B. This means that the costs transferred to IS-B will no longer include standard unit costs, thereby simplifying reconciliation with Cost Accounting.

Actual and planned costs

Summarization

Standard unit costs

You can transfer costs to Bank Profitability Analysis separately per cost element or cost center. The advantage of dividing costs into cost elements is that you can then display costs such as personnel and energy costs separately within Profitability Analysis. Similarly, by dividing costs into cost centers you can display distribution and administration costs separately.

Cost absorption

The costs transferred from Cost Accounting to IS-B are used to determine the productivity result (comparison of actual costs with standard costs) and the bank profit center result (profitability analysis on the basis of actual costs).

Productivity result

The allocation of cost centers to profitability segments is an integral part of Bank Profitability Analysis.

Allocation

You can transfer costs to Bank Profitability Analysis separately by cost element or cost center.

Data Flow if the SAP Cost Accounting System is not Implemented

You can charge costs directly to profitability segments within profitability analysis. To do this you enter the appropriate data manually or transfer it automatically from external sources.

Profitability Analysis

Results	Bank Profitability Analysis incorporates the edited results from single transaction costing. You can make this information available to a wider range of users, beyond IS-B, via a separate database server. Access to this data is via the standard Profitability Analysis system.
Reporting	The standard SAP profitability display can be period-, customer- or product-based. You can transfer both actual data and planned data to Profitability Analysis and then post it. The reporting system offers various possibilities for evaluating the data. You define the evaluation terms (characteristics) and the evaluation values (value fields) for Profitability Analysis within basic data administration. You can adopt already existing terms or add a limitless number of your own terms. Defined terms can be transferred automatically. With the profitability report you can carry out an interactive analysis of existing data in order to assess your profit contribution. This involves selecting a 'data matrix' in which you can navigate freely (drill-down, change between hierarchies etc.).
Interactive analysis	

With the standard SAP Profitability Analysis system, you can make the edited results from Single Transaction Costing available to a wider range of users.

Service Costing/Activity-Based Costing

Transparency	Service Costing (R/2) which is aimed at all enterprises within the service sector (especially banks) enables you to cost individual services and display overhead costs with greater transparency. Using task-analysis functions you can also establish which tasks within a cost center are of a repetitive nature.
Tasks	The quantity and value structures required for service costing are available once you have established the time base and assigned resources to tasks.
Processes	You can use tasks to define sub-processes and processes. This establishes the allocation levels for service costing per cost center. Cost center costs allocated to activity types are transferred to sub-processes and then to processes. The remaining cost center costs are transferred to Profitability Analysis in conjunction with multi-level fixed cost absorption.
Period costing	In the R/2 System, SAP offers the service costing functions described above. R/3 incorporates the Activity-Based Costing (CO-ABC) module. As from Release 3.0, this component includes period costing functions. Further enhancements to the functionality of this component are planned after Release 3.0. In period costing, costs are determined per cost object for a given period. The processes relate to time periods and not to products. They are shown on a time axis as aggregates per period. In a further function, you can define and evaluate processes per activity type, with the help of a central task catalog.

Unit costs arise in the operating area of a bank. IS-B does not cover costing the operational process of each transaction. Instead, you define standard unit costs for a transaction which then flow into Single Transaction Costing.

Unit costs

If the SAP Service Costing/Activity-Based Costing system is implemented, the unit costs determined there automatically enter the Single Transaction Costing system.

If, on the other hand, the SAP Service Costing/Activity-Based Costing system is not implemented, you can enter unit cost prices manually in IS-B.

Activity-Based Costing supports the planning, evaluation and allocation of process-related activities.

Order/Project Accounting

In the R/3 Order/Project Accounting System (CO-OPA), the emphasis is on analysis and allocation of costs. The main aims of the CO Order/Project system, are:

Orders/ Projects

- ☐ to control costs
- ☐ to support the decision-making process

Here a significant part is played by a function for the individual allocation (cost reduction) of every single order/project. Cost-receiving target objects which are limited to periods according to source, may well contain all relevant cost elements.

Allocation based on source

You can allocate orders/projects within internal accounting to the profitability segments in Bank Profitability Analysis. This involves a re-posting of costs within Cost Accounting by creating line items which debit and credit the objects to be allocated.

Re-posting

Order/Project Accounting supports the planning, monitoring and allocation of a bank's or company's services, processes and activities.

Treasury

In view of the complexity of the financial markets and the rapidity with which changes occur there, an optimum in financial results is only possible with the help of a competent software system. The Treasury Management System (TR-TM) is a comprehensive system for corporate treasurers which covers transaction processing in the following areas:

- ☐ Loans
- ☐ Securities
- ☐ Derivatives
- ☐ Money market
- ☐ Foreign exchange

Payment transactions Accounting

Transaction recording is enhanced by links to payment settlement processing within financial accounting. Due to centralized functions, all users have access to the following:

- ☐ Business partner and address data
- ☐ Financial mathematics
- ☐ Correspondence processing
- ☐ Limit monitoring
- ☐ Realtime reporting

Analysis

Planning and analysis tools, together with pricing functions, provide a basis for the decision-making process.

Common databases ensure that if the Treasury Management system (TR-TM) and IS-B are implemented jointly, no redundant transactions are held.

The central functions within financial mathematics are used by both applications.

What possibilities for integration does IS-B offer?

IS-B offers an integrated link to the internal and external accounting components within the SAP System.



https://web.archive.org/web/19970724151025/http://www.sap.com:80/products/industry/banking/media/pdf/13539_03.pdf

IS-B Architecture

Scope of the System

IS-B comprises the following:

Components

Realization level 1:

- ❑ Central functions
 - R/3 basis modules
 - Integration with SAP standard applications
- ❑ Data pool
 - Data interface
 - Data transfer tool
- ❑ Single transaction/Single position costing
 - Interest terms contribution
 - Trading contribution
 - Opportunity contribution
 - Commissions
 - Operating costs
 - Imputed costs
- ❑ Bank profitability analysis
 - Market result
 - Own-account trading result
 - Productivity result
 - Risk result
 - Bank profit center accounting
 - Transformation result

- Investment and financing result
- Interface to SAP standard Profitability Analysis system
- Net interest income
- Reporting (interface to SAMBA)

Realization level 2:

- Risk management
 - Interest rate risk
 - Currency risk
 - Other price risks
 - Specific option risks

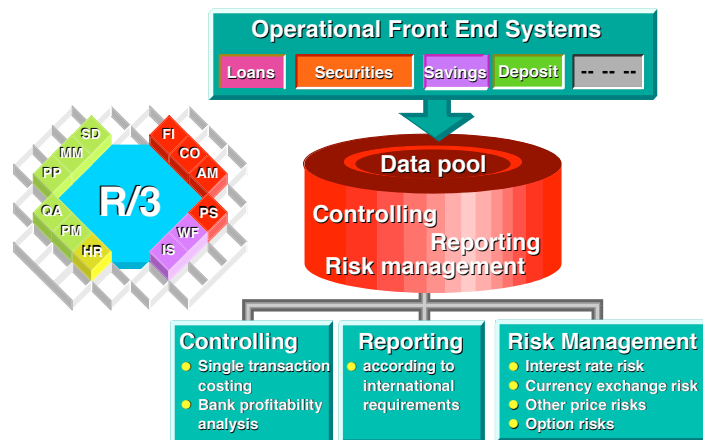


Figure 3-1: IS-B components

Release Market release for realization level 1 is planned for July 1996. Realization level 2 will be released in two parts: part 1 (VaR) is due in December 1996, part 2 (ALM) in December 1997.

What components does IS-B consist of?

- Central functions
- Data pool
- Single transaction/Single position costing
- Bank profitability analysis
- Reporting interface
- Risk management

Features of the R/3 Basis System

IS-B is founded on the R/3 basis system which means that all technical features included in the basis system are also available in IS-B.

R/3 basis

The main features are:

- ☐ graphical user interface
- ☐ uniform dialog and menu control
- ☐ online help system providing information appropriate to the context and object involved
- ☐ central user authorization system with different authorization levels per user and application
- ☐ posting in local and foreign currency
- ☐ multi-language
- ☐ memo book function for each user
- ☐ mailing

SAP has developed its own CUA (Common User Access) rules based on the standard rules proposed by IBM. These rules have been optimized to ensure a highly ergonomic user interface. As well as being easy to use, the system with its user-friendly interface can be run in various hardware environments. Moreover, the interface complies with standards common to all SAP software products.

Graphical user interface

The Style Guide, which is binding for the whole R/3 system, not only specifies how the CUA elements should look and be used, but also contains guidelines on all topics arising within the area of software ergonomics such as the presentation of texts, workflows and graphics.

Ergonomics

The standard R/3 System architecture consists of a three-tier hierarchy comprising:

Client/server architecture

- ☐ a host (database server) for carrying out all functions requiring access to the database.
- ☐ connected to this, several application servers for carrying out the actual dialog processing
- ☐ linked to this, in turn, several workstations (presentation servers) for the presentation functions.

With SAP's client/server architecture, R/3 users have the flexibility to match their hardware platforms to the current technological and market situation while simultaneously reaping the benefits of a decentralized, workplace-based EDP solution.

Open architecture

Due to the consistent standardization of interfaces, the R/3 System has an open architecture which means that IS-B can be implemented in a large number of different hardware and software environments. The standardized interfaces guarantee problem-free internal and external connections. They coordinate communication between applications on hosts from different suppliers, support the integration of PC programs and enable linking to operational banking applications.

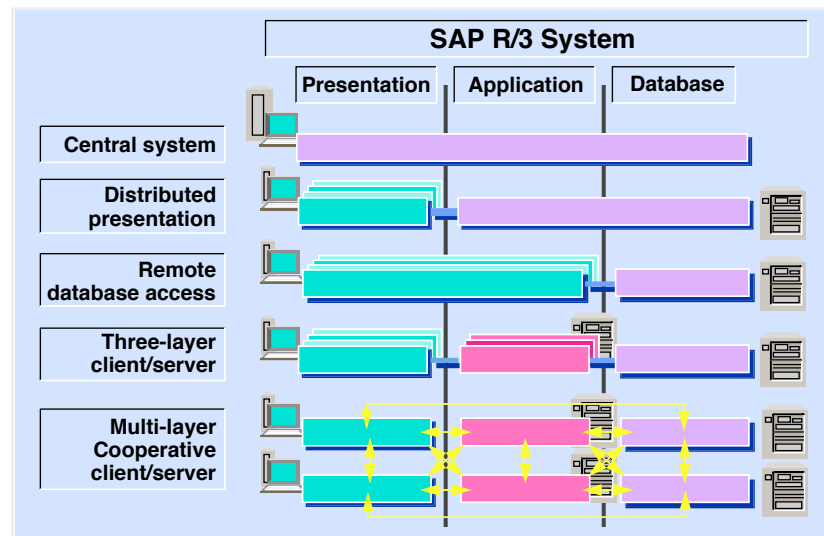


Figure 3-2: Multi-layer client/server concept

What are the main features of the R/3 basis system?

- ☐ graphical user interface
- ☐ client/server architecture
- ☐ open interfaces

Software and Hardware

IS-B is an R/3 solution for client/server architectures based on relational database technology. The system is ideally implemented in conjunction with other SAP applications, but can also be implemented as a stand-alone system. IS-B has been created as a decentralized bolt-on system and has its own databases in the form of a data pool, which is supplied with the necessary information from central R/2 or R/3 systems or from other systems implemented by the bank.

The technological advantages of the SAP R/3 System are:

- ☐ Openness through the strict adherence to standards
- ☐ Use of relational tables as a logical database. These are described in the SAP data repository
- ☐ User interface which features windows technology, menu bars, pull-down menus, function keys, pushbuttons etc.
- ☐ Use of standardized CPI-C interface (program-to-program communication) for communicating between different systems
- ☐ Software applications created solely using the programming language ABAP/4. Use of programming language 'C' for the basis system and for some special applications (e.g. interactive graphics)

Due to the architecture of the R/3 System, there is a strict division between functions relating to the technical operation of the system and application-related functions. The technical functions are fully integrated in the SAP basis system. The application functions, on the other hand, are integrated in the modules of the Industry Solution IS-B and operate independently.

This means that SAP can guarantee identical functionality and user interfaces in different system environments.

You can implement SAP software on various system platforms:

- ☐ UNIX (AIX, Digital UNIX, HP-UX, SINIX, SOLARIS)
- ☐ Windows NT

R/3 system

Openness

Relational database

Graphical user interface

CPI-C communication

Realization in ABAP/4 or 'C'

Multi-platform

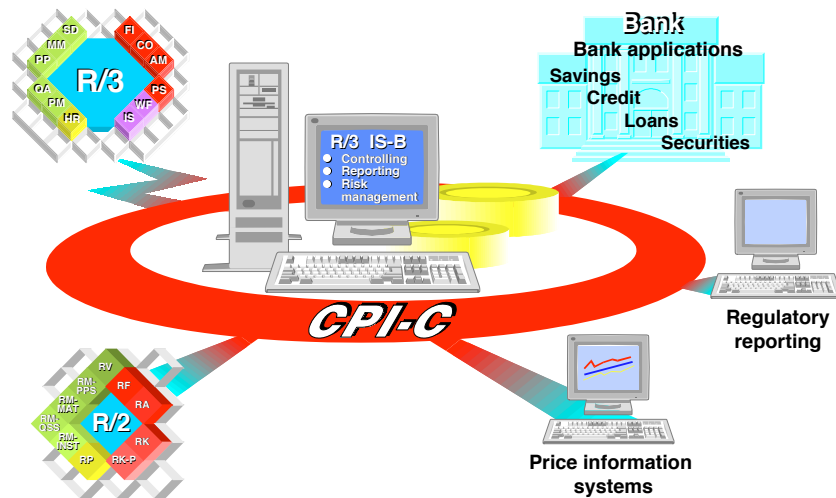


Figure 3-3: IS-B - a bolt-on solution

In regard to hardware requirements, the following are some of the many options open to you:

- ☐ Database server:
 - UNIX host, if the R/3 System is released for mainframe use, a BS2000 or MVS System could also be used
- ☐ Application server:
 - UNIX host
- ☐ Front-end:
 - Windows 3.1
 - Windows 95 (planned)
 - OSF/Motif
 - Presentation Manager
 - Macintosh

A further requirement is that these connections are linked via a network with TCP/IP.

You can implement the Banking Industry Solution using various configurations. The system configuration is determined by the quantity and capacity of the application servers you implement (which depends on the number of active users) and the range of functions you want to use, although these are also inter-dependent. The step-by-step extension of hardware resources in parallel with the gradual implementation of application systems therefore poses no problems.

Configuration

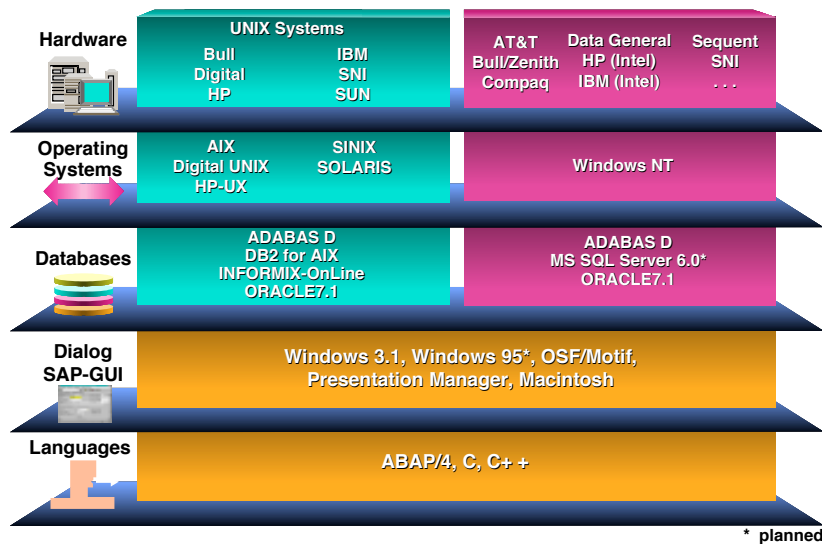


Figure 3-4: R/3 system environment

What are the main technical features of the SAP R/3 System?

The R/3 System, which is the basis for IS-B, features the following:

- ☐ openness
- ☐ client/server architecture
- ☐ relational database
- ☐ graphical user interface



https://web.archive.org/web/19970724151046/http://www.sap.com:80/products/industry/banking/media/pdf/13539_04.pdf

IS-B Application Functions

IS-B covers the following functions:

- ☐ data transfer
- ☐ single transaction costing
- ☐ controlling evaluations within bank profitability analysis
- ☐ data extract for regulatory reporting
- ☐ risk management.

The system is customized when it is implemented so that the application functions exactly match the requirements of the bank concerned. The sample bank supplied with IS-B contains a completely customized system, which you can use as a reference. The necessary adjustments are described in the section 'Setting Up Basic Data'.

Sample bank

Data Transfer

Bank transactions are usually entered and administered in the bank's existing operational systems. These are systems which manage credit facilities, savings accounts and current accounts as well the trading and processing involved in security, money market and foreign exchange transactions, thereby covering both customer and own-account business. This master and movement data for single transactions needs to be transferred to the IS-B data pool.

The general data transfer tool is therefore an important part of IS-B. This tool is used for the table-controlled mapping of data from the operational systems to the required information in the data pool. For correction purposes or for manual entries, IS-B also offers transactions for online maintenance.

The data transfer tool is used to transfer:

- ☐ transactions in the operational systems which were created or changed since the last data transfer
- ☐ an entire dataset i.e. on IS-B becoming productive at a bank (transfer of existing data).

You can transfer transactions to the data pool either periodically (daily, monthly) or constantly, via a CPI-C connection (see External Data Transfer).

The data transfer tool is used to transfer information from the operational banking applications to the data pool, which is used by all the IS-B components.

Single Transaction Costing

Final costing The costing system provides a final costing function for all transactions in the data pool at the costing key date. The data supplied to the data transfer tool is checked to see if it is complete. If all information required for costing is available, the transaction is immediately costed. Costing is carried out for all transactions within a reporting period, which is defined by the user and is valid for the whole bank.

Costing run If a monthly reporting period is selected, costing takes place every month. The costing program is activated at the end of each reporting period and processes all transactions which have not yet been costed. You can define a date for costing i.e. the fourth day of every month for the previous month. The costing program is then automatically activated via the SAP Scheduler.

If you want to see preliminary results before the end of the reporting period, you can also start the costing program manually. For performance reasons, we recommend that you limit the number of transactions processed. You can do this by specifying a particular product or customer group.

Single Transaction Costing carries out a final costing of transactions within a chosen reporting period.

Controlling: Reporting Basis

Line items The transferred master and movement data forms the basis for costing. The costing results are filed as line items for each reporting period. A line item therefore contains the evaluation criteria (characteristics) and the results (value fields) for a transaction within a reporting period. Line items can represent summarized transactions as well. High volume service transactions such as bank transfers are typically summarized.

Profitability segment Profitability segments, which are formed on the basis of the line items, in turn provide the foundation for reporting within Bank Profitability Analysis. A profitability segment is defined by a set of characteristics e.g. customer group X, product group Y, branch Z. A totals record containing the accumulated period values is kept for each profitability segment.

Evaluation tool Bank Profitability Analysis provides a flexible online reporting system based on profitability segments.

You can define your own criteria for evaluating the periodic costing results.

Regulatory Reporting

At regular intervals, the information stored in the IS-B data pool is used to create an extract for regulatory reporting. The processing or editing of data within the regulatory reporting dataset, is not included in IS-B.

Risk Management

The risk positions for interest rate, currency and other price risks are determined on the basis of the current bank transactions.

Which functions does IS-B incorporate?

- ☐ Data transfer
- ☐ Single transaction costing
- ☐ Controlling evaluations
- ☐ Interface to regulatory reporting
- ☐ Risk management

Setting Up Basic Data

When IS-B is implemented, the system is customized using general control parameters. This process of adapting the system to the requirements of the user ('customizing') primarily consists of setting up basic data. This basic data includes the following:

- ☐ bank's organizational structure
- ☐ characteristics and value fields of operating concern
- ☐ product catalog
- ☐ costing rules
- ☐ regulatory reporting rules
- ☐ risk management rules
- ☐ money and capital market table and
- ☐ financial terms types.

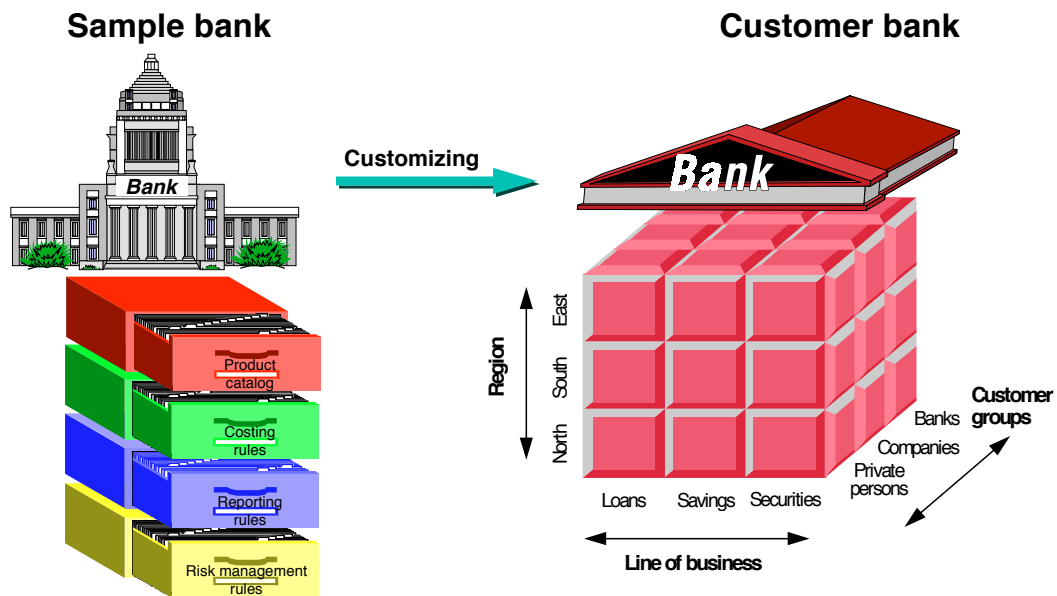


Figure 4-1: Customizing - individual adjustment

Organizational Structure

IS-B uses the central organizational elements of the SAP Enterprise Data Model. This guarantees integration with the other SAP applications, provided the standard elements are used. The elements are:

- ☐ Client
- ☐ Operating concern
- ☐ Controlling area
- ☐ Company code.

A client is a legally and organizationally independent unit. The system manages central table entries, master and movement data under this organizational heading. The term 'client' corresponds to the business entity 'group' i.e. several companies linked together in the same organization.

Client

An operating concern represents an organizational unit within a company for which a standard reporting structure is required.

Operating concern

You define a number of different evaluation criteria (characteristics and value fields) for each operating concern. There is usually a 1:1 relationship between the operating concern and the controlling area. To carry out profitability analysis across several controlling areas, you assign the controlling areas to an operating concern.

The operating concern connects IS-B with the standard Profitability Analysis system.

A controlling area is an economic unit within which costing is carried out. There is usually a 1:1 relationship between the controlling area and the company code. A controlling area can carry out a cost calculation for several company codes within a bank or business. The controlling area connects IS-B with the standard Cost Accounting system.

Controlling area

The company code represents an independent organizational unit which draws up its own balance sheet. The company code itself can be split into further units i.e. branches or departments. You create this subdivision in IS-B by defining certain characteristics (see below) and can use this technique to create and evaluate any number of hierarchy levels beneath the company code.

Company code

IS-B uses the company code to connect with the standard Financial Accounting and Treasury Management systems. Every bank transaction is assigned to a company code.

The above organizational elements form the basis for integration with the other SAP applications.

Defining the Operating Concern

The operating concern has the highest position in the organization and evaluation unit hierarchy. Usually one operating concern is set up within IS-B.

When you set up the operating concern, you can specify which characteristics and value fields from Profitability Analysis are shown in the evaluations. We have adjusted this standard function from the existing CO-PA module to meet banking requirements.

Characteristics

These are the categories which you use for reporting. You can supplement the fixed characteristics such as company code, bank product and customer with additional characteristics such as branch or country from a product catalog. You can also define your own characteristics to reflect certain customer or product groups, for example.

Value fields

The results which appear in the reports are known as value fields. The value fields, showing, for example, the interest terms contribution, the opportunity contribution and the average volume, are determined in the fixed single transaction costing sheet and are always shown. You can also select additional value fields from a catalog or define your own value fields and can define both amount fields and quantity fields. User-defined value fields are either fed with data from the operational systems or are populated within IS-B via the flexible single transaction costing components (Figure 4-2).

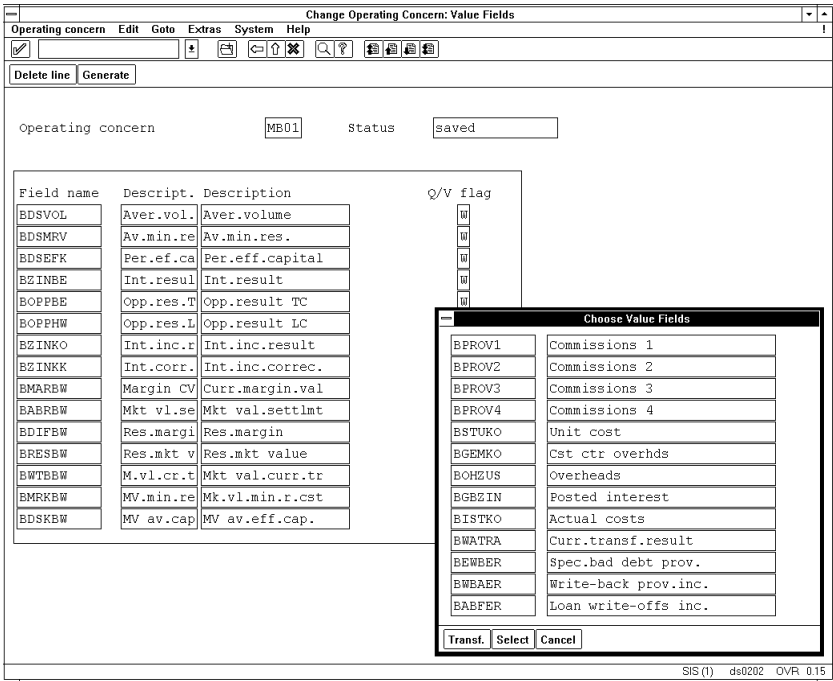


Figure 4-2: Selection of value fields for operating concern

Characteristics and value fields provide a profile for the operating concern.

Product Catalog

The product catalog gives you a comprehensive overview of all products offered. You can individually define the bank products. The sample bank contains a product catalog of approximately 150 products, which you can use for guidance. The bank product is a key evaluation element within Bank Profitability Analysis.

Bank product

Every bank transaction must contain a bank product for data transfer or online entry to take place i.e. bank transactions are grouped into products.

This is a section of the sample bank's product catalog:

Processing rules

01020100 Assets/Customers/Overnight money
01020200 Assets/Customers/Term money
...
01030101 Assets/Customers/Loans/New lendings
...
01130100 Assets/Customers/Credit lines
...
02080100 Liabilities/Customers/Savings deposits
02080200 Liabilities/Customers/Savings bonds
...
03020200 Services Customers/Foreign notes and coins
03030100 Services/Customers/Credit transfers
...
04020100 Own-account trading/Spot exchange transactions
...
04040101 Own-account trading/Derivative financial instruments/Interest rate swaps
...
04010100 Own-account trading/Trading portfolio/Securities

Processing in IS-B is not controlled directly by the bank product but rather by the following three processing rules:

- ☐ Costing rule
- ☐ Reporting rule
- ☐ Risk management rule.

The following explanation uses the costing rule as an example; the other processing rules are similar.

User-defined bank products are assigned to system processing rules.

Costing Rule

User-defined costing rules and costing methods defined within customizing form the basis for costing. The customizing involved includes specifying the costing components (risk costs, interest terms contribution) for a single transaction, as well as the costing methods which are to be used. A costing rule is then assigned to each user-defined bank product. The product category of a single transaction thus determines which costing components will be calculated by which method.

Definition

The following scenarios are possible when assigning bank products to costing rules:

Allocation of bank products

- ☐ Different bank products have the same costing rule and are therefore costed in the same way.
- ☐ A bank product has different costing rules (e.g. different rules for fixed-term and variable-term loans).

In the second case, the system uses an additional characteristic, the “product variant” to determine to which costing rule a single transaction is assigned. The user defines the product variant based on the characteristics of the single transaction.

Single transaction costing differentiates between fixed and flexible costing components. You can select predefined costing methods for fixed costing components such as interest terms contribution, present margin value etc from a catalog. To some extent you can adjust the fixed procedures via parameters. To define the flexible costing components you use table entries.

Fixed and flexible components

You define the costing rule in two steps. In the first step you use the catalog to select fixed costing methods for the fixed costing components. If none of these methods meets your costing requirements, you can enter the values directly or calculate them via a user-defined program (user exit).

In the second step, a costing sheet is assigned to the costing rule to calculate the flexible costing components. The costing sheet covers all imputed costing components which can be calculated on the basis of absolute amounts, quotas per unit (e.g. risk surcharges, unit costs) or as percentage increases or decreases on base values. The amounts and percentage rates are stored in tables. You can define both which costing components are grouped together in one procedure as well as the criteria for determining the table values and can use the same costing sheet in several costing rules.

Costing sheet

You have four options per costing component when calculating costs. You can:

Calculation options

- ☐ Select a standard (fixed) costing method
- ☐ Define a flexible costing component with a user-specific valuation rule
- ☐ Transfer a result calculated in other systems
- ☐ Use a costing method which you have programmed yourself (user exit).

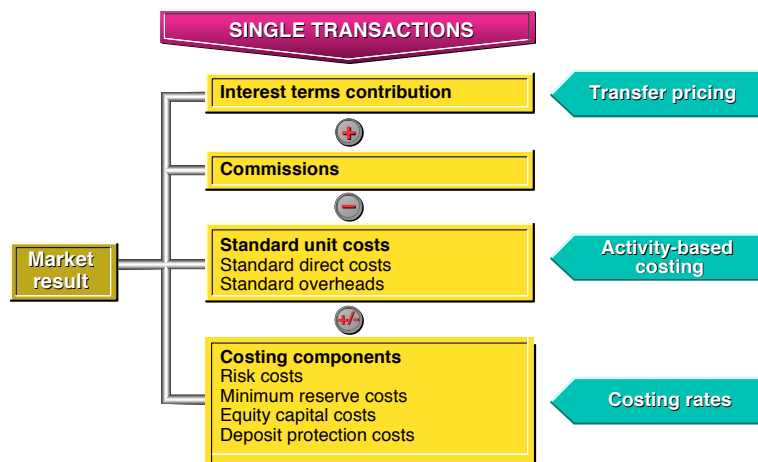


Figure 4-3: Components for the market result

Profit and loss statement

There are two ways of reconciling the cost accounting approach within single transaction costing and single position costing with the commercial law approach used for the profit and loss statement, in order to ascertain the net interest income.

- ☐ You can display differences resulting from imputed and posted interest per single transaction/single position, or
- ☐ Within Bank Profitability Analysis, you can compare revenues and expenses assigned to profitability segments with the costing values for these profitability segments.

You can then calculate the trading result on the basis of evaluations which reflect either a cost accounting or commercial law approach.

For each costing component you can decide whether to use the standard procedures offered by the system or your own.

Reporting Rule

If the Regulatory Reporting component is implemented, the bank products or G/L accounts relevant for reporting are assigned a reporting rule. The reporting rule controls which information is transferred to the external regulatory reporting systems.

Risk Management Rule

The risk management rule has a similar function to the costing rule. More information about the risk management rules will be available in the next development phase.

Money and Capital Market Information

Market information concerning interest rates, stock prices and exchange rates is stored in tables within IS-B. This information is used to determine opportunity interest and to evaluate trading portfolios within single transaction costing.

You need to maintain the following within customizing:

- ☐ the IDs under which the interest rates are grouped
- ☐ the currency keys.

Stock prices are maintained for all classes which exist in IS-B.

Interest rates, stock prices and exchange rates are either updated manually or are automatically fed from external price information systems.

Current market information is stored in the money and capital market table.

Financial Terms Types

The financial terms in IS-B represent the transaction information which is the basis for calculating cash flows e.g. the repayment rate and the interest calculation method. The cash flow calculator functions (financial mathematics) and the structure of the terms are not fixed and you can use the terms types to influence them.

Cash flow generator

The financial terms are assigned to categories (terms types) based on their function (e.g. interest, repayment). You can store several terms for a transaction. The terms concept also gives you the flexibility to define how the cash flow for a new product is calculated in the system.

The financial terms are assigned a terms type based on their function.

How can you implement your controlling philosophy in IS-B?

You can use the following IS-B features to implement your controlling philosophy:

- ☐ Processing rules: these consist of fixed procedures which you have selected and flexible procedures which you have defined.
- ☐ Profitability analysis values: you select and edit profitability analysis values within the reporting system.

Master and Movement Data

Data pool The data pool contains all information required for evaluation and further processing in the areas of controlling, reporting and risk management.

Definable summarization level To carry out single transaction costing for each transaction, the individual transactions must first be transferred to the data pool. You can also define a product-related summarization level for some of the transactions. You could, for example, store loans individually while transferring savings accounts in summarized form.

Master and movement data In addition to the basic data described above, the data pool contains master and movement data which is needed for costing, regulatory reporting and risk management.

Master data usually has a relatively long life and can be used in several transactions. The master data provides information on:

- ☐ Banking transaction master records
- ☐ Business partners
- ☐ Stock classes
- ☐ Business partner accounts
- ☐ Financial terms.

Movement data, on the other hand, consists of single items of information which refer to specific transactions, including:

- ☐ Account items
- ☐ Commercial transactions
- ☐ Individual purchases and sales
- ☐ Cash flows.

Some transactions, in particular services, only consist of movement data.

Required/Optional Control

Analysis tool The required/optional control is an analysis tool which you can use to display the data which has to be transferred to IS-B. This depends on the settings in customizing and, in particular, on the processing rules.

Data display

The required/optional control is described here using the costing rule as an example; the procedure for the risk management and reporting rules is similar.

Costing rule

The bank product determines which costing rule is relevant. Each costing method which you select within the costing rule uses different master and movement information.

Costing method

If, for example, you choose to calculate average balances in IS-B, the tool displays the account items, which form the basis for this method. If, on the other hand, you opt to transfer an average balance calculated in an external system, the analysis tool displays the value field 'Average balance' instead.

All selected costing methods are analyzed simultaneously; IS-B then issues a list of relevant fields, sorted according to tables.

List of relevant fields

The required/optional control tells you whether the determined fields are:

- ☐ required for costing (mandatory fields).
- ☐ not directly required, but potentially useful (optional fields e.g. customer group, product group).
- ☐ required in conjunction with other information (dependent fields e.g. for a reversal posting the 'Reversal date' field must be filled).

Using the required/optional control you can see at a glance which data from the operative systems is needed to carry out the required calculation in IS-B.

The required/optional control uses the assigned processing rule to determine what data is required for a particular application.

Online Maintenance Transactions

IS-B provides online maintenance transactions which allow you to display and change master and movement data. You usually maintain movement data by transferring external data. The online maintenance transactions can be used for:

Online maintenance of data pool

- ☐ test purposes
- ☐ general corrections
- ☐ correcting transferred data
- ☐ entering banking transactions when no automatic interface is required (e.g. for very low volume transactions).

Online entry of banking transactions

When entering a banking transaction, you enter:

- ☐ a bank product
- ☐ a costing variant for the product
- ☐ other general transaction data.

Costing rule

This information is then used to determine the costing rule, which is immediately displayed. The subsequent screens and their sequence depends on this costing rule.

Master data

First you enter master data for the transaction. The system helps you to do this by displaying the appropriate fields, depending on the costing rule. If, for example, the costing rule specifies that a position is to be kept, the corresponding fields, such as, in this case, the 'Portfolio' field, are displayed.

Base volume

You then fill in information which enables the system to calculate the base volume. Which information is required depends on the costing rule:

- ☐ If the base volume is calculated using account items, you enter the business partner's account and the corresponding items.
- ☐ If a position is to be kept, you enter individual movements (purchases and sales).
- ☐ If the transaction is calculated using a cash flow, you can either enter the terms for calculating the cash flow or enter the cash flow directly.

Characteristics and value fields

You can then specify characteristics and value fields for the transaction. You will already have defined these within customizing. A bank transaction with a cash flow can be calculated immediately within the maintenance transaction.

For corrections, exceptions and test purposes, IS-B provides online maintenance transactions for master and movement data.

How does the system know which master and movement data is required in IS-B?

The required master and movement data is determined by the required / optional control.

External Data Transfer

Collating and evaluating transaction data across products, regions and customer groups is often difficult, especially if the front-end systems have different hardware platforms and operating systems. IS-B makes this sort of reporting possible.

In IS-B the problem is solved by a data transfer tool which coordinates the flow of information from the source systems to the data pool. This tool supports the conversion and transfer of structures from the operative areas to the fixed and freely-definable IS-B data structures. This involves no more than a minimum of programming since many parts are generated automatically.

Data pool

User-defined data structures in the operational banking systems (sender structures) are entered in the SAP Repository as part of the configuration process. The individual fields in these sender structures are then mapped to the SAP receiver structures.

Data transfer involves two stages:

- ❑ First stage
You maintain the mapping rules for transferring data from the sender to the receiver system within customizing. The corresponding transfer programs are generated based on your entries.
- ❑ Second stage
The actual physical transfer of data is carried out by the system at regular, user-defined, intervals. To do this, the system:
 - selects data from the source system
 - transfers the selected data to the IS-B system
 - converts data from the sender structure into the receiver structure
 - summarizes the records
 - processes the records in IS-B, which involves:
 - saving checked data
 - logging
 - error handling
 - subsequent processing.

Data flow

Data retrieval program The user bank itself provides a data retrieval program for each source system. This program:

- ☐ selects the relevant records e.g. those showing the new, changed and deleted transactions for that day.
- ☐ supplies records in a user-defined format (sender structure), either in the form of a sequential dataset or via CPI-C.
- ☐ groups all records belonging to a logical process into a 'bundle'. In the case of a fixed-rate transaction, for example, this involves grouping together all the corresponding cash flow records, ensuring that a complete set of data is available for subsequent processing i.e. costing.
- ☐ can 'summarize' the records, thus reducing the network load when mass data is processed.

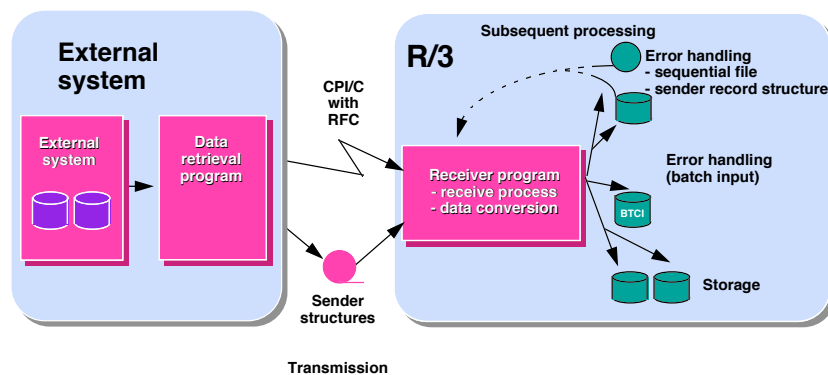


Figure 4-4: External data transfer

You can either transfer data online or in the background. You can also set a switch to activate data transfer regularly, at an interval which you yourself define.

Conversion During each data transfer run, the supplied records are read, processed according to the conversion rules and, once all checks have been carried out, saved in the IS-B tables. The system has several features which help you define the conversion rules:

- ☐ You can select the appropriate conversion rules from a list of those already defined.
- ☐ In the case of straightforward transfers or fixed value allocations, you can enter a conversion rule directly.

- ❑ If you only want to show part of the sender field, you can achieve this by using special processing rules.
- ❑ When you maintain the transfer rules for value fields you can also use the formula editor to display standard mathematical functions.

Formula editor

Captured records stored or changed in IS-B are given an origin indicator and a time stamp so that you can trace them back, if necessary.

Each captured transaction must include a bank product so that the processing rule can be determined. Based on the customizing settings for the interface program, checks are carried out on the transferred data to ensure that the fields or table entries required for costing are complete and valid. If the Risk Management or Regulatory Reporting components are implemented, the supplied records are checked correspondingly.

Checks

IS-B has two automatic procedures for dealing with errors:

Error handling

- ❑ When records contain individual fields which are invalid, IS-B places the records in a batch input session for online correction.
- ❑ When the system is unable to assign a record to a receiver structure or there is a chance that the same key will be assigned twice (i.e. no conversion from the sender to the receiver structure is possible), the affected records are issued again on a sequential dataset in the original sender format.

The transfer program keeps a log of the records containing errors. You can define which records you want logged e.g. all records or only records containing errors.

Logging

To ensure that data is transferred correctly, each run is logged in a control table. This means that if you inadvertently attempt to transfer a file twice, the system will prevent a second run taking place on the basis of the file ID and the control information.

The external data transfer system provides you with comprehensive functionality for logging and error handling.

Corrections

You can use an online function to correct or reverse individual transactions and totals records summarized at a higher level and held in the data pool.

Via selection parameters you can also control the scope of the correction. The following options are available:

- ☐ Correction of a single record
- ☐ Complete repetition of run
(all data within a specified transfer period)
- ☐ Repetition of run limited to a product/product group
(all product/product group data).

Change history

Each single record is cancelled by a reversal record and replaced by a record with new allocations and values. The advantage of this is that the original information remains intact; no information is lost in the reversal process. Changes are shown in the record's change history.

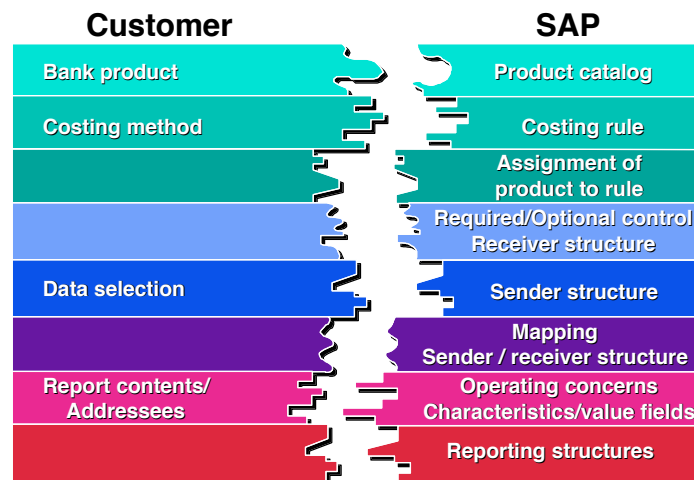


Figure 4-5: SAP solutions

In IS-B you can use online functions to correct and reverse individual activities and summarized master records.

What is the procedure when external data is transferred?

The user provides a dataset which is read by IS-B. Any conversion, compression, currency translation and validation is carried out before the IS-B data is updated.

Bank Controlling

Within the framework of controlling, IS-B offers a costing system which enables you to assign income and costs to single transactions or single positions. The results can be summarized according to various criteria within profitability analysis. The criteria involved include the three evaluation parameters:

Costing system

- ☐ product
- ☐ customer
- ☐ organizational unit (profit center).

IS-B therefore covers product, customer and profit center costing. In the case of customer costing, we recommend that you select only particular customers and otherwise customer groups, since this improves the runtime.

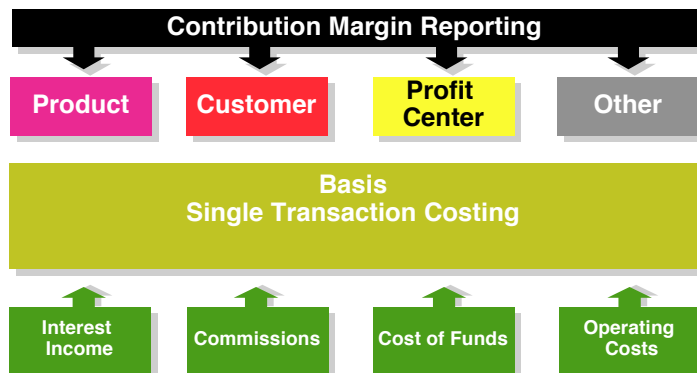


Figure: 4-6: Analyzing costs and profitability in IS-B

The costing system comprises two sub-systems:

- ☐ Single Transaction/Single Position Costing for the costing of transactions with customers or of transactions or positions in own-account trading.
- ☐ Bank Profitability Analysis for the presentation of single transaction/position costing results in summarized form and for the addition of actual data from the period under review to these results.

What kind of functions does IS-B offer for bank controlling?

IS-B offers functions for:

- ☐ single transaction/single position costing
- ☐ bank profitability analysis

Single Transaction/Single Position Costing

Single transaction/single position costing is based on:

- ☐ single transactions such as loans, savings accounts and credit transfers, which were either concluded within the reporting period or are still current.
- ☐ single positions comprising single transactions such as security purchases in own-account trading or sales of own issues. The effect of these transactions on the results during the reporting period is determined and summarized for evaluation purposes.

Costing components

Here the term “single transaction costing” is used for both instances. Single transaction costing is based on a costing table incorporating the following costing components, which will be described later:

- ☐ interest terms contribution
- ☐ transformation contribution
- ☐ trading income contribution
- ☐ own-account opportunity contribution
- ☐ commissions
- ☐ operating costs
- ☐ imputed costing components.

The costing components, which are determined by the assigned costing rules, are calculated for a specific single transaction. The results are summarized in a contribution margin chart within Bank Profitability Analysis. You can use this to determine the excess cover/cover shortage or the net margin.

You can also define additional costing components or costing rules.

Base values

The costing methods for the above-mentioned costing components rely on a number of base values, such as:

- ☐ volume
- ☐ cash flows
- ☐ interest rates.

You can also specify in the costing rule that the system should calculate these base values.

IS-B supports both periodic margin calculation and the determination of present margin values. A prerequisite for the calculation of present values, is that the cash flow for future payments is known. The system can calculate cash flows for transactions with fixed terms. Alternatively, you can transfer cash flows from other systems. In the first version of IS-B, no provision is made for calculating cash flows for transactions with variable terms in various scenarios. Present margin values are assigned to periods based on the effective capital. Transactions for which it is not possible to calculate a cash flow can be calculated for periodic margin calculation based on the average volume of the period.

Periodic margin calculation

Present margin values

You can calculate backdated transactions in IS-B i.e. take into account movements with value dates in previous reporting periods. Backdated transactions activate a recalculation of both the reporting period in which the value date falls and of subsequent reporting periods which have been closed. An IS-B requirement for calculating the effect of these transactions on the revenue result is that individual transactions are stored or, alternatively, that the base values required for the calculation (e.g. daily balances, position movements with price information) are re-transferred. A further requirement is that the profitability analysis results for the affected period are available in the data pool (as line items per single transaction/single position).

Backdated transactions

The effect of the backdated transactions on the revenue result is then displayed for all affected Profitability Analysis values so that you can see the corrected result per single transaction.

For users who do not want to recalculate closed reporting periods, IS-B offers correction fields for the following interest components in the case of backdating:

- ☐ interest terms contribution
- ☐ gap (repricing difference based on interest in profit and loss statement and imputed interest contribution).

You can determine costing results by period or key date.

We are now going to take a closer look at the base values and costing components within Single Transaction Costing.

Base Values

The volume, cash flows and interest rates constitute the input or base values for the costing methods and are calculated by the system with the help of user-defined costing rules.

Volume

Customer transactions For transactions without a cash flow, the average volume of the period is required to calculate interest and imputed surcharges. You can determine the average volume for the period from an accounting or value date perspective either by transferring an already calculated value to IS-B from the feeder systems or by activating a system calculation, based on:

- ☐ daily balances, or
- ☐ account items.

The average tied-up effective capital is determined using the calculated or transferred cash flows in IS-B and the effective interest rate.

Own-account transactions In the case of own-account transactions, the system displays the market and opportunity volumes:

- ☐ The market volume at the costing key date (e.g. position of shares XY multiplied by the current price) is required for the system to calculate pending price gains and losses. The market volume is required on a daily basis to determine the average market volume which is the base value for calculating imputed surcharges such as risk costs or equity costs.
- ☐ The opportunity volume is used in single position costing to determine the opportunity costs or revenues when the trading result is calculated.

Average volumes are used to calculate interest and imputed surcharges for transactions without a cash flow.

Cash Flows

IS-B uses the cash flow for certain financial calculations. The cash flow comprises the individual incoming and outgoing payments (movements) per transaction.

The financial terms which you define within customizing represent important cash flow information. Depending on the specified period, the financial terms can generate a number of cash flows which are identical apart from the fact that each has a different date.

How the cash flow is actually determined from the terms depends on the processing requirements of each individual bank and of the transaction itself. Two possibilities are to determine the cash flow according to:

Financial terms

- ☐ the frequency and scheduling of the points in time per annum at which a repayment reduces the interest calculation base.
- ☐ the frequency and scheduling of the points in time per annum at which interest is capitalized.

Cash flows are used for calculations within financial mathematics.

Interest Rates

You enter the market rates (interbank rates) in the money and capital markets table. Here you can differentiate between rates by specifying freely-definable yield curves (e.g. LIBOR, the current yield) and by specifying currencies. A yield curve in IS-B comprises a set of reference interest rates (basic values) and represents a specified interest calculation method, quotation type (bid, offered, middle) and stock exchange. Interpolation is used to specify interest rates for those terms which are otherwise not available. You can maintain the market rates online or capture them from an external price information system.

Money and capital markets table

To calculate present values, cash flows are valued with zero bond discounting factors. The zero bond discounting factors are calculated from entries in the money and capital market table i.e. the basic values and the interpolated interest rates.

Zero bond discounting factors

The effective interest is determined based on the existing or planned cash flow from the interest and repayment schedule. The cash flow itself is based on the conditions agreed or achievable on the market. There are five methods for calculating effective interest. Each method calculates broken maturities and interest for periods of less than a year in a different way.

Effective interest

The methods are:

- ☐ PAngV (Charges Disclosure Rule)
- ☐ AIBD method
- ☐ Moosmüller method
- ☐ Braess-Fangmeyer method
- ☐ US method.

The effective interest can be displayed online using any of the above procedures. When calculating the present margin value, the system uses the AIBD procedure.

Opportunity interest

There are five different ways of calculating opportunity interest in the system, with the following characteristics:

- ☐ opportunity interest determined based on matched maturities (only for transactions with a cash flow; see interest terms contribution example).
- ☐ fixed money and capital market rate assigned for the entire term of a single transaction.
- ☐ fixed money and capital market rate assigned for particular intervals during the term of a single transaction.
- ☐ average money and capital market rate assigned to a single transaction.
- ☐ alternative rate assigned to a single transaction based on weighted total of several market rates.

The money and capital market table contains the interest rates which are used to determine the opportunity interest rate.

How flexible are the costing components within Single Transaction Costing?

You can define your own costing components and rules to supplement the fixed procedures in the IS-B system.

Costing Components

Interest Terms Contribution

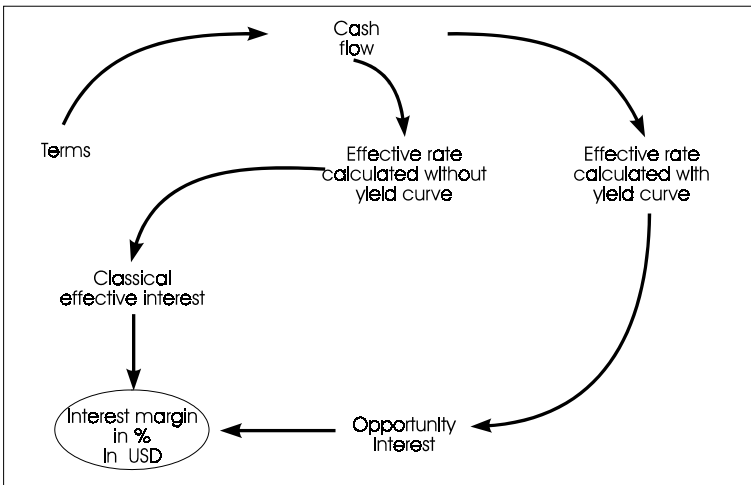
A market rate approach to transfer pricing is used to calculate the interest margin in interest-related business. Each single transaction is set against an alternative transaction on the money and capital market. The difference between the customer interest rate and the alternative market interest rate (opportunity rate) based on volume, represents the interest terms contribution.

Market rate approach to transfer pricing

IS-B offers schemes for calculating the interest terms contribution which are either based on daily balances or nominal average balances (in accordance with a traditional market rate approach) or on cash flows and effective capital (in accordance with the present value). The schemes available for calculating opportunity interest and base volume using a traditional market rate approach are described under the heading 'Base Values'.

The matched-maturities evaluation of a cash flow within the present value concept requires a duplication of the cash flows for a financial instrument using a bundle of other financial instruments. The duplicating financial instruments can be either fixed-term instruments or zero bonds. The fixed-term instruments should be due at end and have a total present value which is determined using market rates corresponding to the maturity. The alternative is to use zero bonds (this is the method used in IS-B). Here the true (arbitrage-free) value is similarly represented by the present value of the original cash flow (which has been discounted using zero bond discounting factors). Provided it can be determined based on matched maturities, the opportunity interest which is valid for a transaction is determined using the terms generated by the cash flow.

Matched-maturities approach



Present margin value The total present value for a cash flow corresponds to the present margin value of all future interest terms contributions, discounted at the evaluation date. You can then distribute the present margin value to individual reporting periods so that the costing result can also be used for period costing. For this, the cash flow of the alternative (opportunity) is constructed in such a way that the effective capital of the transaction corresponds to that of the opportunity at the payment dates. The difference between the transaction payments and the opportunity is therefore represented by the interest terms contribution arising from one payment date to the next. The effective interest rate of the opportunity is then used as the opportunity interest rate.

The following gives you a concrete example of how the interest terms contribution is calculated based on zero bond discounting factors:

Calculation of Interest Terms Contribution Based on Zero bond Discounting Factors

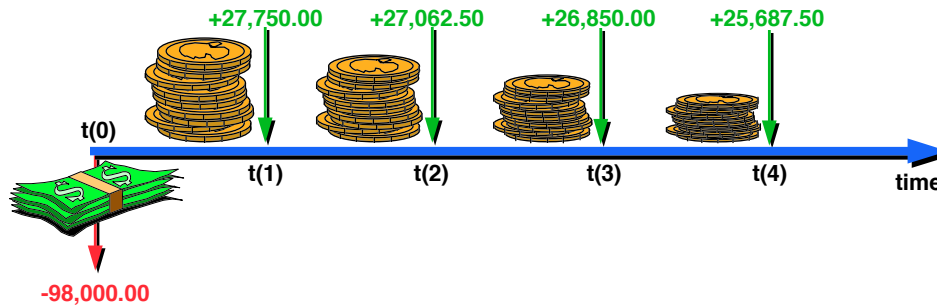
Example The interest terms contribution for transactions with predefined terms is calculated on the basis of the effective interest and the effective capital. The opportunity interest rate for bullet transactions is determined directly at the market place, based on the term to maturity. In the case of transactions with a changing capital base and predefined terms (e.g. agreed repayment dates), the opportunity interest rate is defined as the effective interest rate of a matched maturity transaction whose present value was determined using zero bond discounting factors.

Example: valuation of an installment loan

a) Terms:

Nominal amount:	100,000 USD
Maturity:	2 years
Repayment:	half-yearly, 4 installments of 25,000
Interest payment:	half-yearly
Discount:	2,000 USD
Nominal interest:	5.50%
Effect.interest AIBD:	7.34667%

b) Cash flow (based on above terms):



c) Coupon structure:

6 months:	5.75%
12 months:	5.50%
18 months:	5.30%
24 months:	5.20%

Suppose the individual payments of the above installment loan are zero bonds for which you want to calculate the present values. Since not enough zero bonds are actually available for this particular maturity class of fixed-interest securities and no zero bond yield curve can be established, synthetic bonds are gradually created for each planning horizon, on the basis of the prevailing interest structure.

Zero bond discounting factors based on the coupon structure:

**Zero bond
discounting factors**

Coupon structure		Zero bond disc.factor
6 months:	5.75%	0.972053
12 months:	5.50%	0.947867
18 months:	5.30%	0.925244
24 months:	5.20%	0.903717

Suppose a discounting factor (e.g. for 2 years) corresponds to the present value of an arbitrage-free standard zero bond with the corresponding maturity (here: 2 years), resulting in a (re)payment of 1 on reaching maturity. The maturities of interim interest payments are so well matched, that there is only a payment (purchase payment) in $t(0)$. Payments at the valuation date are valued with zero bond discounting factor 1.

4

IS-B Application Functions

The present margin value, which we have seen calculated using zero bond discounting factors, results in an amount of 2,243.66 USD.

Time	Value	Zero bond disc.factor	Present value
0	-98,000.00	1	-98,000.00
1	27,750.00	0.972053	26,974.47
2	27,062.50	0.947867	25,651.65
3	26,375.00	0.925244	24,403.31
4	25,687.50	0.903717	23,214.23
Present margin value:			2,243.66

When the terms are transferred to the data pool, the following values are calculated:

Procedure for matched-maturities valuation

- ☐ Cash flow
- ☐ Effective interest of customer transaction, according to AIBD method, PAngV (Charges Disclosure Rule), Braess-Fangmeier method, Moos-müller method, US Method
- ☐ Present value of cash flow, evaluated with market rates (zero bond discounting factors)
- ☐ Present margin value, as total of present cash flow values
- ☐ Effective capital per payment date and present value of average tied-up effective capital
- ☐ Interest terms contribution per period (from one payment date to the next)
- ☐ Cash flow of alternative
- ☐ Opportunity interest rate, as effective interest of alternative
- ☐ Interest terms contribution per reporting period.

The example results in an opportunity interest rate of 5.36307 % and the following interest terms contributions per payment period:

Interest terms contributions

Period	Interest terms contribution
t(0) - t(1)	942.49
t(1) - t(2)	709.62
t(2) - t(3)	474.96
t(3) - t(4)	238.44

The matched-maturities method requires a single transaction approach in order to determine the present margin value. When calculating a portfolio of identical transactions (such as own issues) the present margin values are calculated per single tranche. The sum of the present margin values is then distributed over the term on the basis of the aggregated portfolio.

For transactions where the payment dates are uncertain, you can trace the changes from the committed present margin value of the transaction to the full payment or disbursement (e.g. partial disbursement for loan). In the case of defaults in performance, you can include the new (replacement) cash flow or the date of a late payment in the calculation.

Settlement calculation

IS-B supports both a market rate approach to transfer pricing based on average volumes and a present value approach.

Transformation contribution

In addition to the interest contribution, a market rate approach to transfer pricing shows the maturity and currency transformation contributions.

The maturity transformation contribution, which reflects mismatched maturities between fixed-interest term assets and liabilities, is not displayed for each single transaction in IS-B. Instead it is included in the maturity transformation result for the whole bank, within Bank Profitability Analysis.

Maturity transformation

The currency transformation contribution documents the effect a change from local currency to foreign currency has on the result. Independent of the terms agreed with the customer, opportunity interest based on a domestic market yield curve will usually be different to that based on a foreign market yield curve. You can determine the currency transformation contribution for both period and present value calculations.

Currency transformation

The transformation contribution, a further factor influencing the result when a market rate approach to transfer pricing is used, comprises the maturity transformation and currency transformation contributions.

Trading contribution

The trading contribution comprises:

- ☐ price gains/losses (trading result)
- ☐ income payments (interest and dividend payments).

Single transaction

Single position

Market valuation

Trading income is determined using a market valuation of the single transactions (such as forward exchange transactions) or of the individual positions (such as for stocks, futures) in own-account trading. Although purchases and sales are taken into account in the valuation and influence the position, the position and not the individual purchase or sale is costed and valued. You are free to decide how you differentiate between positions i.e. by portfolio, stock exchange, location, or using other criteria.

The volume of the stock position is valued at the beginning and at the end of the reporting period at the current price (market volume). During the period, realized price gains/losses are determined based on the valuated sales and the average purchase price. Short positions are similarly valuated, on the basis of the valuated purchases.

The system determines the moving average purchase price on the basis of the purchase or selling prices of the stock movements. The volume of the stock position valued at the moving average purchase price represents the opportunity volume. At the costing date, unrealized gains and losses are calculated by comparing the market volume with the opportunity volume.

At the costing date, the pending gains or losses, evaluated for the single position by comparing the market volume with the volume, is calculated at moving purchase prices.

Formulas

Alternatively, the following formulas show you how the trading income contribution is calculated:

Alternative A

	Stock volume (valued) at end of reporting period
+	Total of valued sales in reporting period
-	Total of valued purchases in reporting period
-	Stock volume (valued) at start of reporting period
+	Total of income payments in reporting period
=	Trading income contribution

Alternative B

	Unrealized gains at period end
-	Unrealized losses at period end
+	Realized price gains in reporting period
-	Realized price losses in reporting period
-	Result of previous period valuation (unrealized gains or losses at last costing date)
+	Total income payments in reporting period
=	Trading income contribution

For listed or standardized transactions, you can capture market prices from external systems via interfaces.

You can also use the system to determine:

- ☐ trading terms contributions
- ☐ the accrued premium or discount for fixed-income bonds.

The trading terms contribution reflects the success (bargaining skill) of the dealer. The price paid by the dealer is compared with a reference price which corresponds to the fair market price or equilibrium price. You can calculate the reference price for transactions with fixed cash flows using the current yield curve. For other transactions you have to enter the reference rate manually.

Trading terms contribution

When the trading income contribution for fixed-interest securities is calculated, the price gains and losses from the market valuation are taken into account, in addition to the pro rata interest income for the reporting period. The liquidation of premium or discount amounts from sales above or below par is part of the net interest income and is reflected in the price development. When looking at price gains and losses, the effects of this liquidation are shown separately from the actual trading income.

Accrued premium/discount

The trading income contribution reflects the change in value since the last reporting period, in terms of market price.

Own-Account Opportunity Contribution

The trading portfolio has a substitution function in regard to other lending operations. As remuneration for the capital commitment in trading and the relinquishment of alternative lending operations, the trading income contribution is compared with the money and capital market opportunity income. The opportunity volume, or portfolio commitment, which represents capital which is not available for other transactions, forms the basis for calculating the opportunity income. The opportunity volume is calculated daily on the basis of the portfolio value and the average purchase price and valued at the opportunity interest rate. The options available in regard to the opportunity interest rate, are described under the heading 'Base Values'.

In the costing rule you can select to additionally calculate opportunity costs for free liquidity. Free liquidity occurs when option premiums are received or margin accounts have a positive balance.

The balance of opportunity income and costs for a single position is displayed as the opportunity contribution for the reporting period.

You can allocate opportunity costs, calculated for the committed portfolio capital, to the trading portfolio.

Commissions

Commissions and fees are transferred from the banking systems as amounts per single transaction. You can display commission income and costs (commission payments to third parties) separately. The commissions are either fully assigned to the transaction in the reporting period in which they arise or equally distributed in the subsequent periods. If they are distributed, you can specify the number of settlement periods for distribution.

Operating Costs

You can individually define how operating costs are allocated by customizing the costing components in a costing sheet. You may, for example, opt to display the operating costs on three allocation levels:

- ☐ standard unit costs (direct and directly attributable costs)
- ☐ cost center overhead rates (indirect costs of cost centers close to the market)
- ☐ overhead surcharges.

This means that you have the flexibility to either fully absorb the cost involved in a single transaction or carry out partial, multi-level costing. You can transfer the operating costs from the SAP Activity-Based Costing system.

Activity-based costing

The operating costs are assigned to the single transaction per reporting period and you can store any number of activity prices (e.g. in conjunction with the different processing statuses: new transaction, rollover, portfolio). You can also assign several activity prices to one transaction within a reporting period.

By using predefined standard terms in the costing sheet, you can control whether activity prices are assigned according to the cost incurral types "at the start of the transaction", "at the end of the transaction" or "consecutively in each reporting period" or are "distributed over the term of the transaction".

When the present value is calculated, the activity prices (costs) are added together, independent of the time incurred. The result is displayed as the present value of the unit costs. Because of inflation, no discounting is carried out.

Present value

In IS-B you control the allocation of operating costs by customizing costing sheets.

Imputed Costing Components

You can assign the following imputed costing components to a single transaction:

- ☐ minimum reserve cost
- ☐ risk cost (risk of default)
- ☐ additional equity capital costs
- ☐ deposit protection costs
- ☐ float income
- ☐ user-specific components.

Minimum reserve cost When calculating the minimum reserve costs, you use the minimum reserve volume, which is determined by valuating the base volume with the opportunity interest rate of the single transaction, and one of the following calculation alternatives:

- ☐ Calculation on the basis of the average volume of the reporting period.
- ☐ Calculation on the basis of the average posting balance on the minimum reserve days.
- ☐ Inclusion in interest terms contribution by correcting the opportunity interest rate with the minimum reserve rate.

The minimum reserve rate is determined via a separate costing sheet which is set up for each bank independent of the costing rule.

Float income Float income, if applicable, cannot be calculated and must be sourced from feeder systems.

Flexible components You are free to define the other imputed costing components as flexible components of a costing sheet. You can also define the characteristics (evaluation criteria) used to determine the surcharge rates, as well as the base values for these surcharges. Using standard user exits, you can also distribute per annum surcharge rates on a monthly basis.

You can individually specify the number of imputed costing components and the costing method per product.

What is the function of Single Transaction Costing within Bank Controlling?

In Single Transaction Costing you define the costing components used to cost a bank transaction. You also determine what costing method is used for each costing component.

Bank Profitability Analysis

Evaluations for controlling are defined and carried out by the Bank Profitability Analysis system. The values for a single transaction (line item), which are the result of applying a costing method within Single Transaction Costing or which you have entered directly into the system, are collated per reporting period, summarized and issued in user-defined reporting structures. IS-B provides a dialog-based flexible reporting system (interactive reporting) for evaluating the data within Bank Profitability Analysis.

Profitability segments are the smallest reporting units and therefore form the basis for Bank Profitability Analysis. You assign each profitability segment a certain combination of characteristics (or criteria) for reporting (e.g. customer group, product, risk class, branch). A totals record containing the accumulated period values is kept for each profitability segment.

Profitability segment characteristic

In Bank Profitability Analysis, you can combine the results of Single Transaction Costing with information from Cost Accounting and Financial Accounting. You do this by entering the profitability segment as an additional account assignment when posting to FI or CO.

This means that you can directly assign those revenues and costs which can not be assigned to single transactions to profitability segments. You can carry out the assignment itself on a step-by-step basis progressing through your profitability segment hierarchy.

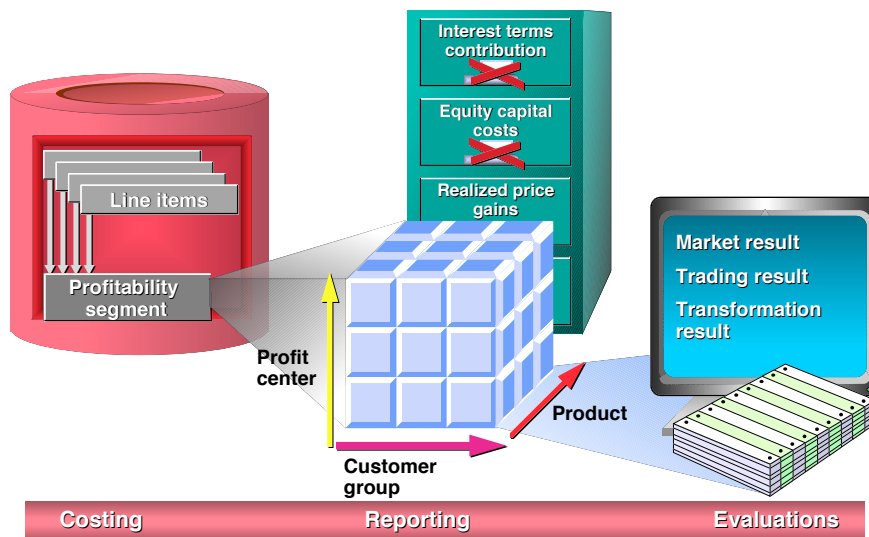


Figure 4-7: Bank Profitability Analysis

Value fields In addition to the characteristics, you define the values fields which you want to appear in the evaluations. For the purpose of report editing you can combine the profitability segment value fields in a formula via mathematical operators. The system can then generate further reporting values from the saved value fields.

Formulas The saved data and the reporting values derived from formulas are then available for evaluations. The reporting system within Bank Profitability Analysis supports two reporting types:

☐ the ad hoc report: you define this at the time of query, and

Profit analysis ☐ the one- or two-dimensional report: you define the column and line structures for these reports within customizing.

The summarized reporting values of an evaluation can be traced back to profitability segments or line items, provided these still exist ("drill-down"). Via interactive analysis, you can freely navigate within a selected 'data matrix' (e.g. breakdown data, change the data hierarchy etc.). The system also supports search strategies which you can change to suit your requirements and which allow you to access all available key values and ratios. You define the analysis path when you define the report. You can, however, also change the analysis path within the selected "data matrix"; e.g. move from an analysis of the result of branch X according to customer groups and the product group "loans", to an analysis of the customer group "private customers" for product groups across all branches. It is also possible to limit the analysis to one product group, such as "advances on current accounts".

Planning The Controlling module provides you with the functionality to plan the individual costing components or the contribution margin of profitability segments. You can freely define the planning level i.e. the aggregation level of the profitability segments and compare the planning data with the actual data resulting from final costing in a variance analysis. To enter the planning data, use one of the following procedures:

- ☐ Enter or transfer planned values per reporting period or fiscal year.
- ☐ Calculate planned values per reporting period by distributing the yearly values with distribution keys.
- ☐ Transfer information saved in the data pool (e.g. residual margin of future interest terms contributions from fixed-rate transactions).

You can distribute the planned values to the periods (either manually, immediately, on a percentage basis, or analogously) by using one of the SAP standard procedures. You can use different planning versions for each planning object, allowing you to supplement planned values in the current fiscal year with up-to-date forecast values. Within the interactive reporting environment you can also gradually replace planned values with actual values.

The possibility of carrying out simulative calculations in various interest scenarios, with the aim of developing business potential, is planned for a future development level.

Simulations

The following standard evaluations, which you can use for reference, are predefined in the sample bank:

Standard reports

- ☐ market result
- ☐ trading result
- ☐ productivity result
- ☐ risk result
- ☐ bank profit center analysis
- ☐ transformation result
- ☐ investment and financing result
- ☐ net interest income.

These standard evaluations are described in detail below. Note that the possible summary levels depend on the characteristics which each user defines.

The reports are based on the values from single transaction costing and on the revenues and costs which are directly assigned to profitability segments.

Market Result

The customer transaction results (surplus cover/short cover), calculated within Single Transaction Costing per costing component, are integrated into a contribution margin scheme.

The following shows a possible setup for market result reporting structures:

Example Contribution margin scheme

Interest terms contributions	
+	Commission income
=	Contribution margin I
-	Commission costs
-	Standard unit costs
=	Contribution margin II
-	Minimum reserve costs
-	Risk costs
-	Deposit protection costs
=	Contribution margin III
-	Equity capital surcharges
-	Standard cost center overheads
-	Overhead costs
=	Contribution margin IV = market result

Trading result

The costing components calculated for own-account transactions are integrated into a contribution margin scheme within the trading result.

Standards for operating and risk costs are included in the calculation for the above result types. To check the assumptions underlying the standard, the standard costs are deducted from the following result types and replaced by actual costs.

Productivity Result

In the productivity result, the actual costs from Cost Center Accounting are set against the allocated standard unit costs.

Risk Result

In the risk result, the actual risk costs (for the most part write offs and write downs) are set against the allocated (standard) risk costs for the risk of default.

Bank Profit Center Accounting

In bank profit center accounting, the market result or trading result is compared with the productivity and risk result.

Transformation Result

The interest margin displayed as the interest terms contribution based on a market rate approach to transfer pricing, only takes into account the net interest income per transaction resulting from the terms agreed with the customer. The portion of the net interest income which can be traced back to the differing maturities and interest rate levels of asset and liability transactions, is reflected in the transformation result.

The transformation result comprises:

- ☐ the maturity transformation result
- ☐ the currency transformation result.

The maturity transformation result is calculated by offsetting the weighted opportunity interest for all items on the asset side (according to the yield curve on the money and capital market for the local currency) with the weighted opportunity interest for all items on the liability side. A prerequisite for this calculation is that opportunity interest is calculated for all balance sheet items i.e. including so-called interest-free items such as buildings, land, equity capital, provisions etc. For calculation purposes, the interest-free balances are treated as bank products to which a costing rule is assigned.

The currency transformation result is calculated by offsetting the opportunity interest rate according to the yield curve on the money and capital market of the foreign currency against the opportunity interest rate according to the local currency and adding together the results for all foreign currency transactions. You can also display the currency transformation result per single transaction.

Maturity transformation

Currency transformation

Investment and Financing Result

As well as allocating opportunity interest for interest-free items, you can assign imputed interest rates to these items, reflecting value increases (e.g. land) or expected yield (e.g. equity capital). The imputed interest terms contribution which can then be calculated for the interest-free items, based on the difference between the imputed interest rate and the opportunity interest rate, is then shown in the investment and financing result.

The standard sample bank reports allow you to immediately evaluate costing results as well as providing a model for your own reporting structures.

What are the advantages of the Bank Profitability Analysis reporting system?

The reporting system allows you to analyze profitability according to flexible criteria and provides you with important management information.

Regulatory Reporting

Within the Regulatory Reporting component, SAP provides interfaces to country-specific reporting systems, which are fed with data from the data pool. This link to external regulatory reporting systems means that all the country-specific reporting requirements can be met.

**Country-specific
reporting systems**

Since a large amount of data used in regulatory reporting is also relevant to the other components of IS-B, you can benefit from a single generated interface from existing banking systems to the data pool.

You can transfer reporting data to the external regulatory reporting systems using:

**Transferring
reporting data**

- ☐ an integrated interface to the external regulatory reporting systems supported by SAP
- ☐ a data extract for other external systems, which you have to create yourself.

You can correct, add to or enter regulatory reporting data online within IS-B. After transferring the reporting data to the external regulatory reporting systems you can use tables to control whether the reporting data can be corrected in the SAP System and/or whether a new data extract has to be created to transfer data.

When legal stipulations change, SAP's ongoing maintenance takes account of resultant changes to the interface to external regulatory reporting systems.

If you use the SAP Financial Accounting system, the G/L balances (cash assets, postal checks, asset portfolios etc.) are sourced directly from the Financial Accounting files. The reporting rule assigned to a G/L account determines whether it is selected by the Regulatory Reporting system.

If you do not use the SAP Financial Accounting system (FI, RF), you can transfer the G/L balances via an individually programmed interface or enter them directly into IS-B using an online transaction.

You specify which data is relevant for regulatory reporting and which field information is transferred to the regulatory reporting systems, by defining a reporting rule within customizing. The reporting rule identifies transactions and items relevant for particular reports.

**Customizing
Reporting rule**

Transactions are assigned to the reporting rule on the basis of the bank product. Alternatively, you can directly assign a reporting rule to interest-free G/L accounts via a control table. You can also display other activities relevant for reporting, such as security collaterals or loan commitments, as statistical records.

**Bank product
Reporting rule**

Within Customizing in the Regulatory Reporting menu, you specify which data is relevant for reporting by defining reporting rules.

Data Extract

Data relevant for reporting is selected at fixed times, typically daily or alternatively, on request. Data is transferred to the external regulatory reporting system via file transfer. Mapping rules define the relationship of the data fields within IS-B to the required record format of the external system.

Plausibility checks of the field contents based on regulatory reporting criteria are not planned in IS-B. This is a function carried out by the external reporting systems.

Data relevant for reporting is selected at fixed points in time.

Sample Bank

Pre-defined reporting rules

Within the sample bank, SAP provides pre-defined reporting rules for the German reporting system. You can also define your own reporting rules.

SAMBA structures

For Germany, SAP provides an integrated interface to 'SAMBA' (a product of Orga-Team GmbH). The 'SAMBA structures' comprise:

- ☐ SAMBA for the master data.
- ☐ LZBINL/LZBAUS (domestic and foreign) for various reports: BISTA (balance sheet statistics), minimum reserve, statement of foreign borrowings and lendings, borrower statistics, loan commitment statistics, securities account statistics, Provisions I, II and III.
- ☐ GS-IA for Provision Ia.
- ☐ COOKE for the Cooke directive, General Agreements to Borrow.
- ☐ KWG for §§13, 14, 16 of German Banking Act.
- ☐ AWV for Foreign Trade and Payments statement.
- ☐ LR-BIZ for the country-risk statistics of the BIS (Bank for International Settlements).

SAP sender structures SAMBA receiver structures

The mapping rules from IS-B to the SAMBA record structures and a selection report are included in the sample bank configuration.

The sample bank contains reporting rules for country-specific reporting.

What are the functions of the Regulatory Reporting component?

The IS-B Regulatory Reporting component provides interfaces to country-specific reporting systems, which are supplied with data from the data pool.

Risk Management

From the perspective of the entire bank, the aim of a Risk Management system is to identify and assess internal and external risks in order to implement risk control measures based on the resulting information.

IS-B Risk Management will initially cover market risks such as interest rate, currency and other price risks. Credit risk management will not be part of the first development phase.

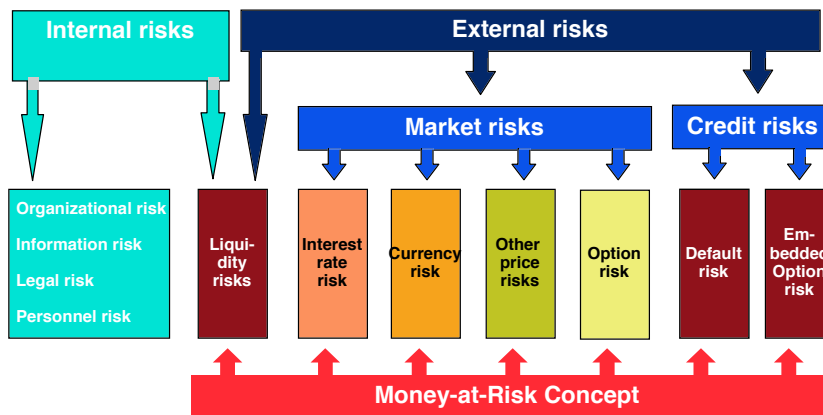


Figure 4-8: Risk Management spectrum

While credit risk management is often based on sophisticated rating and scoring systems, a consolidated view of market risks is often held up by data availability and (in particular) performance problems.

The data pool concept, which is central to IS-B, provides a basis for solving these problems. In conjunction with a modern money-at-risk approach, both executives and line managers are supplied with detailed risk information on a day-to-day basis. For this purpose, the interest rate risk, the currency risk and other price risks are quantified as amounts in the respective local currency. The time frame considered is one day or “overnight”, since the bank cannot react to changes in market conditions within this time. Based on the analysis of interest rate and price changes in the past, a “worst-case” scenario is then simulated to show the possible effect on open interest positions, open currency positions or open stock positions.

Money at risk

The advantages of the Risk Management tool are summarized below:

- ☐ Systematic assessment of the bank's market risks.
- ☐ Uniform concept for quantifying these risks.
- ☐ Instrument to control interest rate, currency and other price risks.
- ☐ Money at risk is additive for:
 - products (swaps, FRA, securities etc.)
 - currencies (DEM, USD, FRF etc.)
 - risk types (interest, currency, stocks etc.)
 - organizational units (money market, foreign exchange trading etc.)
 - geographical limits (domestic and foreign branches/subsidiaries).
- ☐ Support of important functions:
 - risk control
 - performance assessment
 - allocation of risk capital.

The money-at-risk approach estimates the negative value change of a risk position

Interest Rate Risk

Definition Interest rate risk is the risk from fixed-interest transactions which results for the bank when money and capital market interest rates change. This applies to transactions with a fixed-interest agreement which are still open (i.e. not hedged with an offsetting transaction). The resulting open interest position therefore has no fixed interest margin.

Using the money-at-risk concept to assess the interest rate risk involves determining the amount (in local currency) which the bank could lose by the next day (overnight) in a worst-case situation, based on changes in the interest rate (assuming the bank is able to close the open position on the next day). The "worst-case" is calculated empirically, based on previous interest rate changes, and is defined by the user.

To determine the risk position, a maturity analysis is first of all generated. Risk positions are represented by those open items which result from the actual and synthetic cash flows involved in fixed-interest transactions which expire within a specified maturity interval.

Maturity analysis

Both the cash flows from off-balance sheet transactions and the capital and interest flows from on-balance sheet transactions are considered. The cash flows are assigned to maturity intervals. For each maturity interval, the open item is discounted using the relevant current money and capital market rate (net present value). By comparing this with the present value resulting from a "worst case" interest rate change, the system determines the money at risk for the maturity interval.

Maturity intervals

You can calculate the money at risk for all maturity intervals using one of the following three methods. The first method is most accurate:

Summarizing the loss potential

- ☐ differentiation: adds positive and negative present value changes separately and displays the larger total
- ☐ addition: adds together present value change amounts (overestimate)
- ☐ balancing: adds together present value changes and offsets positive changes against negative changes (underestimate).

For operative risk control we recommend that, for periods of approx. one month, you show daily maturity intervals with their corresponding risk positions. For periods of upto 2 years, we recommend summarization to monthly intervals and above that, annual maturity intervals.

The interest rate risk component contains the following functionality per currency:

Functionality

- ☐ calculation of cash flows for transactions with fixed interest terms (inclusive of interest payments)
- ☐ determination of incoming payments, outgoing payments and total position per maturity interval
- ☐ calculation of present value changes per maturity interval on the basis of market rates in a "worst case" interest rate change situation
- ☐ determination of the money at risk (overnight) per maturity interval and added together for all maturity intervals.

You can determine risk on three different aggregation levels (e.g. portfolio, profit center, total bank). On these levels you can measure risk against specified limits. At each aggregation level, the system groups together the interest positions of the respective maturity intervals (opposite positions are offset resulting in risk reduction) and redetermines the risk content for the remaining positions.

Alternative presentation of interest rate risk

The IS-B data pool also allows you to show the interest rate risk in a different (more traditional) way, based on the fixed-interest balance sheet. In contrast to cash flow-oriented maturity analysis, this evaluation method is based on balance sheet values; the risk content of the net lending position or net borrowing position is measured using marginal interest rates assuming the position is closed. The inclusion of interest-free assets and liabilities in the calculation, which is typical of the fixed-interest balance sheet method, is only relevant to the maturity method when there is a clearly determined cash flow. Due to the conceptual differences of the two approaches, identical results are coincidental.

Transactions with fixed interest terms represent risk for a bank due to the possibility of money and capital market interest rate changes.

Currency Risk**Definition**

The currency risk is the risk arising for the bank from transactions in foreign currency when the exchange rate changes. This applies to those transactions which are still open i.e. not yet closed with offsetting transactions in the same currency.

Using the money-at-risk concept to assess the currency risk involves determining the amount (in the local currency) which the bank could lose by the next day (overnight) in a worst-case situation, based on changes in the exchange rate (assuming the bank is able to close the open position on the next day). The "worst-case" is empirical, based on previous interest rate changes, and is defined by the user.

Risk positions are those open items per currency which result from the balance of on-balance sheet and off-balance sheet items as well as from the balance of delta-weighted amounts from option contracts. The on-balance sheet position comprises the balance of all asset, liability and profit and loss items, whereas the off-balance sheet position comprises the balance of all pending transactions, i.e. spot and forward transactions and re-exchange agreements from interest rate currency swaps.

Currency position

A prerequisite for accurately determining the money at risk per currency is correct information about the foreign currency position. The offsetting value for the total position (in the local currency) is determined per currency on the basis of the current valuation rate. A comparison of these values with the value of a "worst case" exchange rate fluctuation in each case, gives you the money at risk per currency.

A quick way of assessing the total currency risk of the bank is to add up the money-at-risk amounts per currency. This gives you a conservative estimate of the total currency risk.

By splitting the total commitment of the bank into several currencies you reduce the total risk due to the interdependencies of the currencies. To find out what these risk diversifying effects actually are, we need to determine the correlations between the individual currencies and connect this with the money-at-risk amounts. To simplify calculation, we can group the currencies into sub-portfolios, based on their importance for the bank (e.g. primary currencies, secondary currencies, exotic currencies).

Correlations

The currency risk component:

Functionality

- ☐ determines the position per currency
- ☐ calculates the equivalent in local currency and the money at risk (overnight) per currency
- ☐ calculates the money at risk per currency portfolio by using the correlation matrix for the currencies in the portfolio.

Foreign currency transactions represent risk for a bank due to the possibility of exchange rate fluctuations

Other Price Risks

Other price risks covers the risk resulting for the bank when stock and precious metal prices change. In addition to the underlyings (stock, gold, silver, platinum and the corresponding indices) the related derivative instruments such as forwards, futures and options are particularly relevant to the risk manager.

Definition

Using the money-at-risk concept to assess the other price risks involves determining the amount (in the local currency) which the bank could lose by the next day (overnight) in a worst-case situation, based on price changes (assuming the bank is able to close the open position on the next day). The "worst-case" is empirical, based on previous interest rate changes, and is defined by the user.

The risk position per category is based on the actual and forward position and the delta-weighted position of option contracts, each of which is valued at the current spot rate. By comparing the result with the equivalent value of the position which results when the spot rate is reduced to imitate a "worst case" situation, you can ascertain the money at risk per category.

Risk position

Here again you can calculate the total of other price risks - split into stocks and precious metals, - by adding up the individual risk amounts.

Correlation

As for currency risks, you can also take risk diversifying effects into account for precious metals. In the case of stocks, ascertaining the risk reduction on the basis of correlations between single values involves a great deal of meticulous information retrieval and processing work. To ensure that the risk involved in counter-positions is not overestimated, all instruments belonging to the same index are gathered into one portfolio. In a further step, the risks and chances resulting from the counter-positions in these 'baskets' are individually added up.

The larger total from this differentiated addition of the money-at-risk amounts then represents the total risk of the individual portfolio.

Functionality The "Other price risks" component:

- ☐ determines the position per stock or precious metal category (in local currency)
- ☐ calculates the money at risk per stock or precious metal category
- ☐ calculates the money at risk per stock portfolio or precious metal portfolio.

Changes in stock and precious metal prices ("Other price risks") represent a further risk factor for the bank.

Specific Option Risks

Volatility The price of an option largely depends on the current ratio of the underlying instrument price to the exercise price of the option, on the volatility of the underlying security and on the option's time to maturity. The risk of an option position therefore comprises these three factors. Since the risks occurring for the bank due to price changes are already covered by the "other price risks", the analysis of specific option risks is limited to volatility and time value considerations.

Volatility is the intensity with which the price of an underlying instrument (interest, currency, stock) fluctuates. The greater the volatility expected by the market, the higher the option price. The volatility risk is the risk of loss the bank incurs on its option position due to changes in the volatility of the underlying instrument under otherwise equal conditions.

Time value The value of an option changes according to the time to maturity. The longer the time to maturity, the higher the option price (under otherwise equal conditions). The time value risk is the risk of loss the bank incurs on its option position due to the option's diminishing time to maturity.

Based on a money-at-risk approach, the volatility risk and the time value risk are assessed in different ways. **Definition**

Volatility risk:

- ❑ determination of the amount (in local currency) which the bank could lose by the next day (overnight) due to a “worst case” change in the volatility (assuming the bank is able to close the open position on the next day).

Time value risk:

- ❑ determination of the difference between the current market price and the market price when the time to maturity is reduced by one day.

The “worst-case” is empirical, based on changes experienced in the past, and is defined by the user.

The risk of an option position comprises the price risk, the volatility risk and the time value risk.

What is the aim of Risk Management?

The Risk Management system measures the price risks of the bank using a consistent money-at-risk approach, thereby providing a basis for limiting and controlling risk positions.

Sample Bank and Sample Reports

Example application The sample bank configuration provided with the standard IS-B system, represents a complete example application of the IS-B functionality. You can change or add to the default settings to meet the specific requirements of your institute.

In the area of Bank Profitability Analysis, the sample bank contains a costing rule for each product in the delivered product catalog, determining the costing components and the costing method. Further rules are similarly defined for the Risk Management and Regulatory Reporting areas.

In brief, the sample bank contains:

- ☐ a sample chart of accounts (FI)
- ☐ balance sheet and P&L structures based on the 4th EC Directive (FI)
- ☐ a product catalog
- ☐ costing rules
- ☐ risk management rules
- ☐ reporting rules per standard application with integrated interface
- ☐ bank profitability section with predefined features and value fields
- ☐ various predefined sample evaluations.

Sample reports To take the area of Controlling as an example, the following sample reports are provided:

- ☐ Market result
 - ☐ contribution margin scheme for non-trading (customer) transactions, with summarizations from single transaction/single position level up to the total bank.
- ☐ Trading result
 - ☐ contribution margin scheme for own-account transactions, with summarizations from single transaction/single position level up to the total bank.
- ☐ Transformation result
 - ☐ Currency transformation result with summarizations from single transaction level to total bank.
 - ☐ Maturity transformation result for the total bank.

- ☐ Investment and financing result with summarizations from single position (interest-free balance sheet item) level to total bank
- ☐ Net interest income
 - Balance sheet representation of interest transactions, with allocation of average volumes for profit centers. Summarization to total bank.
- ☐ Productivity result
 - Contribution margin scheme for actual costs and allocated standard costs for profit center, with summarization to total bank.
- ☐ Risk result
 - Contribution margin scheme for actual risk costs and allocated standard risk costs for profit centers, with summarization to total bank.
- ☐ Bank profit center result
 - Contribution margin scheme based on the reporting levels of the market, trading, productivity and risk results for profit centers, with summarization to total bank.

What is the advantage of the sample bank?

The sample bank is a model to show you the scope of the IS-B functionality. You can use this model as a basis for customizing the system to meet your own requirements.



https://web.archive.org/web/19970724151054/http://www.sap.com:80/products/industry/banking/media/pdf/13539_05.pdf

Cross-Application Features

The following features are common to all IS-B components.

Number Assignment

Numbered objects are assigned to pre-defined number range intervals. You can maintain number ranges via a special table. The objects involved include business partners, business partner accounts and banking transactions.

Number range interval

You can assign internal or external number ranges to each object. With internal number ranges the numbers are assigned automatically whereas with external number ranges you enter the numbers yourself. As an authorized user, you can also determine whether alphanumeric key values can be used. You can also use certain values to differentiate between the number ranges within an object.

Manual and automatic

How is number assignment used in IS-B?

In IS-B you can set up internal or external number ranges for relevant objects such as business partners or bank transactions.

Matchcodes

To display or change an object in IS-B, you have to enter an identification number.

Searching for key values

You can use matchcodes to search for these identification numbers via certain features of the object you want to access e.g. use the name or address to search for a specific business partner. For fields in which you are required to enter a key value to access a certain object, you can activate a matchcode search in two ways.

Matchcode search string

You can either activate matchcode selection by entering a matchcode search string directly in the entry field or use the possible entries pushbutton and access the matchcodes that way. The result of the search via matchcode is a list from which you can select the object you require. The key value of the selected object is then copied over into the entry field. You then proceed as if you had entered the value manually.

There may be several matchcodes assigned to an object (such as the business partner) within the IS-B system. This means, for example, that you can search via the name, or alternatively via the city, depending on your particular requirements at the time.

The sequence of fields within a matchcode determines the sequence of fields in the matchcode search string. You can mask the individual fields of the search string. To help the system recognize which fields are involved, you enter the matchcode ID at the start of the search string.

Using a function key you can display all matchcodes available for an object in the key field. After selecting a certain matchcode ID, you can then enter the matchcode ID search strings in all the fields.

Basis for evaluations Index in programs Own matchcode IDs

You can also use matchcodes as a basis for evaluations or as an index for programs. Here the matchcode IDs are predefined by SAP and cannot be changed. You can, however, change any matchcodes which you only use for searching online (as described above) and you can define such matchcodes yourself as well.

What are matchcodes used for?

Matchcodes provide a way of searching for key values via certain features of the object you want to access. You can also use matchcodes as a basis for evaluations and as an index for programs. It is also possible to define your own matchcode IDs.

Authorization Concept

The technical and organizational measures required to protect data, such as user, access, entry and memory control, are incorporated in the IS-B system's comprehensive authorization concept.

Data protection

The IS-B authorization control system means that only persons with a user master record and a password for the appropriate client (institute/group) can use the IS-B system. After a certain number of unsuccessful attempts at logging on to the system, a user is denied access until the next day. A list is also kept of all (failed) logon attempts.

Users can only access the data for which they have authorization. The authorizations allow a user to display and change certain data such as business partner master records, or data assigned to certain organizational units (profit center, branch etc.) such as transaction data. There are also authorizations which are function-related i.e. restrict a user from accessing customizing, or starting evaluation reports within Bank Profitability Analysis.

User master record

To keep the workload involved in maintaining individual user master records to a minimum, while simultaneously allowing you to structure authorizations according to user activities and workplaces, authorizations are assigned in the form of an authorization profile rather than individually. This means that you can define one profile (containing a set of authorizations) and assign it to several users in the same task area.

Profile

For security, user master records, authorizations and profiles are maintained separately. Authorizations and profiles also have to be activated before they come into force.

In accordance with the entry controls, the user entering data and the entry date are retained by the system. A change document showing, for example, the user carrying out the change and the old and new field entries is created for all changes made to master record data.

Record of changes

How does IS-B meet data protection requirements?

IS-B includes a comprehensive authorization concept which supports the organizational and technical measures required for data protection.

Authorizations allow a user to access certain information or functions.



https://web.archive.org/web/19970724151101/http://www.sap.com:80/products/industry/banking/media/pdf/13539_06.pdf

Implementation Strategy

Advantages of a Software Service

The IS-B System, indeed the whole R/3 System, has been created with the user in mind. The SAP service package contributes to this by providing implementation and maintenance support.

SAP Services

- ☐ Optimum integration of R/3 Software in existing systems, organizational procedures and structures
- ☐ Functional application of the software
- ☐ Fast, smooth and cost-effective implementation of the application modules
- ☐ Minimization of subsequent costs for productive operation, release changes and further implementation of components
- ☐ Relevant help and support with questions and problems
- ☐ Comprehensive transfer of information and know-how to all affected staff and management at customer

These advantages, which have contributed to the success of other R/3 products, in conjunction with the performance features of the IS-B System, are expected to continue to result in a positive user response to this new R/3 product.

What are the advantages of a software service?

Our software service ensures the competent, cost-effective and efficient implementation of the SAP functions within operative procedures.

Sales

Sales advice Competent advice is vital when companies or banks make a decision to buy standard software. The sales service offered by SAP supports the decision-making process by providing:

- ☐ Qualified advice together with screen presentations
- ☐ Detailed offers on the basis of the price list/pricing report
- ☐ A selection of reference customers, company-specific requirements processing, one- or several-day suitability checks
- ☐ Extensive support during the preparation phase
- ☐ The support of consultants to advise about component selection, implementation sequence and project implementation.

The sales strategy is flexible and is adjusted to meet the individual requirements of the potential customer.

How does SAP support a potential customer?

SAP's sales department provides potential customers with extensive information as well as competent advice and support

Training

SAP offers a wide range of seminars giving users the possibility of participating in a training program exactly corresponding to the modules their company or institution has implemented. The training courses are held in the SAP training center where each participant works on a modern terminal and has the opportunity of getting 'hands-on' experience with professional supervision.

Seminars

The seminars provide detailed information on the individual functions of the various software modules. Participants learn how to use the system to simplify their tasks and, having completed the seminar, are in a position to work independently.

What training does SAP offer?

SAP provides an extensive program of seminars to meet the individual training requirements of its customers.

Consultancy

Implementation consulting

Once the contract is concluded, the SAP Consultancy department supports the following activities:

- ☐ project planning
- ☐ suitability checks
- ☐ "as is" analyses
- ☐ target concepts
- ☐ organizational consulting
- ☐ system modifications
- ☐ host tuning
- ☐ release upgrades
- ☐ standard installations
- ☐ interface implementation.

SAP consultants with specialist knowledge and various technical skills are available to ensure that these areas are optimally covered.

The customer and group coordinators and the application and system consultants provide you with the best possible advice and ensure that the IS-B System is competently implemented and correctly applied.

In addition to the SAP Consultancy, our development partner C&L Unternehmensberatung GmbH and other logo partners provide an additional consultation service covering:

- ☐ suitability checks
- ☐ "as is" analyses
- ☐ target concepts
- ☐ organizational consulting
- ☐ project planning/management and
- ☐ interface implementation

What consultation services does SAP provide on implementation?

SAP provides a full consultation service for all project phases, ensuring the smooth implementation of its systems.

Further Services

In addition to its consultation service, SAP also provides other services which support users in the implementation phase. We described the automated systems within configuration, such as customizing, in Chapter 4. As part of its service package, SAP also:

System/User service

- ☐ delivers pre-configured systems (sample bank).
- ☐ provides a hotline service for telephone or written enquiries. A comprehensive database, which you can access directly as well, contains solutions to known problems to help ensure a fast response.
- ☐ uses other, supporting system functions such as the online software service and the SAP mail system.

All this guarantees that questions and problems are efficiently dealt with.

How does SAP additionally support the application of its programs?

Numerous system-related and organizational services ensure the optimum application and implementation of SAP software.

Further Steps

As well as the information provided in this brochure, SAP provides the following services to enable you, as a potential user, to extend your knowledge about the IS-B System:

- ☐ A free product demonstration, either at your company or in the SAP offices, with an in-depth presentation of the performance features, both from a banking and technical point of view
- ☐ An extended suitability check which compares user requirements with the individual functions in the system
- ☐ Introductory seminars and presentations at specialist trade fairs
- ☐ Reports about operative installations at the respective user sites (descriptions, presentations)
- ☐ Individual references on the basis of a list of R/3 and/or IS-B installations
- ☐ Cost analysis with a comparison of alternative financing forms (purchase, rental, leasing)
- ☐ Development of an implementation strategy in conjunction with SAP and C&L Unternehmensberatung GmbH.

You can talk with SAP to discuss which of these services make most sense for you. SAP has an extensive sales and consultation network to deal with enquiries from interested companies and institutions. For further information contact the SAP subsidiary in your country.



https://web.archive.org/web/19970724151116/http://www.sap.com:80/products/industry/banking/media/pdf/13539_gl.pdf

ABAP/4

Advanced Business Application Programming Language. 4th generation SAP programming language. Designed for business applications in a client/server environment.

Additional equity capital costs

In addition to its financing function, the equity capital of a bank has a guarantee and liability function. Equity providers demand a suitable risk premium for taking on bank liabilities (default risks, interest rate risks, currency risks etc.) which is reflected in a greater yield expectation. The additional equity capital cost, which is the additional expense required compared to borrowing capital on the market, is reflected in this risk premium.

Average volume

The result of calculating the average balance for the reporting period. A base value for calculating imputed surcharge rates (minimum reserve costs, deposit protection costs) as well as for calculating interest contributions based on the customer interest rate and the opportunity interest rate.

Back office

Bank departments responsible for "background" management processes.

Backdated transactions

Backdating involves the updating or creation of a bank transaction with a value date in the past.

Bank product

The bank product is a feature of the standard IS-B System and is used for evaluations within Bank Profitability Analysis. It is the bank's smallest marketing unit (i.e. class of object sold). Each bank transaction is assigned to a particular bank product. The bank product has no direct function in single transaction or single position costing. Its significance lies in the fact that it is used to determine the processing rule, which controls the costing of single transactions.

Bank Profitability Analysis

Within Bank Profitability Analysis, the results determined in single transaction and single position costing are added together and linked

with information from Cost Accounting and Financial Accounting. The information gained from profitability analysis can be used to control market segments and make informed business policy decisions.

Base values

Volume, cash flow and interest rate base values provide data for the costing methods and are calculated by the system dependent on user-defined costing rules.

Basic values

Reference interest rates stored in the IS-B money and capital market table.

Batch input

The simulation of a user dialog in background processing. Instead of receiving data from a terminal however, batch input takes data from a prepared dataset and automatically enters it into the screen fields.

Cash flow

IS-B uses the cash flow for certain financial calculations. The cash flow comprises the individual incoming and outgoing payments (movements) per transaction. Important cash flow information is provided by the financial terms, which are defined within customizing.

Characteristics

Term used to denote the categories which are used for reporting. The fixed characteristics such as company code, bank product and customer, can be supplemented with additional characteristics, such as branch or country, from a proposal catalog. Characteristics to reflect certain customer or product groups can also be defined.

Client/server architecture

Multi-level client/server architecture where the tasks of presentation, application and database are distributed between multiple hardware components. This allows applications to be implemented based on the requirements of the end user and not on the available system resources.

G Glossary

Contract volume

Nominal volume of trading transactions.

Contribution margin

The difference between the revenues and the costs to be contributed, based on source. Calculated within contribution margin accounting. The contribution margins are shown per cost object; for short-term profitability analysis they are multiplied by the number of units sold. The sum of all contribution margins is used to cover the fixed costs, which are divided into cost centers. Also contributes to the total profit.

Controlling

Management function providing information for making and executing financial decisions. In today's business world, controlling incorporates the operative and strategic areas of management.

Conversion rule

The conversion rules for mapping sender to receiver structures are maintained by the user within customizing. The rules support the conversion of data structures from the external (operational) systems to the IS-B data structures.

Costing components

Single Transaction Costing is based on a costing sheet containing the following costing components:

- ☐ Interest terms contribution
- ☐ Transformation contribution
- ☐ Trading income contribution
- ☐ Own-account opportunity contribution
- ☐ Commissions
- ☐ Operating costs
- ☐ Imputed costing components

Costing method

Method for determining calculatory values e.g. interest terms contribution, present margin value, average volume.

Costing rule

The costing rule is used to define which method is used to calculate the base volume and the income and cost components. The costing rule has a fixed part and a flexible part. In the fixed part, pre-defined costing methods are selected for calculating the value components. Individual costing methods for these components are defined in the flexible part.

Costing sheet

Denotes a group of flexible costing methods e.g. risk premiums

CPI-C

The Common Programming Interface for Communications (CPI-C) is a consistent call interface for applications which use direct program-to-program communication. The prime advantage of CPI-C is that the standardized interface makes it easy to port programs to different system platforms.

Currency risk

The risk arising for bank transactions in foreign currency where exchange rate changes may occur. Applies to those transactions which are still open, for example.

Currency transformation result

Calculated for all foreign currency transactions by totalling the differences between the opportunity interest result based on the interest yield curve in foreign currency and the opportunity interest result based on the interest yield curve in local currency.

Customizing

Within IS-B, customizing (or *configuration*) involves the adjustment (parametrization) of the standard sample bank model provided as part of the IS-B System. The system is customized per installation so that it meets the individual requirements of the respective bank. The aim is to align the internal business processes of the bank and the pre-defined structures of the R/3 System.

Data interface

Made up of link programs which connect other operational banking systems to IS-B.

Data pool

A central storage area and information source. The data pool is used by all components and filled with transaction data via an interface to the banking systems.

Data selection program

Provided by the bank itself, this program transfers the necessary data from the operational systems to the IS-B data pool.

Data transfer tool

This is supplied by SAP and transfers information from the operational systems to the data pool. Various sources of information can therefore be used. The tool supports the conversion and transfer of structures from the operational areas to the fixed and freely-definable IS-B data structures.

Default risk

The risk that the borrower does not pay the outstanding payment obligation, or only pays it in part.

Deposit protection costs

Costs such as lost interest resulting from using the deposit protection systems (e.g. FDIC).

Effective capital

The average tied-up capital which is the result of calculating interest on the basis of the effective interest rate, taking into account incoming and outgoing payments.

Effective interest

Nominal interest based on present value or on the payment amount and the timing of incoming and outgoing payments. Also known as yield.

Financial terms

Contractual items which cover the interest, commissions, charges, fees and so on, charged or paid by the bank for its financial services. In a wider context this also includes maturities, requested collateral, repayment terms etc.

Float

A float results when the value dates of incoming and outgoing payments differ from the actual processing dates i.e. when there is a time lag

between the incoming or outgoing payment and the corresponding credit or debit entry.

Imputed costing components

Those expense and revenue components which are assigned to a single transaction in addition to interest terms contributions, commissions and operating costs. Examples would be risk costs, minimum reserve costs and deposit protection costs.

Interest income

See **Market rate approach to transfer pricing**

Interest rate risk

The risk from fixed-interest transactions which results for the bank when money and capital market interest rates change. Applies to transactions which are still open, for example.

Investment and financing result

This reflects the imputed interest terms contribution for interest-free items based on the margin between the imputed interest rate (derived from the expected yield, for example) and the opportunity interest rate.

Maintenance transaction

ABAP program for maintaining parameters in SAP control tables. The parameters influence application processing.

Market rate approach to transfer pricing

Used in IS-B to calculate the interest margin for interest-related business. Each single transaction is set against an alternative transaction on the money and capital market. The difference between the customer interest rate and the market interest rate (opportunity rate) based on volume, represents the interest terms contribution to transaction cost or value.

Market result

Reflects the customer transaction results (surplus cover / short cover) calculated in Single Transaction Costing and added together per costing component. The attributed cost unit rates are based on standards.

Market risk

The risk that prices or interest rates will change contrary to the bank's expectations.

G Glossary

Market volume

Trading portfolio or trading transaction volume valued using market prices.

Master data

Provides information on:

- ☐ Bank transaction master records
- ☐ Business partners
- ☐ Stock categories
- ☐ Business partner accounts
- ☐ Financial terms.

Usually has a relatively long life and can be used in multiple transactions.

Matched-maturities valuation

Within the present value concept, the matched-maturities valuation of a cash flow requires a duplication of the cash flows for a financial instrument using a bundle of other financial instruments with a similar duration.

Maturity interval

A defined time period. The cash flows arising within a transaction are assigned to the corresponding maturity intervals to determine the interest rate risk.

Maturity transformation result

Calculated by offsetting the weighted opportunity interest for all items on the asset side (according to the yield curve on the money and capital market for the local currency) with the weighted opportunity interest for all items on the liability side. A prerequisite for the calculation is that opportunity interest is calculated for all balance sheet items including interest-free items such as buildings, land, equity capital, provisions etc.

Minimum reserve costs

Interest-free balances which banks are required to deposit with the relevant national bank in most countries. Minimum reserve costs reflect the interest income lost because of this capital requirement.

Money and capital market table

Market rates (interbank rates) are entered in the IS-B money and capital market table. The rates are differentiated by specifying a freely-definable yield curve (such as LIBOR, the current yield) and by specifying currencies. Interest rates for terms which were not specified are interpolated on a straight-line basis.

Money at risk

This is the “worst-case” amount which could be collected for an existing open item. It is determined based on defined risk parameters. On the basis of this information, the volume of open items can be limited and the risk of incurring loss reduced, thereby preempting the “worst-case” situation.

Movement data

Single items of information which relate to a specific transaction; includes account items, commercial transactions, individual purchases and sales and cash flows. Some transactions, notably services, only consist of movement data.

Operating concern

Represents an organizational unit to which several cost centers or company codes may be assigned. Each operating concern has certain characteristics and value fields. The characteristics of an operating concern are used to define so-called ‘profitability segments’. The value fields defined for each profitability segment are automatically updated by the system.

Operating costs

Standard unit costs, cost center overhead rates, overhead surcharges. Operating costs arise as the result of services provided in the operating area.

Opportunity interest

The effective interest rate of the alternative transaction on the money and capital market. A market rate approach to transfer pricing compares the opportunity interest rate with the rate of the customer transaction.

Opportunity volume

The position valued at the average purchase price. The opportunity volume is calculated on a

daily basis and is required in single position costing for determining the opportunity cost or income, which contributes to the trading result.

Option risk

The risk incurred when price factors change: the price of an option depends on the current ratio of the underlying instrument price to the exercise price of the option, on the volatility of the underlying instrument and on the option's time to maturity.

Organizational unit

A unit of the existing organizational structure e.g. bank, branch, sub-branch, regional head-office, which is defined by the user.

Own-account opportunity contribution

Opportunity cost or income calculated on the basis of the potential revenue or expense resulting from own-account trading. The opportunity volume, or the capital bound by the portfolio plus the capital generated by the portfolio (e.g. through receipt of premiums), forms the basis for calculating the own-account opportunity contribution.

Own-account trading result

The trading results for single transactions and positions in own-account trading are added together per costing component to give the own-account trading result. In the standard version, the results can be summarized according to products and organizational units.

Period result

Profit or loss of a bank within a certain accounting period. Determined by offsetting cost against income.

Periodic margin calculation

see **Single transaction costing**

Present value

Current value of one or more future payments; established by discounting these future payments at the current rate.

Processing rules

These control the processing of single transaction data for costing, reporting and risk management.

Product catalog

Contains approximately 150 bank products. The user can both select products from the catalog and define other products. Bank products are used for evaluations within Bank Profitability Analysis.

Product variant

Used to determine a costing rule for each bank product. By defining the product variants with different costing methods, transactions of the same product category can be costed in different ways.

Productivity result

Result of offsetting allocated standard unit costs against actual costs within cost center accounting.

Profit center

An area of responsibility within a business enterprise for which a divisional result is determined.

Profitability segment

Consists of a set of characteristics which are defined for the corresponding operating concern. Either existing account assignment terms or user-defined characteristics may be used.

Receiver structure

See **Sender structure**

Regulatory reporting

A component of the IS-B system. Provides tools to support the obligatory process of supplying information to the regulatory authorities.

Reporting period

Precisely defined accounting period for which the bank's performance is assessed and reported.

Reporting rule

Bank products which contain the same reporting information also have a common reporting rule and therefore enter the same reports.

Repository

A central information source in IS-B. Stores all objects created during the development process e.g. programs, documentation, models, tables and field definitions.

G Glossary

Risk cost (credit risk)

There are two basic risk categories for single transactions: price risks and credit risks. To calculate credit risk costs normalized risk costs such as a risk premium may be used. The credit risk costs are calculated on the basis of average actual credit values from the past.

Risk management

A component of the IS-B system. Has the task of identifying and assessing internal and external risks so that risk control measures can be implemented.

Risk management rule

Controls the allocation of bank products to processing rules within risk management.

Risk result

Reflects the allocated (standard) risk cost for the default risk offset against the actual risk cost (additions minus releases of specific provisions).

SAMBA™

Standard Anwendung Meldewesen BAnken (standard application for bank reporting). IS-B provides an integrated interface to the reporting structures of this standard application product which is supplied by 'Orga-Team GmbH' to cover regulatory reporting requirements in Germany.

Sample bank

The sample bank configuration provided with the standard IS-B System represents a complete example application of the IS-B functionality. The default settings can be changed or supplemented to meet the specific requirements of the individual bank.

Sender structure

The user's own data structures from the operational bank systems. These are entered when the data interface tool is configured. The system then uses control tables to map the individual fields in these sender structures to the fields of the SAP receiver structures.

Single position costing

Involves single positions which are made up of individual transactions such as security purchases in own-account trading or sales of own

issues. The system determines the impact of these transactions on the revenue results during the reporting period and condenses the information so that the single position can be evaluated. Note that the position is evaluated and not the individual purchase or sale.

Single transaction costing

Involves transactions such as loans, savings accounts and credit transfers which were closed within the reporting period or are not yet concluded.

Standard cost

Type of planned cost; the product of a standard quantity and a fixed price. Standard costs are entered as optimum costs and provide a yardstick for measuring profitability.

Summarization

Aggregation of results from Single Transaction Costing using freely-definable summary records such as those used in Bank Profitability Analysis.

Trading income contribution

Comprises price gains and losses (the trading result) and interest and dividend payments.

Transfer rule

see **Conversion rule**

Transformation result

Comprises the maturity transformation result and the currency transformation result. The interest margin displayed as the interest terms contribution when a market rate approach to transfer pricing is used, only takes into account the net interest income resulting from the terms agreed with the customer. The transformation result reflects the portion of the net interest income which can be traced back to the differing fixed-interest periods and interest rate levels of the transactions.

User exit

An interface provided by SAP in the application programs which allows users to insert their own routines into the application, thereby increasing the scope for individual adjustments.

Value fields

These appear in evaluations. The value fields determined in the fixed single transaction costing procedures, e.g interest contribution, opportunity contribution, average volume, always appear. Further fields can be selected from a proposal catalog. It is also possible for users to define fields. Defined value fields are either filled with data from the operational systems when data is transferred, or supplied with data from the flexible single transaction costing components within IS-B.

Volatility

The intensity with which interest rates, foreign exchange rates, securities prices, option prices or commodity prices fluctuate.

Yield curve

Determined by a set of reference interest rates; the yield curve in IS-B is drawn for a specified interest calculation method, quotation type (bid, offered, middle) and stock exchange.

Zero bond discounting factors

Calculated using the basic values and the interpolated interest rates in the money and capital market table, zero bond discounting factors are used to determine the present values of cash flows.