SAP EXCELLENCE

M. Meier · W. Sinzig · P. Mertens

# Enterprise Management with SAP SEM™/ Business Analytics

Second Edition

Springer

SAP EXCELLENCE

M. Meier · W. Sinzig · P. Mertens

# Enterprise Management with SAP SEM™/ Business Analytics

Second Edition

Springer

SAP Excellence

*Series Editors:*
Professor Dr. Dr. h.c. mult. Peter Mertens
Universität Erlangen-Nürnberg

Dr. Peter Zencke
SAP AG, Walldorf

Marco Meier · Werner Sinzig
Peter Mertens

# Enterprise Management with SAP SEM™/ Business Analytics

Second Edition
with 104 Figures
and 16 Tables

Springer

Dr. Marco Meier
FORWIN
Lange Gasse 20
90403 Nürnberg
meier@forwin.de

Dr. Werner Sinzig
SAP AG
Postfach 14 61
69185 Walldorf
werner.sinzig@sap.com

Professor Dr. Dr. h.c. mult. Peter Mertens
Friedrich-Alexander-Universität Erlangen-Nürnberg
Bereich Wirtschaftsinformatik I
Lange Gasse 20
90403 Nürnberg
mertens@wiso.uni-erlangen.de

SAP, SAP SEM, SAP SEM/BA, SAP BW, SAP Logo, R/2, R/3, BAPI, Management Cockpit, mySAP, mySAP.com as well as other products and services of SAP and the correspondent logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other products mentioned are trademarks or registered trademarks of their respective companies.
EVA® is a registered trademark of Stern Stewart & Co.
HTML and XML are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.
Oros® and ABC Technologies® are registered trademarks of ABC Technologies, Inc.
Microsoft®, WINDOWS®, NT®, Access®, Excel®, Word®, PowerPoint® and SQL Server® are registered trademarks of Microsoft Corporation.
Powersim® is a registered trademark of Powersim Corporation.

Cataloging-in-Publication Data applied for

Library of Congress Control Number: 2004113531

A catalog record for this book is available from the Library of Congress.

Bibliographic information published by Die Deutsche Bibliothek
Die Deutsche Bibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data available in the internet at *http://dnb.ddb.de*

ISBN 3-540-22806-3 Springer Berlin Heidelberg New York
ISBN 3-540-00253-7 1st Edition Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilm or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer-Verlag. Violations are liable for prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media
springeronline.com

© Springer-Verlag Berlin Heidelberg 2003, 2005
Printed in Germany

The use of general descriptive names, registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Hardcover-Design: Erich Kirchner, Heidelberg
Production: Helmut Petri
Printing: betz-druck

SPIN 11310976 Printed on acid-free paper – 42/3130 – 5 4 3 2 1 0

*In the majority of cases – we estimate 70% – the real problem isn't the high-concept boners. It's bad execution. As simple as that: not getting things done, being indecisive, not delivering on commitment.*
*Ram, C., Colvin, G., "Why CEO's Fail", Fortune, June 21, 1999*

# Foreword to the Second Edition

Soon after the first edition of this book was published it became apparent that a second edition would be needed. This demonstrates the attention being given to the search for new methods of partially automating the decision-making process at upper management levels.

The main change was to update the description of the SAP® systems in chapter 5. A new topic here is Activity-Based Costing based on the Value Network Analyzer (see section 5.3.1).

An additional case study was also added that describes how the Balanced Scorecard was implemented at Norwegian Defense. This case points to an interesting development. While in the past business organization was often modeled on that of the military (staff positions, the tripartite division into strategic, tactical, and operational management, elements of logistics, and so on), the influence is now going the other way as military organizations are being modernized by tools from business administration and information systems.

For their dedicated work in updating the contents, the authors would particularly like to thank Ute Östringer, Sabine Sänger, Dr. Martina Schuh, Dirk Braun, Thomas Fleckenstein, and Ralf Ille. Special thanks are due to Major Trond Erik Bones (Headquarters Defense Command Norway) for the additional case study. Last but not least, many thanks to Stephen Offenbacker (SAP AG) and Andrew Zeller (Department of Information Systems I, University of Erlangen-Nuremberg for their assistance in translating the amendments of the second edition.

Nuremberg and Walldorf, September 2004 — Marco Meier, Werner Sinzig, and Peter Mertens

# Foreword to the First Edition

Strategic and operational management are classic areas of business administration and information systems. Recently, there has been a flood of publications on subjects such as online analytical processing (OLAP), data warehouses, and analytical application systems.

Most of the publications about enterprise management originate from the United States and concentrate on either methods, instruments, and procedures, or pure technical aspects. Companies are currently still faced with a series of stand-alone

solutions for strategic and operational planning and decision support. The integration of information processing in the formulation and implementation of enterprise strategies is still in the initial stages. With this book, we will try to establish a bridge between business administration knowledge and software.

SAP AG was one of the first companies to provide the market with a complete package with their product *SAP Strategic Enterprise Management™* (SAP SEM™). For operational decision support, this was extended and became *SAP Strategic Enterprise Management/Business Analytics* (SAP SEM/BA). With this in mind, we have decided to illustrate the instruments of enterprise management and their implementation in solutions for information processing using the SAP systems as an example.

One feature of the SAP systems is the connection of functions to Business Content. This can be viewed as a new generation of standard software and suggests a new branch or even a new focus in information systems.

In some places, for example, in portraying the business methods and instruments along with the technical information basis, we had to sacrifice detailed explanations in favor of a wider view. However, in these cases we have provided suggestions for more detailed literature about controlling, planning and organization theories, and information systems.

In Chapter 1 we explain the considerable demands placed on a modern system for strategic and operational enterprise management. Chapter 2 outlines the business basis for these demands. The instruments offered by business administration to solve the problems addressed are considered in Chapter 3. Chapter 4 describes how developments in information technology contribute to the changes. Chapter 5 deals with SAP SEM/BA. A clear impression of the practical use of the system is given in Chapter 6 by case studies of companies that use SAP systems. An interview with David P. Norton, one of the fathers of the Balanced Scorecard and a summary that looks at the challenges faced by integrated information systems of strategic and operational management conclude the book.

The book is aimed at managers and employees in controlling and information processing who are concerned with the development and implementation of systems for business management information and decision support. The book can also be used in universities and technical colleges to demonstrate practical requirements.

Despite the multitude of developments, we have decided to restrict the scope of this book in the hope that this will enable us to better satisfy interested parties in our target audiences. The subject matter is developing so dynamically that an edition of a book is not designed to describe the latest system status in detail, since it would be out of date by the next software release. We will therefore look at the systems at an abstract level. Should you require more detailed technical information, we suggest you read the White Papers, presentation material, and documentation (also available via the Internet).

A special feature of the publications in this series is that they are produced in close cooperation with SAP. SAP has generously given us access to their documentation and permitted us to use both content and diagrams. Here we would particularly like to thank Ute Östringer, Maja Scholer, Dr. Martina Schuh, Thomas Fleckenstein, Matthias Heesch, Ralf Ille, Stefan Karl, Stefan Kraus, Jens Reithmann, Udo Summ, Andreas Vetter, and Marcus Wefers. We would also like to thank Alejandro Bombaci L. (Empresas Polar), Dr. Raimund Browarzik (Henkel Surface Technologies), Roland Lochner (Siemens AG), and Dr. David P. Norton (Balanced Scorecard Collaborative, Inc.). In the Bayerischen Forschungsverbund Wirtschaftsinformatik (FORWIN) we have been greatly assisted by Irina Depperschmidt, Olga Hein, Hermiona-Louise Schwarzmann, Andreas Billmeyer, Peter Bradl, and Martin Stößlein. Last but not least, many thanks to Jean Gill, Tara Lawson-Brown, Stephen Offenbacker, and Tracey Duffy for their assistance in translating this book.

Nuremberg and Walldorf, November 2002

Marco Meier, Werner Sinzig, and Peter Mertens

# Table of Contents

**1 Current Problems and Requirements ..... 1**
1.1 Current Problems ..... 1
1.2 Requirements ..... 7

**2 Business Management Background ..... 9**
2.1 Tasks of Strategic and Operational Enterprise Management ..... 9
2.1.1 Environment and Enterprise Analysis ..... 10
2.1.2 Strategy Formulation ..... 11
2.1.3 Operationalization of Strategies ..... 15
2.1.4 Strategy Execution ..... 16
2.1.5 Operational Performance Measurement ..... 17
2.1.6 Strategic Feedback ..... 17
2.1.7 Communication with Stakeholders ..... 18
2.2 Value-Based Management ..... 18
2.3 Stakeholder Approach ..... 27
2.4 Customer Relationship Management ..... 28
2.5 Risk Management ..... 30

**3 Business Management Instruments ..... 35**
3.1 Instruments for Strategic Enterprise Management ..... 35
3.1.1 Enterprise and Competition Analysis ..... 35
3.1.2 Benchmarking ..... 36
3.1.3 Early Warning Systems ..... 37
3.1.4 Scenario Analysis ..... 37
3.1.5 Portfolio Analysis ..... 39
3.1.6 Balanced Scorecard ..... 41
3.2 Instruments for Operational Enterprise Management ..... 45
3.2.1 Target Costing ..... 45
3.2.2 Contribution Margin Accounting ..... 47
3.2.3 Break-even Analysis ..... 49
3.2.4 ABC Analysis ..... 50
3.2.5 RFM Analysis ..... 51
3.3 Instruments for Combined Strategic and Operational Enterprise Management ..... 52
3.3.1 Activity-Based Costing ..... 52
3.3.2 Forecasting Methods ..... 53
3.3.3 Simulation ..... 57
3.3.4 Consolidation ..... 62
3.3.5 Lifecycle Analysis ..... 63

**4 Information Technology Instruments ..... 67**
4.1 Data Warehouse (Information Warehouse) ..... 67
4.2 Online Analytical Processing (OLAP) ..... 69
4.3 Business Intelligence ..... 71
4.4 Analytical Application Systems ..... 73
4.5 Internet ..... 75
4.6 Personalized Enterprise Portals ..... 76

**5 Components of the SAP Solution ..... 77**
5.1 General Overview ..... 77
5.2 Strategic Enterprise Management ..... 85
5.2.1 SEM Business Planning and Simulation (SEM-BPS) ..... 85
5.2.1.1 General Aspects of Implementation ..... 85
5.2.1.2 Integrated Planning Applications ..... 88
5.2.1.3 Modeling Planning Structures ..... 95
5.2.1.4 Generic Planning Functions ..... 97
5.2.1.5 User Interfaces for Planning ..... 98
5.2.1.6 Organization and Coordination of Planning ..... 101
5.2.2 SEM Business Consolidation (SEM-BCS) ..... 102
5.2.2.1 Modeling Consolidation Structures ..... 103
5.2.2.2 Collecting and Preparing Reported Financial Data ..... 105
5.2.2.3 Consolidation of the Financial Data ..... 108
5.2.2.4 Consolidation Reports ..... 109
5.2.3 SEM Corporate Performance Monitor (SEM-CPM) ..... 110
5.2.3.1 Balanced Scorecard ..... 111
5.2.3.2 Value Driver Management ..... 120
5.2.3.3 Risk Management ..... 122
5.2.3.4 Measure Builder ..... 125
5.2.3.5 Management Cockpit ..... 128
5.2.4 SEM Stakeholder Relationship Management (SEM-SRM) ..... 132
5.2.4.1 Stakeholder Contract Management ..... 132
5.2.4.2 Stakeholder Portal ..... 134
5.2.4.3 Stakeholder Communication System ..... 135
5.2.4.4 Document Management ..... 137
5.2.4.5 Stakeholder Analysis ..... 138
5.2.5 Business Information Collection (SEM-BIC) ..... 138
5.2.5.1 Information Request Builder ..... 139
5.2.5.2 Source Profile Builder ..... 139
5.2.5.3 Editorial Workbench ..... 140
5.3 Business Analytics ..... 142
5.3.1 Financial Analytics ..... 143
5.3.2 Customer Relationship Analytics ..... 152
5.3.3 Supply Chain Analytics ..... 159
5.3.4 Product Lifecycle Analytics ..... 163
5.3.5 Human Resources Analytics ..... 166

**6 Case Studies ..... 173**
6.1 Empresas Polar ..... 173
6.2 Henkel Surface Technologies ..... 177
6.3 Norwegian Defense ..... 180
6.4 Siemens ..... 183

**7 Conclusion ..... 187**
7.1 Interview with David P. Norton ..... 187
7.2 Summary and Outlook ..... 191

**Abbreviations and Acronyms ..... 195**

**Bibliography ..... 199**

**Glossary ..... 207**

**Index ..... 213**

# 1 Current Problems and Requirements

With its software product SAP Strategic Enterprise Management/Business Analytics (SAP SEM/BA™), SAP has introduced a new software solution to the market for both strategic and operational enterprise planning and decision support.

Many of the more recent publications on application systems for enterprise management attempt to motivate you to continue reading with an introduction something like this: “Globalization, increasing environmental dynamics, more intensive competition, and higher cost pressures lead to ever-growing demands...” “New” problems and solutions are heralded by consultants, software producers, and even experts, in the area of finding a corporate strategy that promises success and that can be practically converted into reality. But when examined more closely, these “new” problems and solutions are not so new, and at times appear more like clichés. So what are the benefits of a new software package such as SAP SEM/BA and yet another book on this subject?

The need for new solutions arises on the one hand from still unsatisfactorily solved basic problems related to the flow of information to strategic and operational management, and on the other hand from current – in part industry-specific and business-type-specific – economic developments. Above and beyond this, the pressures of new technologies, led largely by new database technologies and the Internet, demand new information logistics.

## 1.1 Current Problems

***Lack of Integration Between Strategic and Operational Levels of Enterprise Management***

The basic problem that strategic management needs to solve involves timely recognition of opportunities and risks, while ensuring the company's long-term potential for success by means of decisions on capital investments and allocation of resources. The ultimate aim is to achieve a lasting increase in the value of the company. The goals of operational planning and Performance Measurement, on the other hand, are focused on shorter time periods. Their purpose, within the bounds of the corporate strategy, is to ensure profitability and liquidity of the firm within a fiscal year or shorter periods of time. The two areas are necessarily closely related. Operational planning concretizes the plans made in strategic management. On the other side of the coin, operational Performance Measurements provide impulses for the corporate strategy. The combination of the operational and strategic levels of management is what makes it possible to weigh short and medium term decisions against long-term goals.

According to an American study, the lack of integration between enterprise strategies and operational business processes manifests itself in actual practice above all in the following problems (Norton 1996):

1. Strategy is not operationalized. Only 40% of middle management and 5% of other employees understand the strategy of the company. The corporate strategy is not broken down into its elements.
2. Only 50% of top management and 20% of middle management have a bonus system that is directly linked to the medium to long-term strategic goals.
3. 85% of management teams spend less than one hour per month on strategy discussions.
4. 60% of resources of the company do not relate directly to the strategy.
5. The focus on financial figures is too one-sided as well as oriented toward the past, and too much stress is placed on reactive measures.

***Insufficient Integration of ERP Systems***

Business application systems can be divided into operational systems (administration and disposition systems) as well as planning and control systems (see figure 1.1). The focus of this book is on systems at the management level, however it is not possible to look at these systems in complete isolation.

Our aim is to demonstrate how, using the existing complement of classic and modern instruments of business and management economics, combined with the capabilities of information technology, it is possible to implement a practicable, integrated solution for strategic and operational enterprise management. Since SAP has, to a large extent, taken a leading role in this area, we will use the SAP Strategic Enterprise Management/Business Analytics (SEM/BA) system as a reference. It is based on SAP's data warehouse product, SAP Business Information Warehouse (SAP BW®). For handling operational transactions, SAP offers (along with other options) the SAP R/3® system (Wenzel 2001).

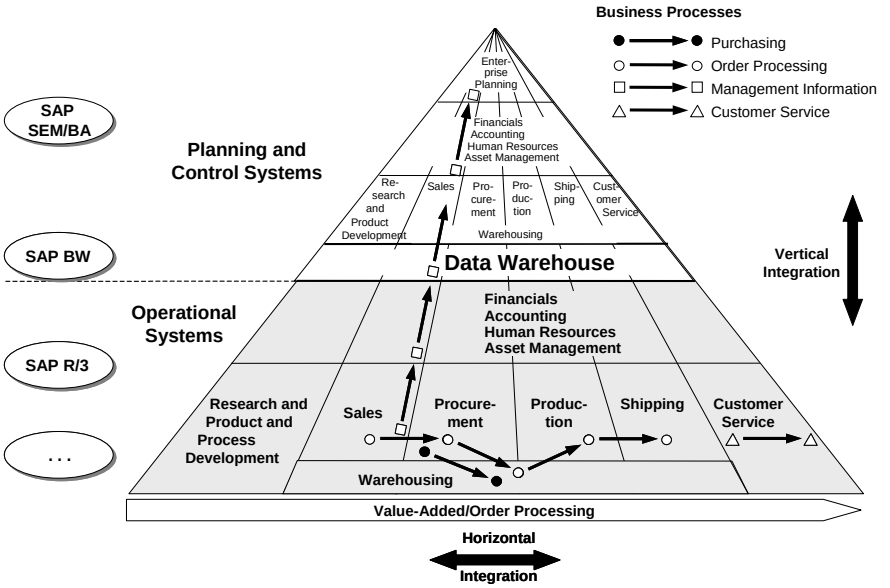


**Fig. 1.1:** Classification of Business Information Systems (based on Mertens 2004, p. 7)

*Operational Systems*

Operational systems are geared toward rationalization of mass data processing, thereby endeavoring particularly to reduce costs and free employees from routine tasks, while at the same time speeding up processes and reducing turnaround time. Beyond the task of pure administration, disposition systems are intended to assist human decision-makers, or to make human decisions unnecessary by having the system itself make decisions automatically. Here we can differentiate between two objectives:

1. Automatic decisions should be better than decisions made by a human being; the goal is optimization.
2. We are satisfied if the information system finds solutions that are equal to those provided by human beings. In this case, the goal is rationalization of the decision-making process. The user is relieved of programmable routine tasks, and, moreover, automatic processes do not have to be interrupted for human intervention.

With operational systems, it is often relatively easy to demonstrate the superiority of the information system solely on the basis of the large number of transaction figures processed. With disposition systems, on the other hand, you have to repeatedly reassess which is better – human or automatic disposition.

*Planning and Control Systems*

The systems for planning and control are found in the upper part of the pyramid (see figure 1.1). If we assume that in an integrated concept, both operational and disposition systems are in place, then the next logical step in the further development of industrial information processing is to use the system, and especially its data, for planning. To this end, planning systems are developed that can be considered a continuation of the disposition models embedded in information processing. However, there are the following differences:

1. Decisions proposed by disposition models or made by information systems solve well structured problems, whereas planning models are for solving poorly structured problems.
2. Disposition models assist in decision-making related to high-volume and routine problems that usually occur in relatively short, repetitive intervals (such as planning of production processes). Planning systems, in contrast, are normally used for decision-making tasks that occur at greater intervals, and sometimes irregularly (for example, planning of capital investments or a production program).
3. Disposition systems tend to fall into the responsibility areas of middle managers, whereas planning models have been developed for top managers.
4. Operational systems work with databases in which all changes are stored in real time and in detail. Planning and control systems, however, are built on the basis of data warehouses, which contain summarized data and information that remains constant over a longer time period.
5. While disposition systems can often run fully automated (consider material requirements planning, for example), planning systems require more involvement of the user, so that human-computer interaction is the norm. Involving the human element in planning models is necessary primarily to allow enough scope for decisive entrepreneurial action, in order to correct developments that would arise if processes (such as the lifecycle of a product) were left to themselves.

Control systems are the counterpart of planning systems. Their job is to monitor adherence to the plan, and to provide indicators as to whether corrective measures should be taken. In the ideal situation, they function something like a medical problem with the sequence of events: “symptom recognition – diagnosis – proposed therapy – prognosis” (Mertens 2004, pp. 13-16).

Current practice tends heavily toward standalone solutions for the various planning and reporting tasks. Whereas day-to-day business transactions can be handled just about completely using operational systems (also called online transaction processing systems (OLTP systems), such as SAP R/3, PeopleSoft®, Oracle®, or J. D. Edwards®), most are still far from such a complete integration of