



Praktikum im WS 03/04: Hilfequellen und Dokumentation

Allgemeine Doku zu SAP R/3

SAP-Schulungsordner und Bücher (im HCC-Büro 01.13.035)

Patig, Susanne (2003): SAP R/3 am Beispiel erklärt. Eine Einführung in die Anwendungskomponenten MM, PP, SD und ihre Integration mit Hinweisen zur Durchführung von Lehrveranstaltungen. Frankfurt/Main. Verlag Peter Lang, 2003. [kann im Lehrebüro ausgeliehen werden]

Bibliotheken

TUM-Bibliothek

<http://www.ub.tum.de/>

Stadtbücherei München

<https://ssl.muenchen.de/>

LMU Bereichsbibliothek WiWi

<http://www.wopac.ub.uni-muenchen.de/START/>

Bayr. Staatsbibliothek

<http://www.bsb-muenchen.de/>

ACM elektronische Bibliothek

<http://portal.acm.org/dl.cfm> (nur vom Uninetz aus zugänglich)

Offizielle Webseiten

SAP AG

<http://www.sap.de>

SAP-Hilfeportal

<http://help.sap.com>

SAP-DB

<http://www.sapdb.org>

VI-Referenz

http://www.id.unizh.ch/publications/unix/einf_14.html

What you should know about SAP

(Source: <http://www.thespot4sap.com>)

ERP Overview

What is ERP ?

Enterprise Resource Planning or ERP is an industry term for integrated, multi-module application software packages that are designed to serve and support multiple business functions. An ERP system can include software for manufacturing, order entry, accounts receivable and payable, general ledger, purchasing, warehousing, transportation and human resources. Evolving out of the manufacturing industry, ERP implies the use of packaged software rather than proprietary software written by or for one customer. ERP modules may be able to interface with an organization's own software with varying degrees of effort, and, depending on the software, ERP modules may be alterable via the vendor's proprietary tools as well as proprietary or standard programming languages.

Brief History of ERP

The focus of manufacturing systems in the 1960's was on Inventory control. Most of the software packages then (usually customized) were designed to handle inventory based on traditional inventory concepts. In the 1970's the focus shifted to MRP (Material Requirement Planning) systems that translated the Master Schedule built for the end items into time-phased net requirements for the sub-assemblies, components and raw materials planning and procurement.

In the 1980's the concept of MRP-II (Manufacturing Resources Planning) evolved which was an extension of MRP to shop floor and Distribution management activities. In the early 1990's, MRP-II was further extended to cover areas like Engineering, Finance, Human Resources, Projects Management etc i.e. the complete gamut of activities within any business enterprise. Hence, the term ERP (Enterprise Resource Planning) was coined.

Why is it Necessary?

By becoming the integrated information solution across the entire organization, ERP systems allow companies to better understand their business. With ERP software, companies can standardize business processes and more easily enact best practices. By creating more efficient processes, companies can concentrate their efforts on serving their customers and maximizing profit.

Market Leaders

The top five ERP vendors, SAP, Oracle Corporation, Peoplesoft, Inc., JD Edwards & Company, and Baan International, account for 64 percent of total ERP market revenue. These vendors continue to play a major role in shaping the landscape of new target markets, with expanded product functionality, and higher penetration rates.

The Future of ERP

Industry analysts expect that every major manufacturing company will buy the software, which ranges in cost -- with maintenance and training -- from hundreds of thousands of dollars for a small company to millions for a large company. AMR Research of Boston says consolidation among the major players will continue and intensify. ERP vendors are expected to put more effort into e-commerce, CRM and SCM initiatives, with leaders redirecting between 50% and 75% of their R&D budget to these projects.

According to Gartner research group, the rapid evolution of ERP has already led to a new corporate must-have, ERP II, which is supposed to help businesses gain more competitive edge in the future. The major difference is that ERP II involves collaborative commerce, which enables business partners from multiple companies to exchange information posted on eCommerce exchanges.

Who or what is SAP ?

SAP the company was founded in Germany in 1972 by five ex-IBM engineers. In case you're ever asked, SAP stands for Systeme, Anwendungen, Produkte in der Datenverarbeitung which - translated to English - means Systems, Applications, Products in Data Processing. So now you know! Being incorporated in Germany, the full name of the parent company is SAP AG. It is located in Walldorf, Germany which is close to the beautiful town of Heidelberg. SAP has subsidiaries in over 50 countries around the world from Argentina to Venezuela (and pretty much everything in between). SAP America (with responsibility for North America, South America and Australia - go figure!) is located just outside Philadelphia, PA.

The original five founders have been so successful that they have multiplied many times over such that SAP AG is now the third largest software maker in the world, with over 17,500 customers (including more than half of the world's 500 top companies). SAP employs over 27,000 people worldwide today, and had revenues of \$7.34 billion and Net Income of \$581 million in FY01. SAP is listed in Germany (where it is one of the 30 stocks which make up the DAX) and on the NYSE (ticker:SAP).

There are now 44,500 installations of SAP, in 120 countries, with more than 10 million users!

So what made this company so successful? Back in 1979 SAP released SAP R/2 (which runs on mainframes) into the German market. SAP R/2 was the first integrated, enterprise wide package and was an immediate success. For years SAP stayed within the German borders until it had penetrated practically every large German company. Looking for more growth, SAP expanded into the remainder of Europe during the 80's. Towards the end of the 80's, client-server architecture became popular and SAP responded with the release of SAP R/3 (in 1992). This turned out to be a killer app for SAP, especially in the North American region into which SAP expanded in 1988.

The success of SAP R/3 in North America has been nothing short of stunning. Within a 5 year period, the North American market went from virtually zero to 44% of total SAP worldwide sales. SAP America alone employs more than 3,000 people and has added the names of many of the Fortune 500 to its customer list (8 of the top 10 semiconductor companies, 7 of the top 10 pharmaceutical companies etc). SAP today is available in 46 country-specific versions, incorporating 28 languages including Kanji and other double-byte character languages. SAP also comes in 21 industry-specific versions.

SAP R/3 is delivered to a customer with selected standard process turned on, and many many other optional processes and features turned off. At the heart of SAP R/3 are about 10,000 tables which control the way the processes are executed. Configuration is the process of adjusting the settings of these tables to get SAP to run the way you want it to. Think of a radio with 10,000 dials to tune and you'll get the picture. Functionality included is truly enterprise wide including: Financial Accounting (e.g. general ledger, accounts receivable etc), Management Accounting (e.g. cost centers, profitability analysis etc), Sales, Distribution, Manufacturing, Production Planning, Purchasing, Human Resources, Payroll etc etc etc. All of these modules are tightly integrated which – as you will find out – is a huge blessing ... but brings with it special challenges.

SAP are maintaining and increasing their dominance over their competitors through a combination of

- embracing the internet with mySAP.com (a confusing name we believe) to head off i2 etc
- extending their solutions with CRM to head off Siebel
- adding functionality to their industry solutions

Who is SAP made for ?

We have all heard about the large (and very large) companies who have implemented (or are still busy implementing) SAP R/3. But SAP is gaining acceptance by smaller companies too.

There are many reasons a company selects and implements SAP – some are good and some are bad. The good ones include replacing an out-dated and inefficient IT Architecture (including the CIO's nemesis ... the burning platform), enabling business process change, and to gain competitive advantage. The bad ones are too numerous to go into here but would include the "why are we the only semiconductor company without SAP" question. More on the good reasons follows:

Replacing an out-dated and inefficient IT Architecture: In the beginning, computer systems were developed by individual departments to satisfy the requirements of that particular department. When someone finally realized that benefits could be had by linking these systems together, interface heaven was born. There are some companies today with literally thousands of interfaces, each of which needs to be maintained (assuming of course that there is someone around who understands how they work!). Sweeping them away and replacing them with an integrated system such as SAP can save much money in support. Of course, if you have a burning platform as well the question becomes even easier.

Enabling business process change – From the start, SAP was built on a foundation of process best practices. Although it sounds absurd, it is probably easier (and less expensive) to change your companies processes to adapt to SAP than the other way around. Many companies have reported good success from combining a SAP implementation with a BPR project.

Competitive advantage – The CFO types around have heard this old saying from the CIO types for many years now. The question still has to be asked ... can you gain competitive advantage from implementing SAP? The answer, of course, depends on the company. It seems to us, however, that: being able to accurately provide delivery promise dates for manufactured products (and meet them) doesn't hurt ... and

being able to consolidate purchase decisions from around the globe and use that leverage when negotiating with vendors has gotta help ... and

being able to place kiosks in stores where individual customers can enter their product specifications and then feed this data directly into it's production planning process is pretty neat

How much does it cost? What will it take to implement it?

There is a defining moment in the journey of all companies on the road to SAP nirvana. This moment comes just after the company has concluded that it want's SAP, it needs SAP, it's gotta have SAP ... then comes the question 'so what does it take to implement it'?

This is the question which separates those who are ready from the wannabees.

Before being accused of being too negative, let me remind you that at the heart of every good business decision lies a cost benefit analysis. If this cannot be complete with a positive outcome, the initiative (whatever it is) should probably not be launched. Same goes for a SAP implementation.

Implementing SAP is expensive. No doubt about it. But the potential rewards can dwarf the costs (and have for many existing customers already). One customer reportedly made enough savings on the procurement of a single raw material to pay for the entire enterprise-wide SAP implementation! Of course these are hard to substantiate, but visit SAP's website and take a look at the customer testimonials.

SAP sells it's R/3 product on a 'price per user basis'. The actual price is negotiated between SAP and the customer and therefore depends on numerous factors which include number of users and modules (and other factors which are present in any negotiation). You should check with SAP, but for a ballpark planning number you could do worse than starting with \$4000 per user. There is also an annual support cost of about 10% which includes periodic upgrades. Again, check with SAP.

Then there is the implementation cost. Yowser. It is about now that you need to get the business case out again and remind yourself why you need to do this. The major drivers of the total implementation cost are the Timeframe, Resource Requirements and Hardware.

Timeframe - The absolute quickest implementation we have ever heard of is 45 days ... but this was for a tiny company with very few users and no changes to the delivered SAP processes. At the other end of the scale you get the multi-nationals who are implementing SAP over 5 to 10 years. These are not necessarily failures ... many of them are planned as successive global deployments (which seem to roll around the globe forever). Of course the really expensive ones are those we don't hear about! For the most part, you should be able to get your (single instance) project completed in a 9 to 18 month period.

People – The smallest of SAP implementations can get done on a part-time basis without outside help. The largest swallow up hundreds of people (sometimes over a thousand) and include whole armies of consultants. This adds up fast. Again, get that business case out. The types of people you will need run the range from heavy duty techies to project managers.

Hardware – The smallest of SAP implementations probably use only three instances (boxes) ... one for the production system, one for test, and one for development. The largest implementations have well over 100 instances, especially if they involve multiple parallel projects (otherwise known as a program).

Adding all this up, your SAP project can run anywhere from \$400,000 to hundreds of millions of \$\$\$'s. As you can see, SAP can be all things to all companies ... so it's best to talk to them (or your consulting firm) about your specific requirements.

Help from SAP

There is a ton of help available out there - depending on your companies budget and culture – to help you along your journey beginning with your strategy and ending up when you reach that hallowed (and sometimes distant) ground of post-implementation.

As you already know, SAP AG employs around 22,000 people. Although they re-organize as often as most other companies, you can think of them as being organized into the following four areas: Pre-Sales, Consulting, Training and Developers.

Pre-Sales. These are people with heavy-duty functional knowledge of one or more SAP modules and one or more industries. They give really excellent system demonstrations on particular areas of the system which – while thick with pre-sales features – are an extremely valuable source of information about SAP. I'm sure they have many other responsibilities as well, but if you can, get a demo from them. For an even more useful demo, ask if you can provide them with business process scenarios that are pertinent to your business or industry prior to the demo.

Consulting. While also knowledgeable in SAP (of course), these are mostly consulting types like those that can be found in the major consulting firms. Often a team will consist of consultants from SAP and a partner consulting firm and you will not know the difference. Expect them to have business process and/or industry knowledge in addition to detailed SAP knowledge. They are not readily available to non-customers as they are usually assigned to one or more customers. A good list of consulting partners is available in the links section of this website.

Training. In 1999 SAP opened up their training programs to non-customers and non-partners. This opens up a whole world of top-rate training programs at SAP's facilities around the globe. These can be expensive, however, and up to three weeks are usually required to gain a sufficiently deep understanding of a particular module or subject. If you have lots of time and money, you could register for one of SAP's 'academies' which are five-week crash courses (emphasis on crash ... as in burn) in one of the following areas: FI/CO, MM/SD, and HR/ABAP. These end with an examination and 'certification' in your chosen area. More information on SAP training courses can be found on SAP's website.

Developers. These heavy-duty techies are off limits to non-customers. Customers can sometimes get a message to them via the OSS system – which is an automated trouble ticket type system. If you ever actually see one, or have one on the phone, ask all the questions you can think of, as you may never have the chance again!

Help From Other Sources

Consulting Companies

One of SAP's key strategies has been to develop partnerships with the Consulting Companies. This has contributed enormously to the widespread adoption of SAP due to the fact that there are literally thousands of consultants (SAP estimate 55,000) ready to help with all aspects of your SAP implementation ... from strategy to completion. There are two types of consulting partners:

1. Global consulting partners (13 of these at last count) are the largest of the consulting firms who are able to provide global assistance to global companies, and
2. National consulting partners who are accredited by country

Your need of a consulting partner depends on your project scope and complexity, your project budget, company culture, and prior SAP implementation experience in your company. Suffice to say that without heavy prior SAP experience in your company, all but the simplest SAP implementations would benefit from the involvement of experienced individuals who have done it before. Rates depend on your negotiations with the consulting company, of course, but you could do worse than use an estimate of \$200 per person per hour. Consulting styles differ from firm to firm, so make sure your company culture is compatible with the typical approach of your chosen consulting partner.

In addition, spend some time on their websites to get an idea of their approach, experience and capabilities.

SAPPHIRE and other SAP events

SAPPHIRE is the name given to SAP's annual user conference. Multiple SAPPHIRE's can be found around the globe each year, and are usually sold out in advance. North American SAPPHIRE's are typically held in hot cities (off season) and attract upwards of 14,000 prospects, customers and partners. Read up on SAPPHIRE'99 here. SAPPHIRE is a great place to go explore, but is quite expensive at around \$2,200 for three days (food, lodging, travel etc is at your own expense). Even so, it is well worth the time and expense. Note: SAP holds other events throughout the year (TechEd, for example, is aimed at the more technical users) See their website for additional details.

ASUG (America's SAP User Group)

As the name suggests, ASUG is a forum for users of SAP. Non-users (prospects and consultants) and not usually found lurking here. ASUG actually comprises of multiple sub-ASUG's – each focusing on a particular area of SAP, for example there is an ASUG for High Tech companies, and an ASUG for companies using ALE etc. Leadership of these sub-ASUG's (for lack of a better description) usually rotates between members of the user community. ASUG provides opportunities for networking, learning and influencing SAP (for example joining forces with other users to convince SAP to include a particular modification in their standard software). In addition to meetings within the sub-ASUG's, there is an annual conference (which attracted nearly 6,000 users and vendors in 1999). More details on ASUG can be found at www.asug.com.

This website

thespot4sap.com was created with a single objective in mind ... to provide an online community where people involved in SAP implementations can share SAP knowledge. This will, we hope, lead to an environment where we can all learn more about SAP, and hopefully teach others along the way. We are proud to be independent of any other company, and current. There are many avenues available for you to expand your knowledge here ... you can sign up for our newsletter, read more articles, catch up on SAP-



related news, lurk on the discussion boards, follow the links, post your resume, find a job, vote in our polls, buy a book, buy a CBT, buy a premium paper (etc etc). If you have a specific question in mind, try our search facility or post it to the messageboard.

Some figures

3rd - SAP is the 3rd largest software company in the world

22,000 - Total number of people employed by SAP

5,400 - Number of programmers employed by SAP

\$5.240 billion - FY99 Revenue

\$550 million - FY99 Net Income

12,000 - Number of companies using SAP

12,000,000 - Number of people using SAP

120,000,000 - Total number of people in the 12,000 companies who are using SAP

28 - Number of languages supported by SAP

46 - Number of country-specific versions of SAP

22 - Number of industry-specific versions of SAP

1,000 - Number of pre-defined best practices contained in the SAP system

10,000 - Number of tables requiring configuration in a full SAP implementation

55,000 - Number of SAP experienced consultants worldwide

28 - Number of years ago SAP was started

5 - Number of people who started SAP

SAP modules and solutions overview

In the past when people were discussing SAP, the conversation very quickly boiled down to modules, for example:

SAP's courses were structured along module lines so that you would attend MM 101, 102 and 103. While at the course you would learn many things about MM, but not much about the rest of the SAP system and how MM fits into it.

A conversation with a SAP recruiter might go something like this:

Recruiter ... "which modules do you work with?"

Candidate ... "well, I have a lot of purchasing process experience"

Recruiter ... "yes, but which modules do you work with?"

Candidate ... "well, it's purchasing functionality ... so that would be, umm, MM, FI and CO mainly"

Recruiter ... “great I have just the job for you”

Candidate ... “fantastic, is it purchasing?”

Recruiter ... “well it says here that they want an MM, FI and CO person and that’s you, right?”

Not necessarily! A MM, FI, CO role might include Inventory Management (MM), Accounts Receivable (FI) and Profitability Analysis (CO) – none of which a purchasing person is guaranteed to have

Many programme teams were organised along module lines, so that you would have a FI/CO, an MM and a HR team, for example. Training courses were (therefore) often prepared and delivered along module lines too. The result of this was that solutions were frequently optimised along module lines, and less often well integrated, and as for users, well, they were pretty much trained up in a module and left to get on with it post go-live. Fortunately those days are mostly passed, and more and more programmes (from design to build to training) are being organised along process lines such as:

Order to Cash (including parts of SD, FI-AR and probably TY as well)

Purchase to Pay (including MM-Purchasing and FI-AP)

Record to Report (FI-GL etc)

SAP now are moving away from describing their system as a set of modules, and now are using the term ‘solutions’, which is much better. If you visit SAP’s website (as we urge you to do) you will find that they have structured their Solutions tab as follows:

- Financials
- Human Resources
- Customer Relationship Management
- Supplier Relationship Management
- Product Lifecycle Management
- Supply Chain Management
- Business Intelligence

We think that this is a quite intuitive way of breaking it down, and a big leap forward for SAP. Of course, most recently (this year) SAP have unveiled their latest initiative which is Xapps – but that is the subject of a yet to be written article (as soon as we understand it ourselves, that is).

If you’re still looking for that list of modules, here they are:

- FI Financial Accounting – essentially your regulatory ‘books of record’, including
 - General ledger
 - Book close
 - Tax
 - Accounts receivable
 - Accounts payable
 - Consolidation
 - Special ledgers

- CO Controlling – basically your internal cost/management accounting, including
 - Cost elements
 - Cost centres
 - Profit centres

Internal orders
Activity based costing
Product costing

AM Asset Management – track, value and depreciate your assets, including
Purchase
Sale
Depreciation
Tracking

PS Project Systems – manage your projects, large and small, including
Make to order
Plant shut downs (as a project)
Third party billing (on the back of a project)

HR Human Resources – ah yes, people, including
Employment history
Payroll
Training
Career management
Succession planning

PM Plant Maintenance – maintain your equipment (e.g. a machine, an oil rig, an aircraft etc), including
Labour
Material
Down time and outages

MM Materials Management – underpins the supply chain, including
Requisitions
Purchase orders
Goods receipts
Accounts payable
Inventory management
BOM's
Master raw materials, finished goods etc

QM Quality Management – improve the quality of your goods, including
Planning
Execution
Inspections
Certificates

PP Production Planning – manages your production process, including
Capacity planning
Master production scheduling
Material requirements planning
Shop floor

SD Sales and Distribution – from order to delivery, including
RFQ
Sales orders
Pricing
Picking (and other warehouse processes)



Packing
Shipping

CA Cross Application – these lie on top of the individual modules, and include
WF – workflow
BW – business information warehouse
Office – for email
Workplace

Industry solutions

New Dimension products such as CRM, PLM, SRM, APO etc

Useful links

<http://www.sap.com>

<http://help.sap.com>

<http://www.sap-ag.de/solutions/businessmaps/>

<http://itmanagement.earthweb.com/>

<http://public.wsj.com/home.html>

<http://searchsap.techtarget.com/>

<http://specials.ft.com/connectis/>

<http://www.businessweek.com/>

<http://www.cio.com/>

<http://www.fortune.com/>

<http://www.informationweek.com/>

<http://www.infoworld.com/>

<http://www.intelligententerprise.com/>

<http://www.itmweb.com/>

<http://www.misweb.com/>

<http://www.networkcomputing.com/>

<http://www.sapfaq.com>

<http://www.techweb.com/>

<http://www.thespot4sap.com/>

<http://www.wired.com/news/>

<http://www3.gartner.com/>

<http://www-3.ibm.com/e-business/index.jsp>

http://juliet.stfx.ca/~infosys/sap_univ.htm

<http://juliet.stfx.ca/~infosys/sapindex.htm>

http://www.intelinfo.com/newly_researched_free_training/SAP.html

<http://www.baan.com/>

<http://www.peoplesoft.com>

<http://www.oracle.com/>

Selected References

- Anonymous, "Lessons Learned," CIO, April 15, 1999.
- Bancroft, Nancy. Implementing SAP R/3. Manning Publications: Greenwich, CT, 1996.
- Brett Mendel, "Bio-Rad's Woes Needed Two Pronged Attack," InfoWorld, November 15, 1999.
- Cameron Sturdevant, "An Education in ERP," PC WEEK, October 18, 1999.
- Craig Stedman, "Big Retail SAP Project Put on Ice," Computerworld, November 2, 1998.
- Craig Stedman, "ERP Flops Point to Users' Plans," Computerworld, November 15, 1999.
- Craig Stedman, "Failed ERP Gamble Haunts Hershey," Computerworld, November 1, 1999.
- Craig Stedman, "Move to Single Global ERP System, No Easy Task," Computerworld, January 17, 2000.
- Doane, Michael, In the Path of the Whirlwind: An Apprentice Guide to the World of SAP, The Consulting Alliance, 1997.
- Doane, Michael. Capturing the Whirlwind: Your Field Guide to a Successful SAP Implementation. The Consulting Alliance, Pine Hill Press, Freeman, SD, 1997.
- Erik Sherman, "ERP's Promised Lands," Computerworld, February 14, 2000.
- Greenbaum, Joshua. "SAP Changes Course." Software Magazine. September, 1996: p. 32-34.
- Hoffman, Thomas. "Dow to upgrade to SAP's R/3." [Computerworld](#). March 11, 1996: p. 78.
- James Miller, "Grainger Says It Will Miss Estimates After Installing Complex ERP Software," Wall Street Journal, January 10, 2000.
- Kay, Emily. "Desparately Seeking SAP Support." Datamation. February 15, 1996: p. 42-45.
- Keeling, Dennis. "A buyers' guide: High-end accounting software." Journal of Accounting. December 1996: p. 43-52.
- King, Julia. "Lessons on Installing R/3." [Computerworld](#). April 29, 1996: p. 16-20.
- Marc Ferranti, "Debunking ERP Misconceptions," Infoworld, August 17, 1998.
- Patrick Dryden, "ERP Failures Exact High Price," Computerworld, July 27, 1998.
- Peak, Martha. "Dynamic duo: SAP and reengineering." Management Review. December 1996: p. 7.
- Simon Sharpe, 10 Minute Guide to SAP R/3, Que, 1997.
- Tom Stein, "ERP's Fight for Life," CMP's TechWeb, April 12, 1999.
- Using SAP R/3: Special Edition, Que, 1996.
- Vaughn, Jack. "Enterprise applications." Software Magazine. May 1996: p. 67-74.
- Weston, Randy. "R/3 is light as a feather at pillow plant." [Computerworld](#). February 3, 1997: p. 61-62.