

**SAP NetWeaver**<sup>®</sup>

**BI** and

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# Successful SAP BW Implementation and Upgrade Tips (Part Two)

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TekLink International

# In This Session ...

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- This is a two-part session, and this is part *two*
  - ♦ We will cover mistakes commonly made in SAP BW implementations and upgrades
    - ▶ Why the mistake occurs ...
    - ▶ How to spot the problem ...
    - ▶ Impact ...
    - ▶ How to prevent (or minimize the impact) of common issues ...
  - ♦ You will:
    - ▶ Get help keeping your new or upgrade project on track ...
    - ▶ Learn from others' troubles

# What We Covered in Part One (Last Session) ...

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- Overview of BW
- Defining and Managing BW Scope
- BW Governance and Documents Needed
- BW Communication Issues / Challenges
- Data Modeling in BW - Common Issues
- BW Strategy/Upgrade Challenges
- Wrap-up

## What We'll Cover in Part Two (This Session) ...

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- Data Quality Concerns
- BW Performance Concerns and Challenges
- Common BW Technical Issues and Challenges
- Staffing and Resource Issues in BW Projects
- Wrap-up

## What We'll Cover ...

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# Effects of Bad Data

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- Most of the query “problems” in SAP BW are the result of bad source data
- Users see these problems as SAP BW issues
  - This means that the perception of SAP BW can be adversely affected
- Many times SAP BW lends visibility to poor master data standards in its sources
- Establish active governance on the source systems
  - Audit the master data to determine the correctness/completeness of data
  - Utilize mandatory fields
- After go-live: Plan to spend a lot of time in the source system chasing down issues

# Let's Just Fix that Junk Data in BW

- SAP BW does allow for the transformation of data; however:
  - ♦ RESIST, RESIST, RESIST all requests to FIX data in SAP BW
- Practice saying:

“BW is a reflection of data in its source — fix it there and we would be glad to pull the changed data”
- Why?
  - ♦ Violation of audit/data standards
  - ♦ Reloading may just bring back the bad data
  - ♦ You are tied to these “fixes” forever
  - ♦ You place the burden in the wrong place
  - ♦ You provide no incentive to keep the data clean in the first place



- Get business to commit to “one version of the truth”
  - Single source for data
- Make sure the process teams commit to auditing and fixing master data
- Keep on top of configuration changes
- Be especially wary of interfaces/custom programs that push data into source outside of its norm
- Test every scenario you can dream up
- Be prepared for several reloads of SAP BW in the first few weeks/months
  - Schedule system downtime right after go-live (you will need it)
  - Plan on weekend/late night loads after go-live, and prepare your team in advance

# What We'll Cover ...

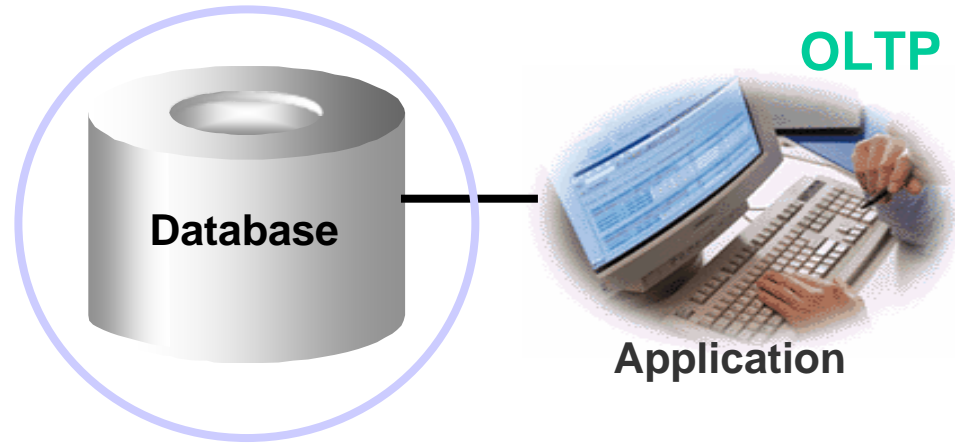
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# Performance Tuning in SAP BW

## OLTP systems

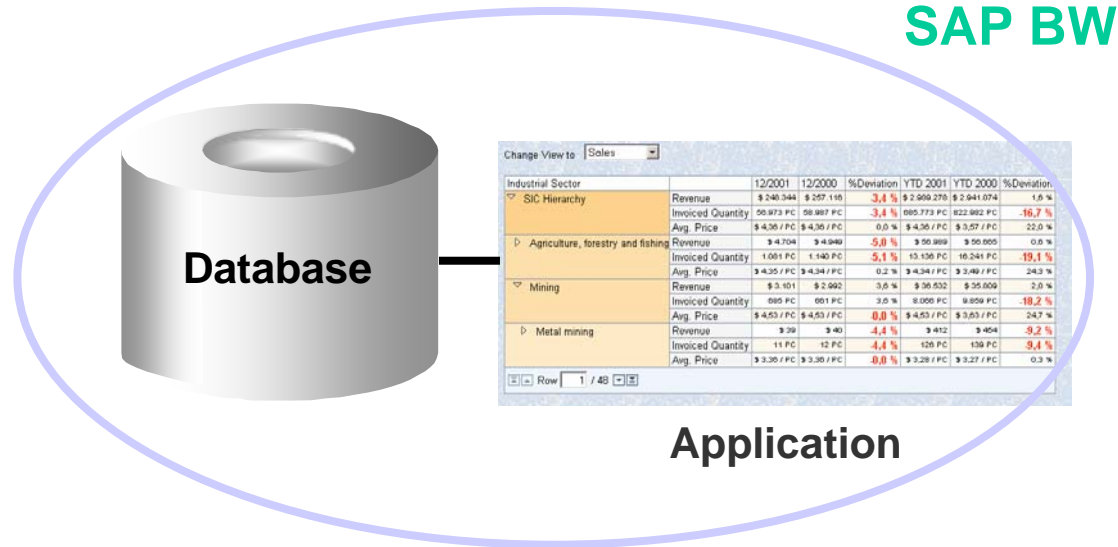
- Application development and performance tuning separate
- Performance tuning by Basis experts



Performance tuning

## SAP BW

*Performance must be designed into the SAP BW solution!*



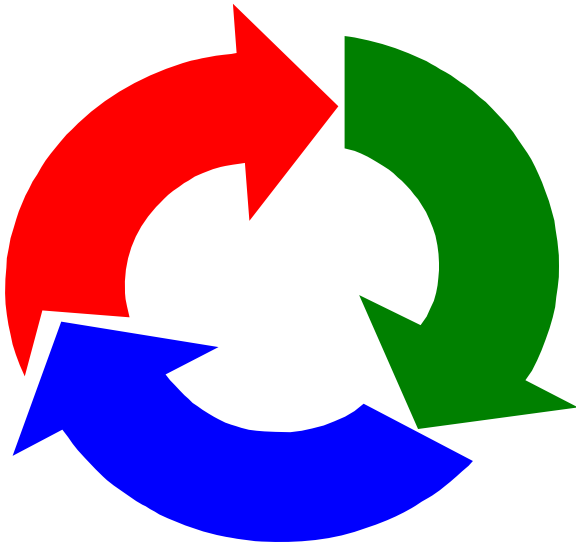
Performance tuning

Change View to Sales		12/2001	12/2000	%Deviation	YTD 2001	YTD 2000	%Deviation
Industrial Sector	Revenue	\$ 240,344	\$ 257,158	-3.4 %	\$ 2,909,270	\$ 2,941,074	-1.6 %
∇ SIC Hierarchy	Invoiced Quantity	50,973 / FC	58,987 / FC	-3.4 %	685,773 / FC	822,982 / FC	-16.7 %
	Avg. Price	\$ 4.36 / FC	\$ 4.36 / FC	0.0 %	\$ 4.36 / FC	\$ 3.57 / FC	22.0 %
▷ Agriculture, forestry and fishing	Revenue	\$ 4,704	\$ 4,949	-5.0 %	\$ 56,969	\$ 56,005	0.6 %
	Invoiced Quantity	1,081 / FC	1,140 / FC	-5.1 %	13,136 / FC	16,241 / FC	-19.1 %
	Avg. Price	\$ 4.35 / FC	\$ 4.34 / FC	0.2 %	\$ 4.34 / FC	\$ 3.46 / FC	24.3 %
∇ Mining	Revenue	\$ 3,101	\$ 2,992	3.6 %	\$ 36,032	\$ 35,809	2.0 %
	Invoiced Quantity	685 / FC	661 / FC	3.6 %	8,000 / FC	8,859 / FC	-10.2 %
	Avg. Price	\$ 4.53 / FC	\$ 4.53 / FC	0.0 %	\$ 4.53 / FC	\$ 3.93 / FC	24.7 %
▷ Metal mining	Revenue	\$ 29	\$ 40	-4.1 %	\$ 412	\$ 464	-9.2 %
	Invoiced Quantity	11 / FC	12 / FC	-4.1 %	126 / FC	136 / FC	-9.4 %
	Avg. Price	\$ 3.30 / FC	\$ 3.30 / FC	-0.0 %	\$ 3.28 / FC	\$ 3.27 / FC	0.3 %

Application

# Performance Tuning in SAP BW

- Performance tuning is an ongoing task
  - ♦ As the environment matures, several other things occur:
    - ▶ Increased data volume, so query performance can suffer
    - ▶ Batch loading time increases with increased volume
    - ▶ Users are getting more sophisticated in their analysis
    - ▶ The business is changing, new metrics are being analyzed



# Tips and Tricks for Measuring Performance in SAP BW

- Objective measurements of performance are necessary
  - Load performance
  - Query performance
- Implement the **statistics cubes** in SAP BW
  - Schedule these InfoCubes to be loaded in batch nightly
  - Use the standard content queries to monitor queries
  - Address performance issues for those queries that have:
    - ▶ High usage statistics
    - ▶ High mean query time
  - This keeps your performance-tuning efforts yielding the most “bang for the buck”
- The BI capabilities of SAP NetWeaver 2004s have enhanced statistics!

# Establishing a Performance Sub-Team

- Many performance issues become a “hot potato”
  - Each group passes the issue to another
- Establish a sub-team to concentrate on performance
- This is not a full-time job — staff the team with members of Basis, BW development, database, and business
- This makes sure that performance issues are tracked and tackled together
- Use SAP BW statistics to measure performance and to track progress

# The Top SAP BW Performance Tips ...



- Stay current on support packages
- Police the data model
- Implement partitioning
- Use time-dependent master data carefully
- Implement compression
- Implement OLAP cache
- Implement aggregates
- Monitor SAP BW statistics



# SAP NetWeaver 2004s - BI Accelerator

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- Very promising tool
- Quite expensive
  - ♦ Understand ALL the costs before you plan to use this
- Would be used on a subset of your model
  - ♦ Not all InfoProviders are available to be used with the BI Accelerator
- Is not a replacement for a bad data model in SAP BW

## What We'll Cover ...

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# BW Technical Concerns and Challenges

- The SAP BW team works with the Basis/technology team much more than with the SAP R/3 team
  - ♦ Data volume
  - ♦ Sizing
  - ♦ Indexes
  - ♦ Partitioning
  - ♦ Performance



*Tip*

Establish a clear line of communication between the Basis team, DBA, and the SAP BW development team

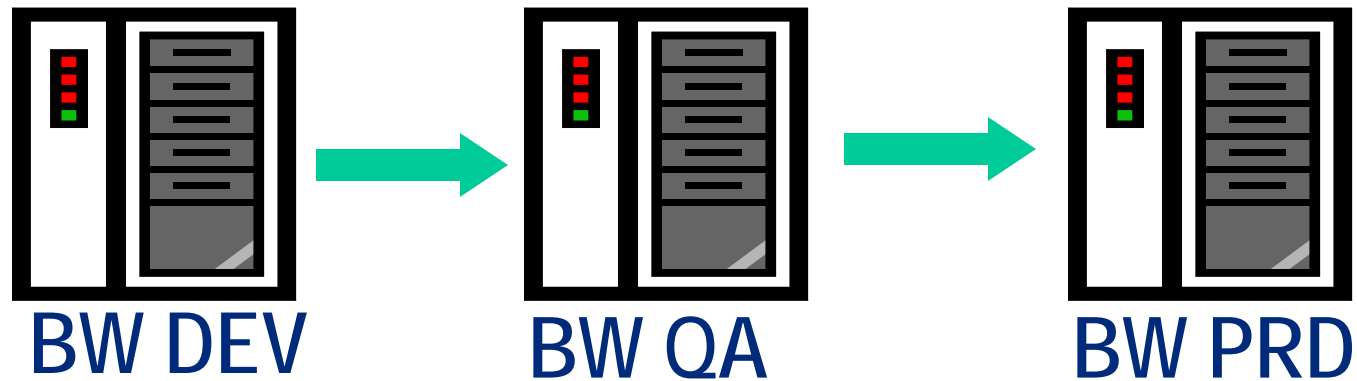
# SAP BW Transports – Moving Configuration

- To get a SAP BW configuration from one system to another, a transport is used — just as in SAP R/3 or ECC environments
- SAP BW transports are typically much more volatile than R/3 or ECC transports
- SAP BW has many more dependencies and thus more opportunity for failure
- Common transport issues
  - ♦ Missing dependent objects in SAP BW
  - ♦ Missing dependent data sources in source system
  - ♦ Transports out of order
  - ♦ Mystery ... ?

# SAP BW Transport Tips

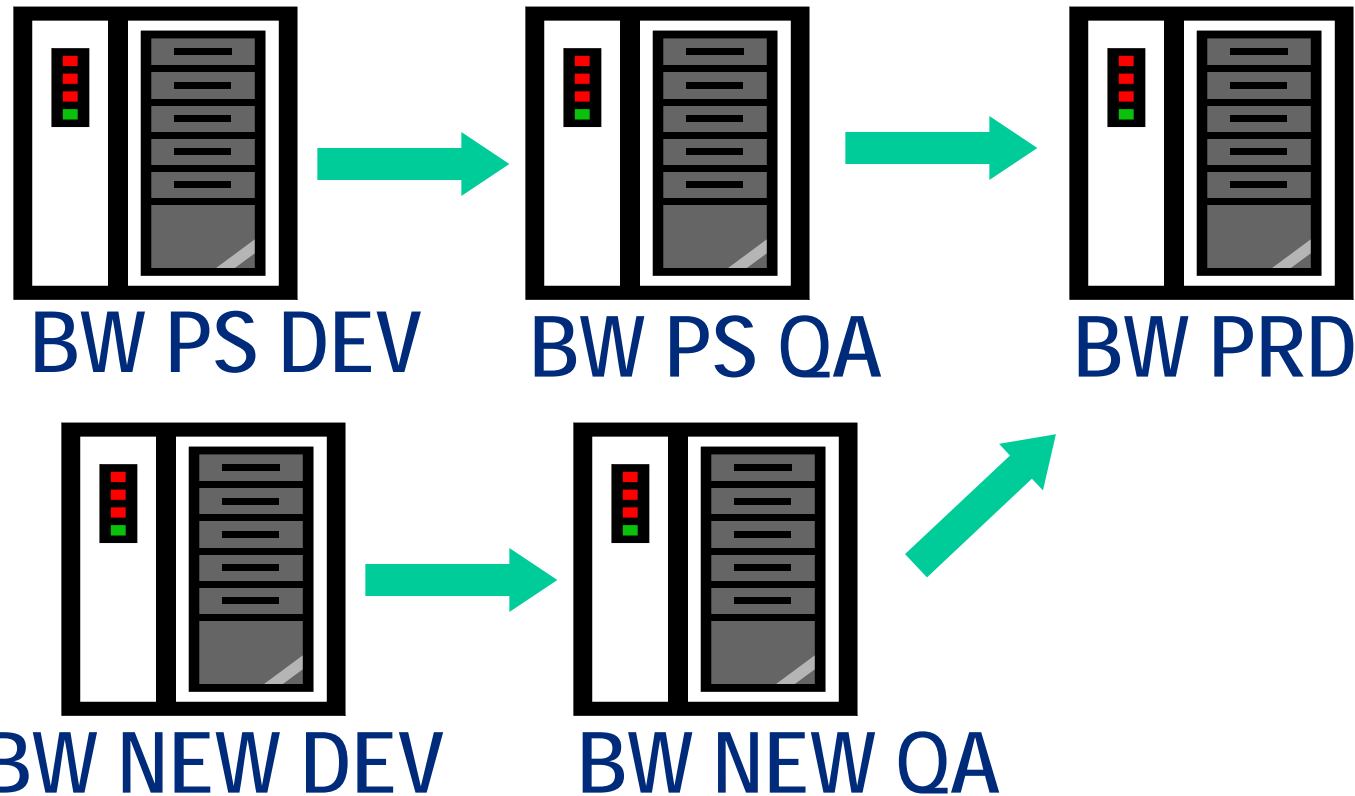
- **Track transports diligently**
  - ♦ This can be done via Solution Manager
  - ♦ Keep track of order and status of each transport
- **Take extremely good notes**
  - ♦ To fix a SAP BW transport, another is usually created, then the original sent again — document this clearly
- **Break up the transports**
  - ♦ Do not group too much into one transport
  - ♦ The best projects I have witnessed separate transports by object type; for example, InfoObjects in one transport, ODS in another, etc.
- **SAP NetWeaver BI does not make transports any easier**

# Developing the Landscape for your Multiple Rollout Strategy



- After go-live, the existing environment becomes the “production support” environment
- So where do I do new development...or my upgrade to SAP NetWeaver 2004s?

# Wave Development ...



- New development occurs in the new DEV system
- Any production support fix is manually integrated into the SAP BW NEW Dev

# Should you Develop Queries in Production?

- Many customers develop queries directly in production
  - This is a big debate among customers
  - PROS:
    - ▶ Quick deployment
    - ▶ Real production data can be used to test queries
  - CONS:
    - ▶ Hard to enforce governance
    - ▶ Performance issues may arise
    - ▶ Lack of understanding of the data leads to incorrect assumptions
- In my experience the best way to achieve optimal performance and standardize queries is to not allow query development in production
  - Develop all queries in the development environment and transport through the landscape (DEV → QA → PROD)



- Stay current on SAP BW support packages
  - ♦ Have a clear support package strategy
- Be wary of implementing new technology without robust testing
  - ♦ Third-party scheduler — lost a lot of time on integration
- Think about the solution from end-to-end
  - ♦ Consider network latency
  - ♦ Ensure desktops rolled out with SAPGUI
  - ♦ Check front-end patches on user machines
  - ♦ Verify authorizations
  - ♦ Validate proper role assignment of users

# ABAP in SAP BW

- Expect to use ABAP coding in your SAP BW implementation
  - ♦ Transformation of data
  - ♦ Custom selection of data
  - ♦ Extract supplementation (add missing fields in the extractor)
  - ♦ Default values for query variables
  - ♦ Determine values in the query at runtime
- Although you should expect to use ABAP for some transformation and even user exits, this should be the last resort
  - ♦ Look to other solutions first ...
  - ♦ Excessive ABAP becomes a burden during upgrade/patches
  - ♦ Clearly document all code

## ABAP in SAP BW (cont.)



Tip

- Most ABAP is coded by SAP BW team — make sure you have adequate ABAP resources
- Most SAP BW consultants only have a cursory knowledge of ABAP
- Since SAP BW code is usually iterative, one small performance issue can be magnified
- Plan to audit all ABAP code
  - ♦ ABAP standards
  - ♦ Performance

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# Getting the Right Help ...

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- SAP BW is difficult to implement without adequate consulting resources
  - ♦ Learning curve on product is quite steep
  - ♦ Decisions made early in a SAP BW project build the infrastructure and are difficult to reverse
    - ▶ A poor data model hurts everyone
  - ♦ An experienced data architect is crucial on a SAP BW project

## Getting the Right Help ... (cont.)

- A good SAP BW consultant can do in a few hours what may take several less-experienced consultants 10× that
  - ♦ A good consultant quickly gets by the inevitable gotchas
    - ▶ Failed data loads
    - ▶ Transformation of data issues
    - ▶ Data harmonization issues
    - ▶ ABAP coding issues
    - ▶ SAP R/3 integration issues
    - ▶ Notes issues

# SAP BW Project Management

- Qualified, experienced SAP BW project management is key
- SAP BW product education is a **must**, not a “nice to have”



Tip

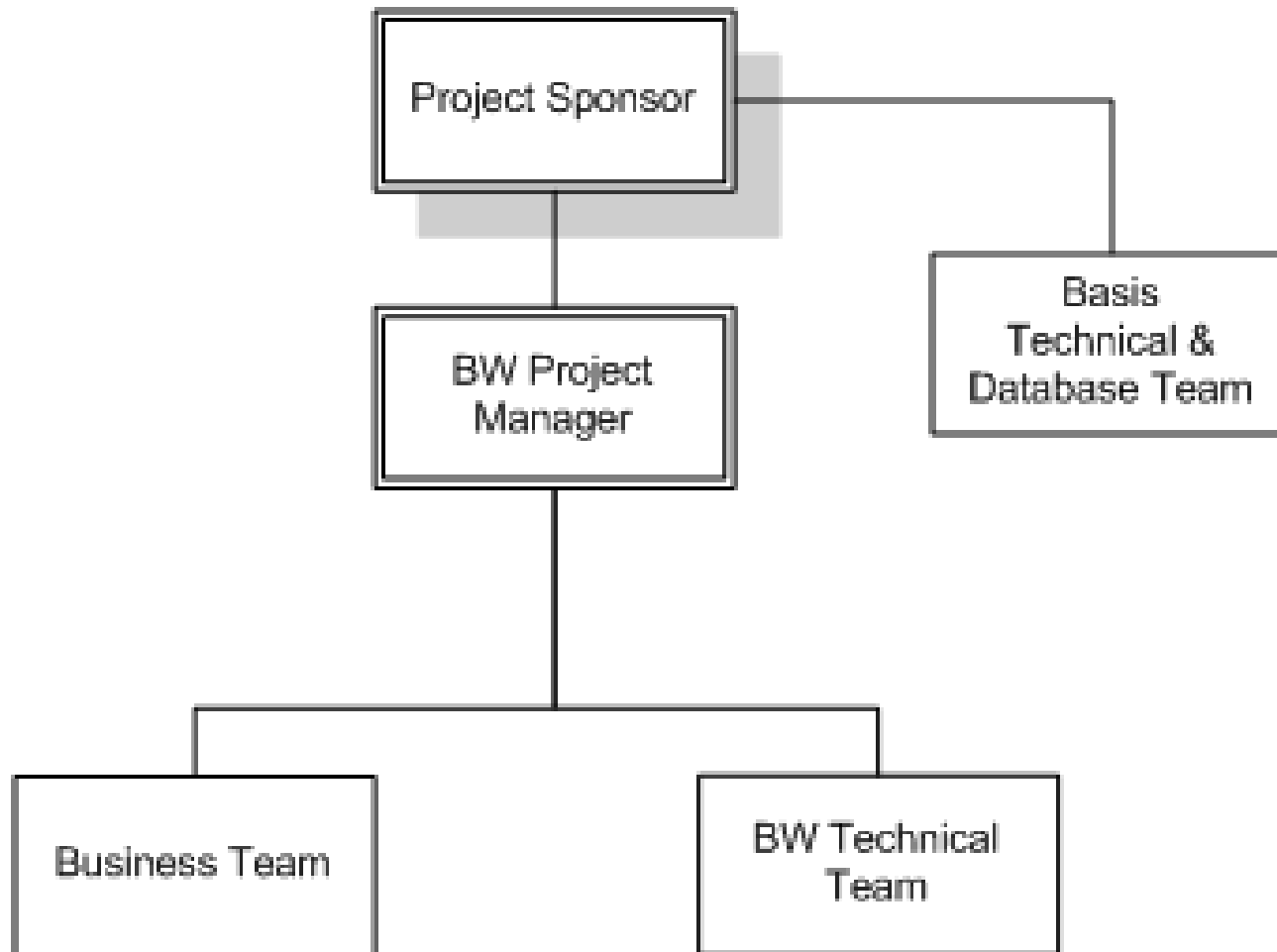
- This is for the project manager and the project team
- You cannot be an effective project manager without a clear knowledge of SAP BW
  - This is best gained by getting your hands “dirty” doing some configuration in SAP BW
  - It gives you product knowledge and an understanding of issues

# Choosing Consulting Resources

- Insist on interviewing all consultants
- Don't overlook the social/communication skills
- Ask a lot of open-ended interview questions
- Without experience, a consultant is almost useless
- Do not be afraid to send a poor consultant packing



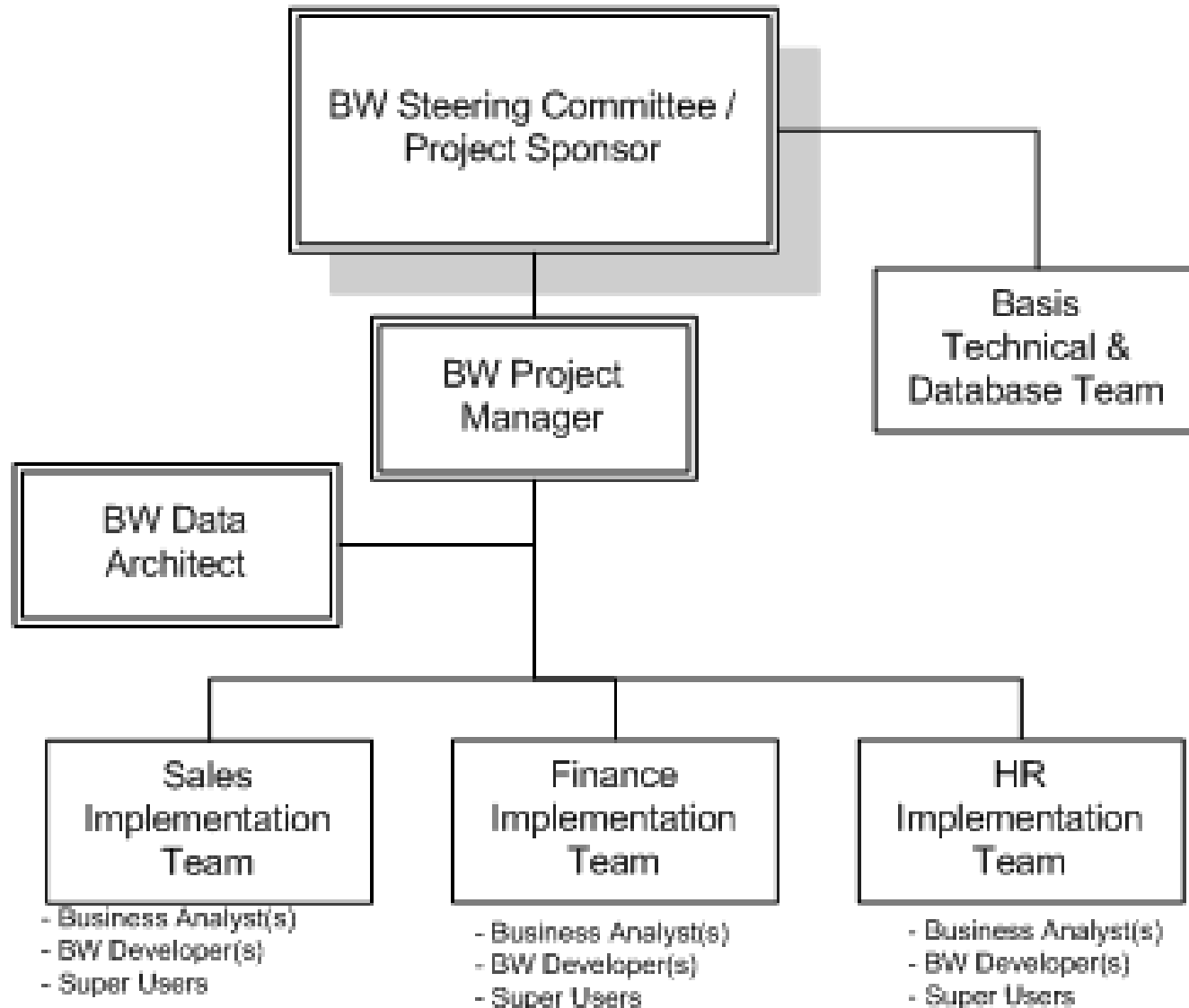
# Typical SAP BW Project Team — Small Team



- Business Analyst(s)
- Super Users / Presentation Developers

- BW Architect
- BW Developer(s)

# Typical SAP BW Project Team — Multiple Subject Areas



# Common Resource Issues on Projects

- Inadequate internal resources
  - ♦ SAP BW should not be implemented using a majority of external (consultant) resources
    - ▶ Optimal mix — 20-30% external resources
    - ▶ This does increase the time to implement, since internal resources get “up to speed” on the product
    - ▶ Be careful — this is a highly desirable skill set in the market
      - *Even the Red Sox’s Johnny Damon left for the money*
  - ♦ Do not allow a rift to occur between SAP resources, external parties, and your consulting partner resources
    - ▶ Make it clear that this will not be tolerated
      - *Causes knowledge sharing to stop*
      - *People may start acting defensively in order to deflect possible future blame*

# Audit the BW Environment

- Bring in third-party experienced resources from time to time to do a “health check”
  - ♦ Do not limit this to audit from a technology standpoint ...
    - ▶ Many clients only address this via EarlyWatch
    - ▶ EarlyWatch does not provide the full picture
- Look at the SAP BW system from an applications point of view
  - ♦ Outsider viewpoint
  - ♦ This can also be accomplished via SAP with their solution review program



# Should you Outsource SAP BW Development?

- Why not outsource the development and configuration overseas to a third-party solution center?
- Limited success in SAP BW — why?
  - Outsourcing works well with clearly defined functionality with limited reach
  - Works great for SAP R/3 ABAP work; much of it is standalone and specifications can be clearly communicated
    - ▶ SAP BW is usually quite dynamic
  - Much of SAP BW involves a lot of “back and forth” with the business users and the transactional system configuration and extraction teams
    - ▶ SAP BW environment is usually quite complex (SAP R/3, outside data sources)
    - ▶ Data questions/concerns — data integrity/data harmonization issues
    - ▶ Query presentation — a lot of back and forth
  - SAP BW has a steep learning curve, difficult outsource resources that can quickly understand business requirements, and data modeling strategies



**Bottom line: In my experience, the SAP BW development environment does not lend itself well to outsourcing**

# Outsourcing SAP BW Production Support

- Can I outsource SAP BW once I go live? The outsource resources would handle data load failures, issue tracking, and resolution post go-live
- Mixed success — why?
  - ♦ Depends on:
    - ▶ Role of production support
    - ▶ Complexity of environment
    - ▶ Stability
    - ▶ Data quality
    - ▶ Knowledge transfer
    - ▶ SAP BW skill set
    - ▶ Continuity of resources
- Just keep in mind:

"If you know neither the enemy nor yourself, you will succumb in every battle."

-Sun Tzu-

# Why is the Success of Outsourced SAP BW Production Support Mixed?



Heads Up!

- The large consulting companies each have “solution centers” to handle this type of work, but they vary widely in the quality of their resources
  - It is getting harder to keep good people, demand in SAP BW is exploding, and production support is used as a stepping stone for many
- “78 percent of executives who have outsourced an IT function have had to terminate that agreement early”

*DiamondCluster International*

  - Why?
    - ▶ Poor service
    - ▶ Change in strategic direction
    - ▶ Costs

# Bottom Line: Outsourcing SAP BW Production Support

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- You may be able to have some success outsourcing production support, freeing your team up for new development requirements
  - ♦ You will have to continually manage the production support environment
  - ♦ Expect a great deal of turnover

- Develop “super users” from the business community
- Pair consultants with employees — make the employee ultimately responsible
- Consultants’ number one job should be knowledge transfer
- Consultants should also be responsible for skill transfer
  - ♦ Schedule sessions to go over functionality tips in SAP BW




# SAP NetWeaver BI 2004s Resource Tips

- Have a basis team member with an understanding of the Java stack
- It takes approx. 1 month to get a consultant proficient in the BI capabilities of SAP NetWeaver BI 2004s that was a BW 3.x developer
- Plan to have an applications developer with some knowledge of the Web Applications Designer (WAD)
- There are many tools that fall in-between basis and application – stay on top of these
  - ♦ Adobe Integration, BI Admin Cockpit, BI Accelerator
- Expect to dedicate time looking for SAP notes

# Other SAP NetWeaver BI 2004s Tips

- A useful site before upgrade...[service.sap.com/pam](http://service.sap.com/pam)

## Product Availability Matrix

General Data	Database Platforms	Operating Systems	Web Browser Platforms	Web Servers	JEE	JSE Platforms	JDBC Databases
<b>SAP NETWEAVER 2004S</b> <span style="float: right;">Print... </span>							
Release Type	Standard						
Basis Release	SAP BASIS 7.00						
Upgrade to SAP NETWEAVER 2004S from	SAP BW 2.0B; SAP BW 2.1C; SAP BW 3.0B; SAP BW 3.1 CONTENT; SAP EXCHANGEINFRASTRUCTURE 2.0; SAP MOBILE ENGINE 2.1; SAP NETWEAVER 04; SAP WEB AS 6.20						
Download	<a href="http://service.sap.com/swdc">http://service.sap.com/swdc</a>						
Availability	<b>Delivery Date</b>				<b>Status</b>	<b>Date</b>	<b>More Information ...</b>
	Release to Customer				Available	24.10.2005	
	Default Release				Available	06.06.2006	
End of Maintenance	<b>Maintenance Type</b>					<b>Date</b>	<b>More Information ...</b>
	End of mainstream maintenance					01.02.2013	
	End of extended maintenance					01.02.2016	
Quick Links	<a href="#">Product Homepage</a>						
	<a href="#">Installation / Upgrade Guide</a>						
	<a href="#">Master Guide</a>						

Do not assume that your entire environment is compatible  
- Check Adobe, Excel, Browser, etc.

# What We'll Cover ...

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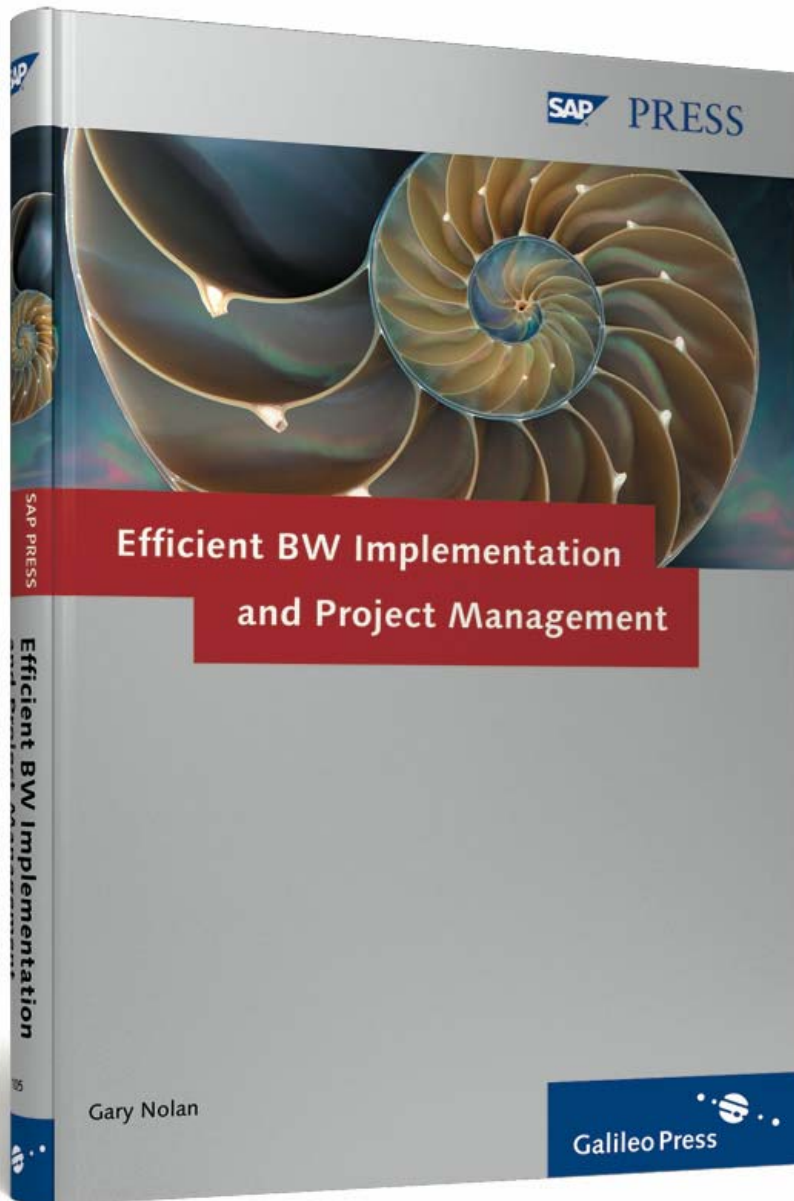
- Data Quality Concerns
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# Resources

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- [BW Expert Publication – www.bwexpertonline.com](http://www.bwexpertonline.com)
- [Efficient BW Implementation and Project Management – SAP Press – coming out April 2007](#)
- Gary Nolan, “Better Star Schema Design Means Better Performance” (*BW Expert*, Volume 2, Issue 8).
- Gary Nolan, “Data Modeling with Time-Dependent Master Data” (*BW Expert*, Volume 2, Issue 4).
- [sdn.sap.com](http://sdn.sap.com) – SAP SDN Network
- [service.sap.com/bi](http://service.sap.com/bi) – Service Marketplace for BW

# Efficient BW Implementation and Project Management



By Gary Nolan

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## 7 Key Points to Take Home

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- Data quality is one of the biggest issues in a SAP BW project
- Make performance a priority — data model for performance
- Create a clear line of communication to the Basis and database teams
- Developing a clear landscape strategy can aid project planning and help ensure efficient implementation
- Audit all ABAP in SAP BW
- Do your best to keep and retain the most experienced SAP BW consultants possible
- Understand the new resource requirements of SAP NetWeaver BI

# Your Turn!

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