

# Operation of SAP-WCM in Hard Coal / Gas – fired Power Plants of RWE Power





Dr. Norbert  
Hippmann

Dr. Norbert Hippmann

RWE Power AG, Essen

Coal and Gas Fired Power Plants, Central Staff

Operations Support

e-mail: [norbert.hippmann@rwe.com](mailto:norbert.hippmann@rwe.com)



Bernd  
Bläser

Bernd Bläser

RWE IT GmbH, Cologne

AC Upstream Solutions

Transmission & Distribution Solutions

e-mail: [bernd.blaeser@rwe.com](mailto:bernd.blaeser@rwe.com)

# Agenda

Introduction of the Division

The Application of SAP at RWE Power

The Application of WCM in the Division of Hard Coal/Gas fired Power Plants

The Release Upgrade to ERP 6.0

The Maintenance Process and its Support by Safety Measures in RWE Hard Coal/Gas fired Power Plants

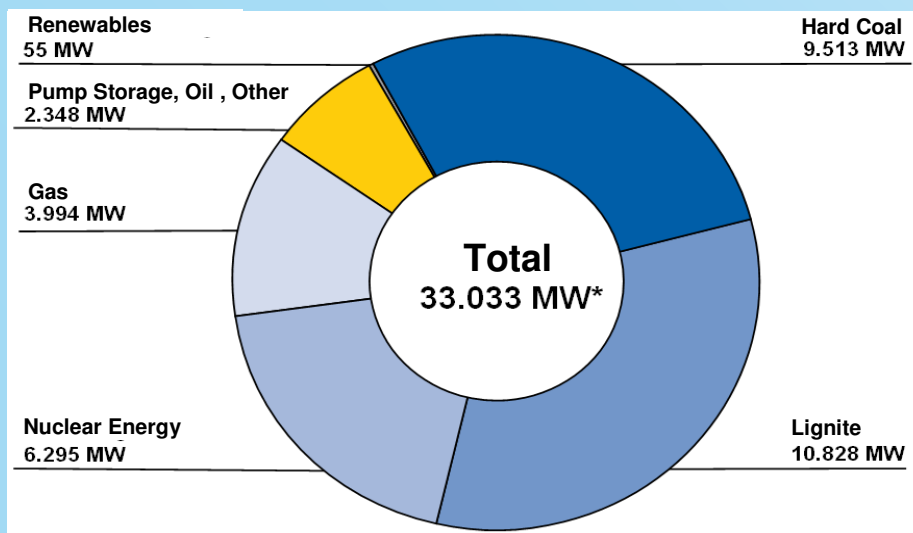
Selected Features of our WCM-Application (Life Presentation)

Results and Experiences

# RWE Power AG

Total revenue	11,417 Mio. €
Number of employees	17,505
Power plant capacity*	33,033 MW
Electricity generation*	180 bln. kWh

\* Including power plant capacity, which is not directly owned by RWE but accessible based on long-term contracts.



# Division “Hard Coal and Gas Fired Power Plants”(1)

## Power Plants Cluster West



**PP Huckingen**

recovery gas 2x290 MW<sub>n</sub>



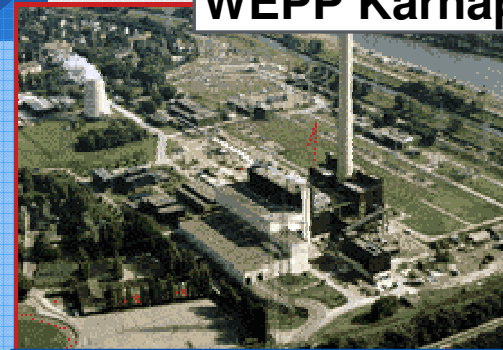
**PP Hamborn**

Thyssen Krupp Stahl  
recovery gas 225 MW<sub>n</sub>  
150 MW<sub>th</sub> (com. heating)

**CCPP BASF  
Ludwigshafen**



CCGT gas and steam plant  
390 MW<sub>n</sub>; 410 MW<sub>th</sub>



**WEPP Karnap**

waste-to-energy plant 37 MW<sub>n</sub>  
130 MW<sub>th</sub>



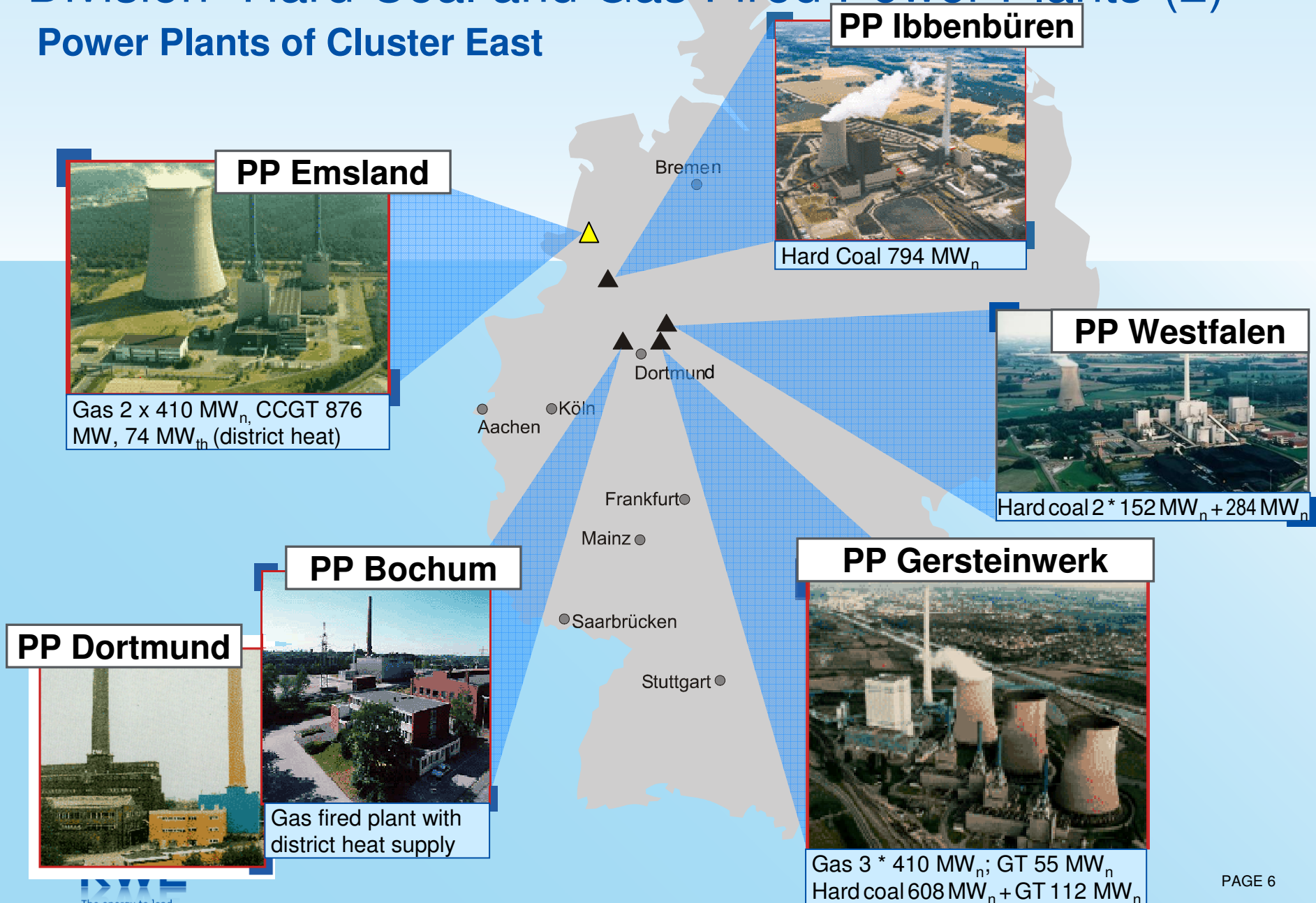
**CCPP Bayer  
Dormagen**

CCGT gas and steam plant max.  
561 MW<sub>el</sub>; max. 395 MW<sub>th</sub>



# Division “Hard Coal and Gas Fired Power Plants”(2)

## Power Plants of Cluster East



# Application of SAP in the Power Plants of RWE Power AG (1)

Divisions:

Hard Coal / Gas

Lignite

Nuclear

Hydro



Number of Power Plants (only RWE owned):	20 with 25 GW <sub>el</sub> capacity
--	--------------------------------------

Number of SAP-User in RWE Power	7,800
---------------------------------	-------

Number of PM-User	5,600
-------------------	-------

Number of Notifications per Year (Generation)	90,000
---	--------

Number of Work Orders per Year (Generation)	15,000
---	--------

# Application of SAP in the Power Plants of RWE Power AG (2)

01.07.1996: RWE started developing their SAP Operational System

01.09.1999: SAP-System was put into operation with all components

2000 – 2003: Partitioning and re-merging of the SAP-System due to changes in the organisation structure

2005: Decision to implement SAP-WCM as safety measurement system for the Hard Coal/Gas fired Power Plant Division of RWE Power

28.01.2006: Kick Off Project B@S („Operation by SAP“; German: Betriebsführung mit SAP) – Implementation of SAP-WCM at all sites of the division

28.05.2008: Project B@S successfully finalised: 11 power plants control their safety measures based on SAP-WCM

2009 – 2010: Upgrade to SAP ERP 6.0 including WCM-adaptation





# The Implementation of SAP and WCM into the Power Plants of the Coal and Gas Fired Power Plants Division of RWE Power

# Initial Situation of the SAP Implementation Project

## Cluster West



PM  
MM



COSIM  
TAD  
ATD

## Cluster East



IBFS  
COI

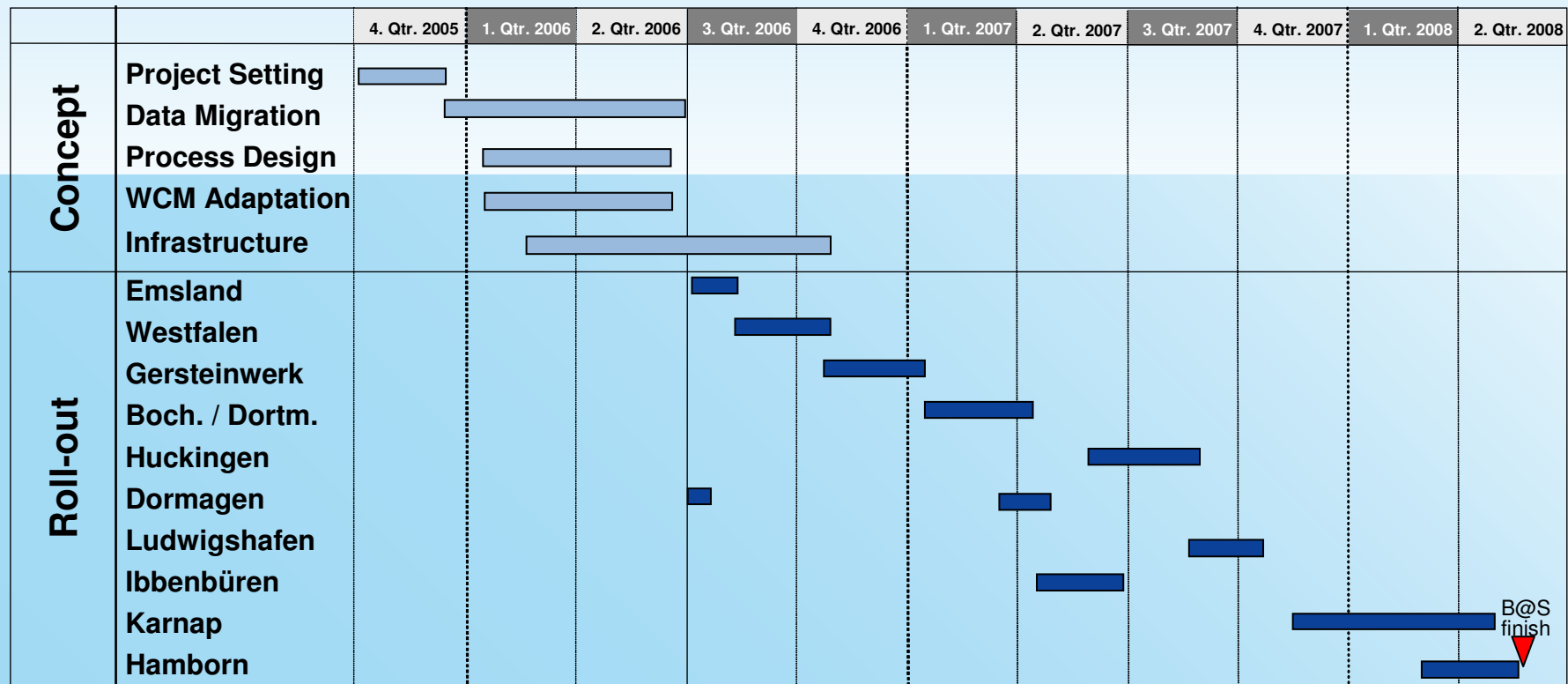
- heterogeneous business processes
- operation of different IT applications
- increased software support costs
- outdated business application
- various non-standardised interfaces
- increased user requirements not satisfactory

# Project Goals of the SAP-Implementation

## Project Goals

- Replacement of the outdated business application → integrative operational management with SAP
- Implementation of homogeneous business processes within the clusters
- Encouragement of the comprehensive business processes
- Involvement of current projects (BetrSichV- operational safety regulation, ZuKo - access supervision, ...)

# Time Schedule of the SAP-Implementation Project



## Roll-out

Preparation Data Enhancement	Training	commissioning	Roll – Out- Support
---------------------------------	----------	---------------	------------------------

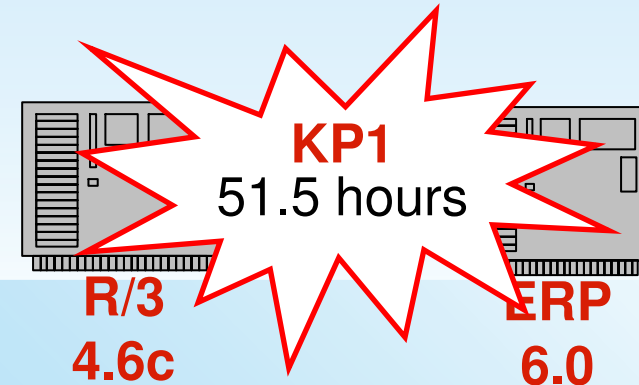
# ERP 6.0 Release Upgrade in special consideration of the WCM Application



# Release change 4.6c to ERP 6.0/EHP (1)

## General key aspects of activity

- Duration of project some 11 month
- Release change executed within 51.5 hours downtime
- Data clearing of 1.2 TB
- Deletion of some 3,000 outdated executive routines
- Change-over of some 4,600 executive routines to unicode
- Reassessment of some 45,000 authorization groups
- No changes and developments during release change
- No activation of Business Functions of EHP 1-4



## Release change 4.6c to ERP 6.0 (EHP4)

### WCM Aspects

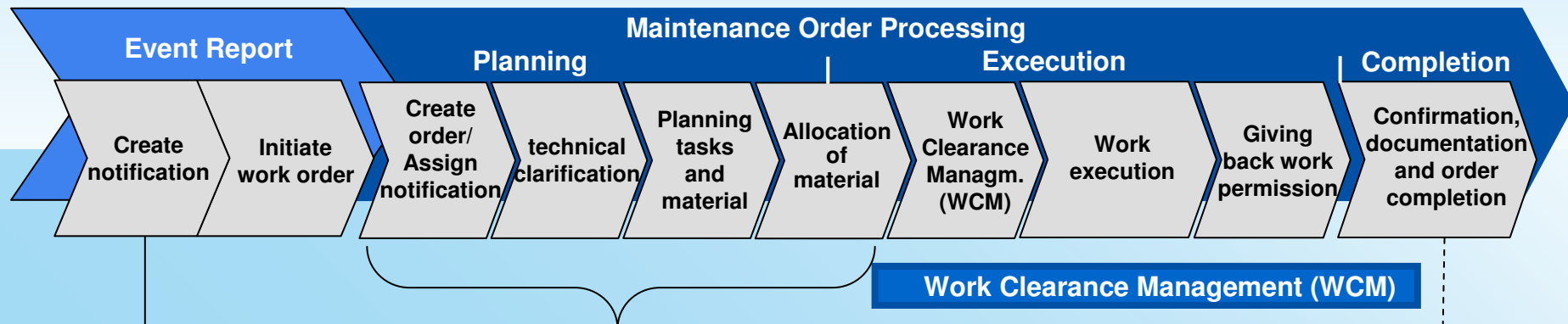


- No incidents during operation interrupt of the production system
- Reduction of system modifications from 13 to 6
- Improved handling of the application by using new standard functions (i. e. pers. settings)
- Production system downtime bridgeover by operating according to the emergency plan (paper-based and Access-Data based process)
- connection to a graphical WCM-tool based on SAP-standard interface
- remarkable improvement of performance
- By using BADI's flexible application design is possible
- Close collaboration with WCM IT GmbH

# Maintenance Process and Safety Measures Organisation in the Coal and Gas Fired Power Plants Division of RWE Power

# Failure based Maintenance Process in the Hard Coal/Gas fired RWE Power Plants

Process control by Workflow management



## Notification

- Description of the event (short and long text)
- Component is concerned select technical location
- Definition of the urgency (priority)
- Responsibility
- Reported by

## Maintenance Planning

- Definition of order type
- Definition of account assignments and the WBS-element
- Define Main work center (responsible for cost control)
- Planning operation tasks
  - Work centers (executing workshops)
  - Amount of work involved in performing the activity
  - Reservation of stock material
  - Order non-stock material
  - Order external services
  - Determine safety measures

## Execution

- Planning of Work safety measures (isolation, fire protection, ...)
- Create work clearance document
- Print out working papers and work permission
- Processing Repairs and functional test
- Supervising of involved parties

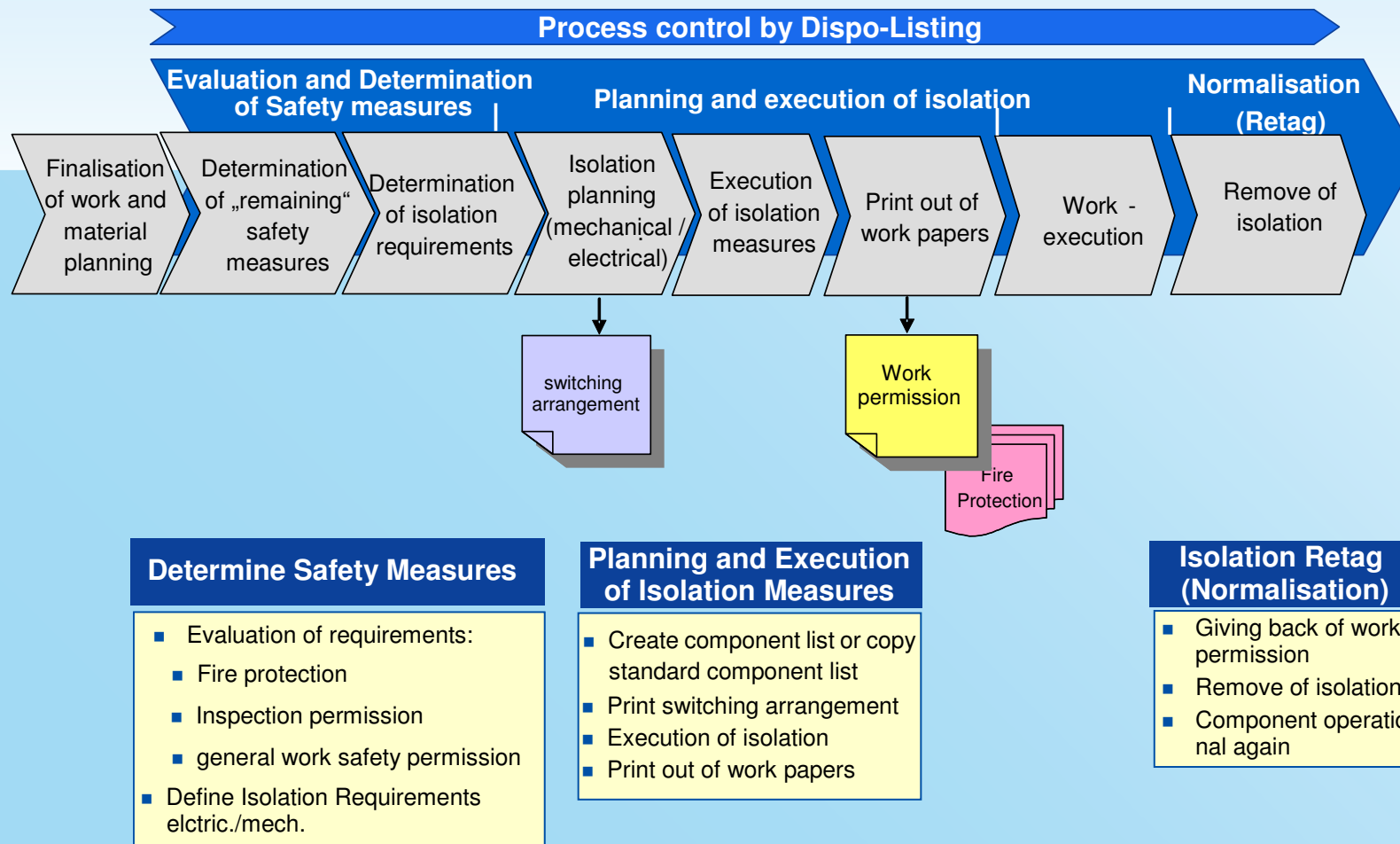
## Completion

- Confirm the work hours, material movement etc.
- Measurement documentation
- Technical finalisation
- Commercial finalisation

## Reporting

- Special reports for different target groups
  - WBS-Element
  - Order costs
  - Technical object costs
  - Failure statistic

# Organisation of Safety Measures in the Hard Coal/Gas fired RWE Power Plants





# Results and Experiences

- Optimal business processes and IT-support require an enterprise adapted SAP-enhancement
- The Implementation Project B@S:
  - High level acceptance by involvement of the site workers in the workshop groups to design the system and roll out concept
  - Preparation, correction and transfer of the master data (Plant components, materials, ...) from the systems which have to be replaced to the new SAP-System
  - Comprehensive role based training of the potential users (different programme between shift and maintenance departments up to 5 days for each worker)
  - Necessity of a sequential roll out in the several sites with steady increase of operational know how („no mistakes were made twice“).
  - After-Roll-Out-Support and Mentoring up to some six weeks with up to four trainers
- Operational experiences
  - Stabilisation and increasing of long range networks performance (some 100 km, centralised data servers) due to steady growing data quantities is required
  - SAP-availability at week ends (overlap of scheduled IT-downtime and planned weekend maintenance activities in the sites) is to be increased
  - Emergency plan to guarantee safety measures also in case of SAP breakdown

# Thank You for Your Attention!

