

# **Visual Infrastructure Management: The next generation of CAFM-Systems**

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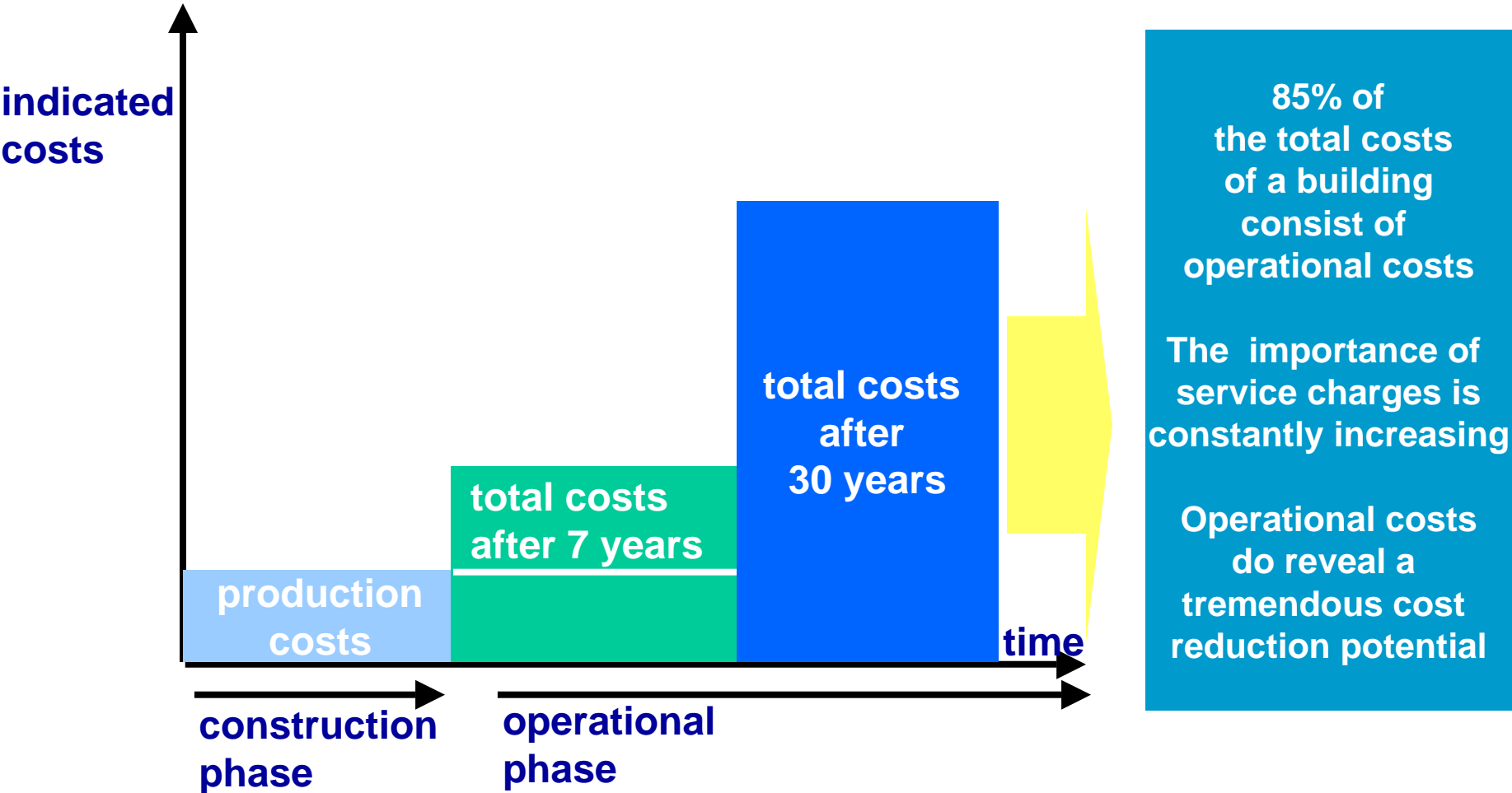
## **Paper Abstract**

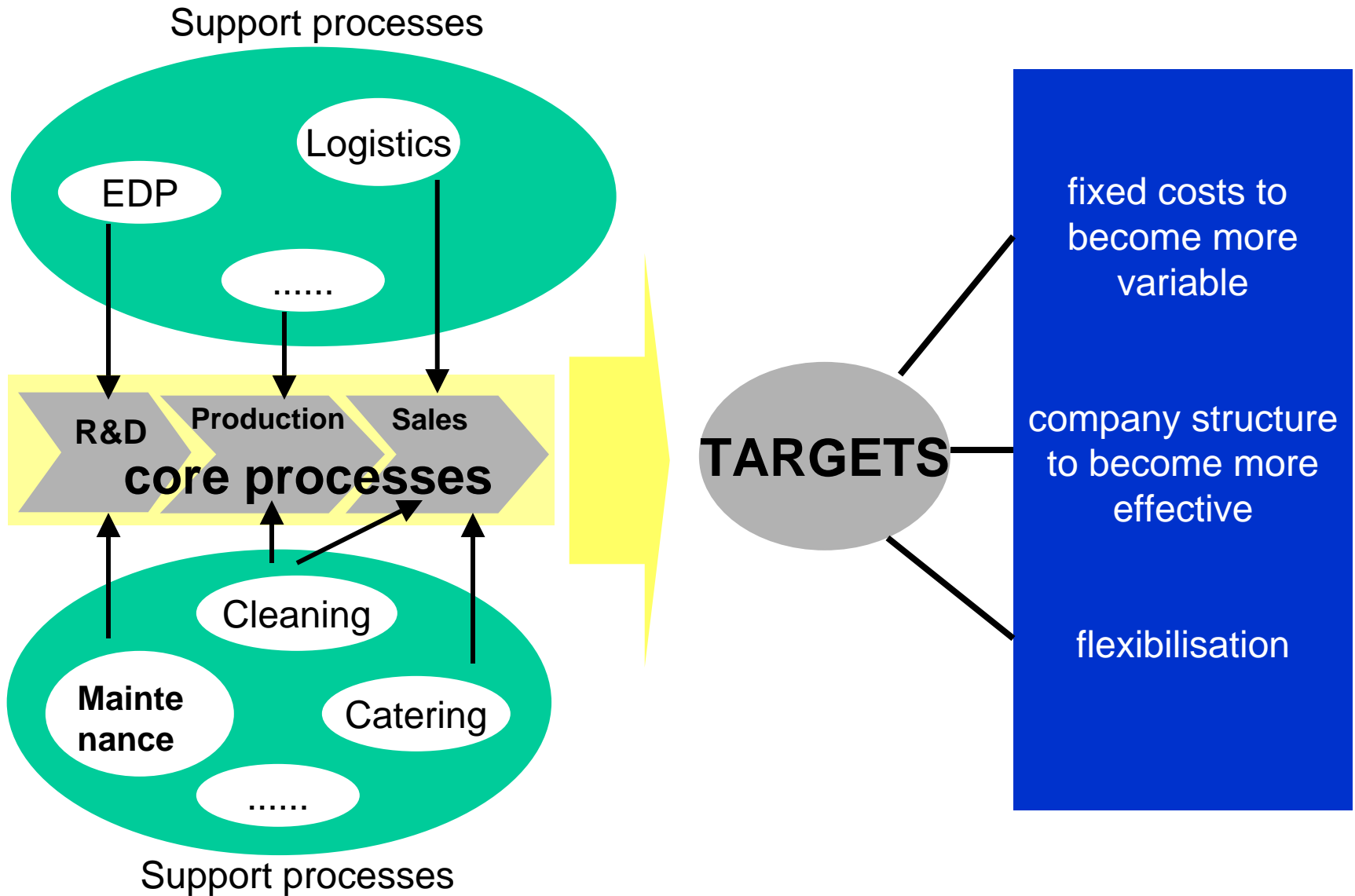
**Innovative Corporate Real Estate Management concepts and decisions require not just a CAFM system but an integrated solution covering both leading GIS technology and solutions offered by ESRI and also robust, well-proven ERP solutions and Building Automation systems. The presentation explains the notion and concept of Visual Infrastructure Management using practical examples from the CREM and FM sectors. It will first point out encouraging experiences then present live VIM concepts based on integrated solutions inside the corporation. In addition to organizational, process related or methodological issues, the presentation will concentrate on the integration into existing IT environments such as ERP, Building Automation, or GIS. Having a much longer history of practical use and a far broader world-wide install base as opposed to CAFM solutions, GIS applications from ESRI, as the world's leading GIS technology supplier, have paved the way to introduce VIM solutions into CREM and Facilities Management, above all in the Public Sector.**

# AGENDA

- 1. FM Situation at present**
- 2. Software Technology today and tomorrow**
- 3. Visual Infrastructure Management-Notion and Concept**
- 4. Examples**
- 5. Management Information Platform**

# Operational and Maintenance Costs exceed production costs approximately after 7 years

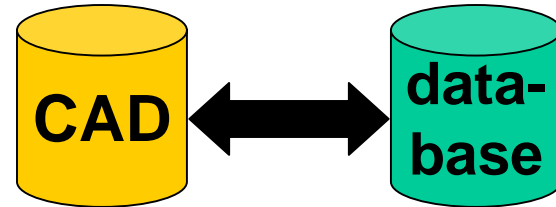




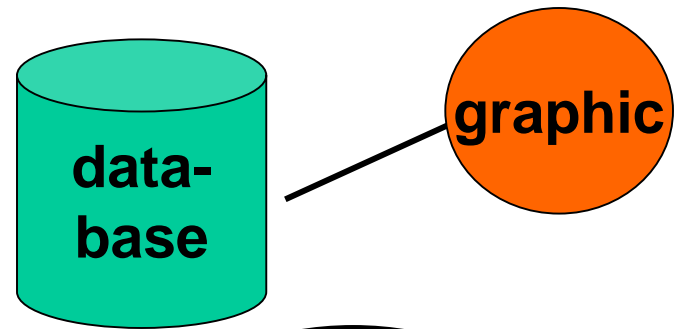
# Software Technology today and tomorrow

# Levels of CAFM-Systems

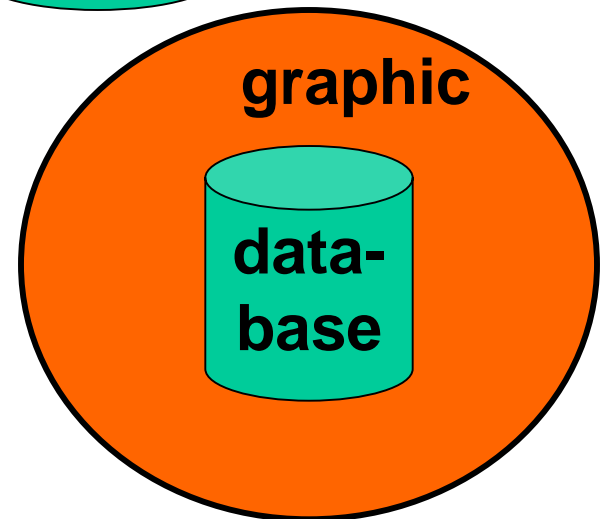
CAFM-Systems  
1st generation



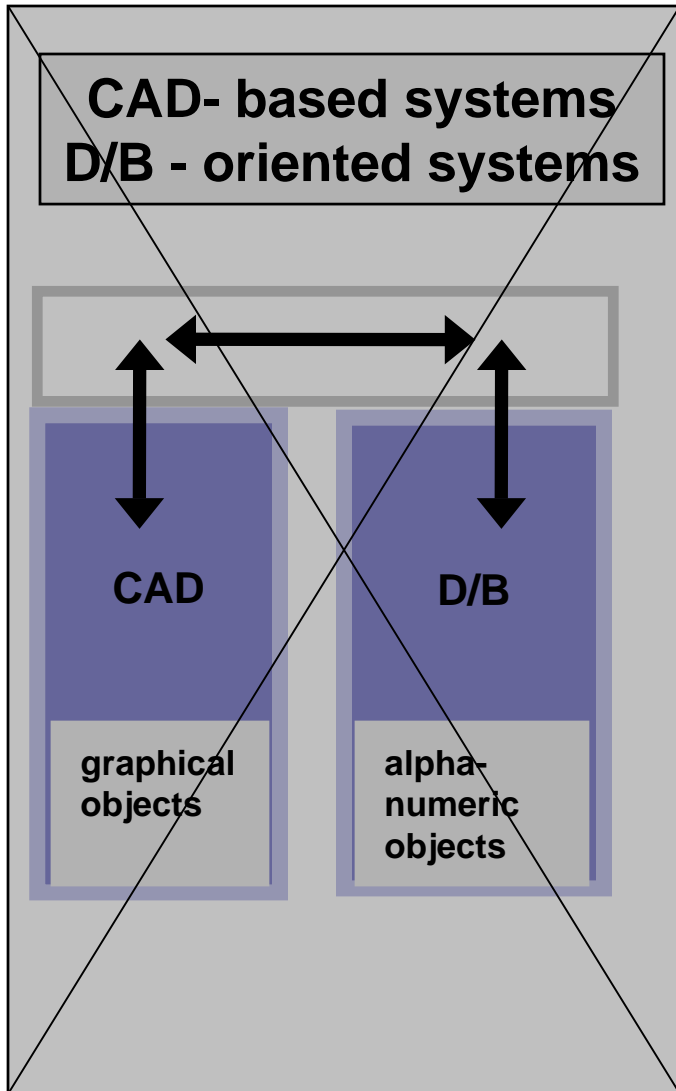
CAFM-Systems  
2nd generation,  
alphanumerical, database  
oriented, with reference to  
graphic



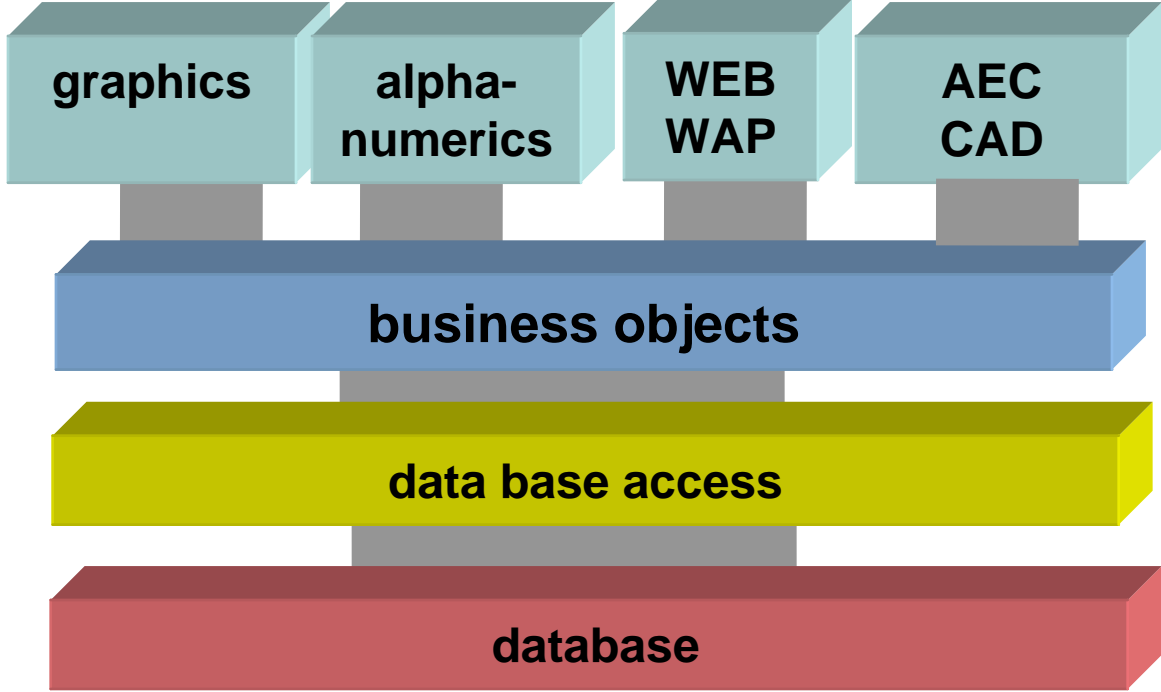
**CAFM-Systems**  
**3rd generation, database**  
**oriented, object**  
**oriented, with integrated**  
**DB-Graphics**



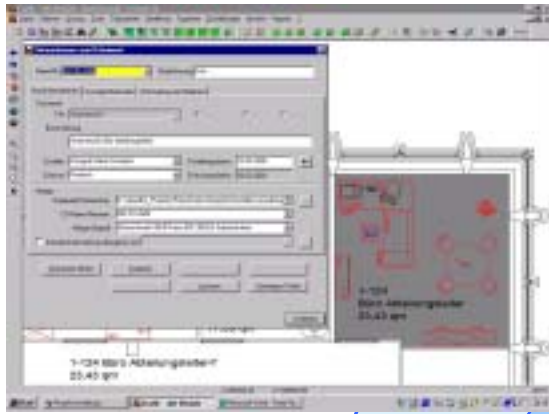




**Integrated Object Oriented Systems:**



**„ 4 layer model“**



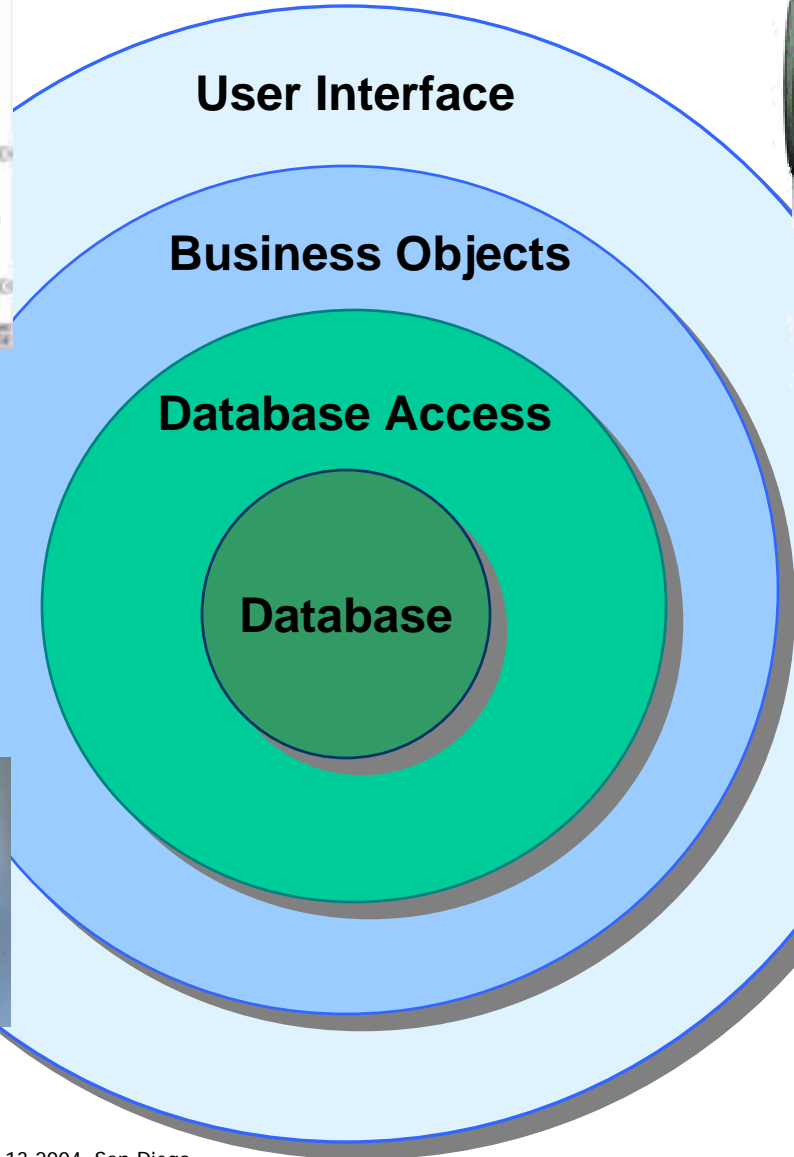
Windows  
FM



web  
WEB FM



August 9-13 2004, San Diego



wireless  
WAP FM



mobile  
WAP FM

# Next Generation CAFM - Technical Features

- **4 layer model**
- **Components technology (COM, DCOM, COM +)**
- **Built on industry standards**
- **Widely used programming tools**
- **Database centric**
- **CAD independent**
- **Web enabled**
- **ASP enabled**

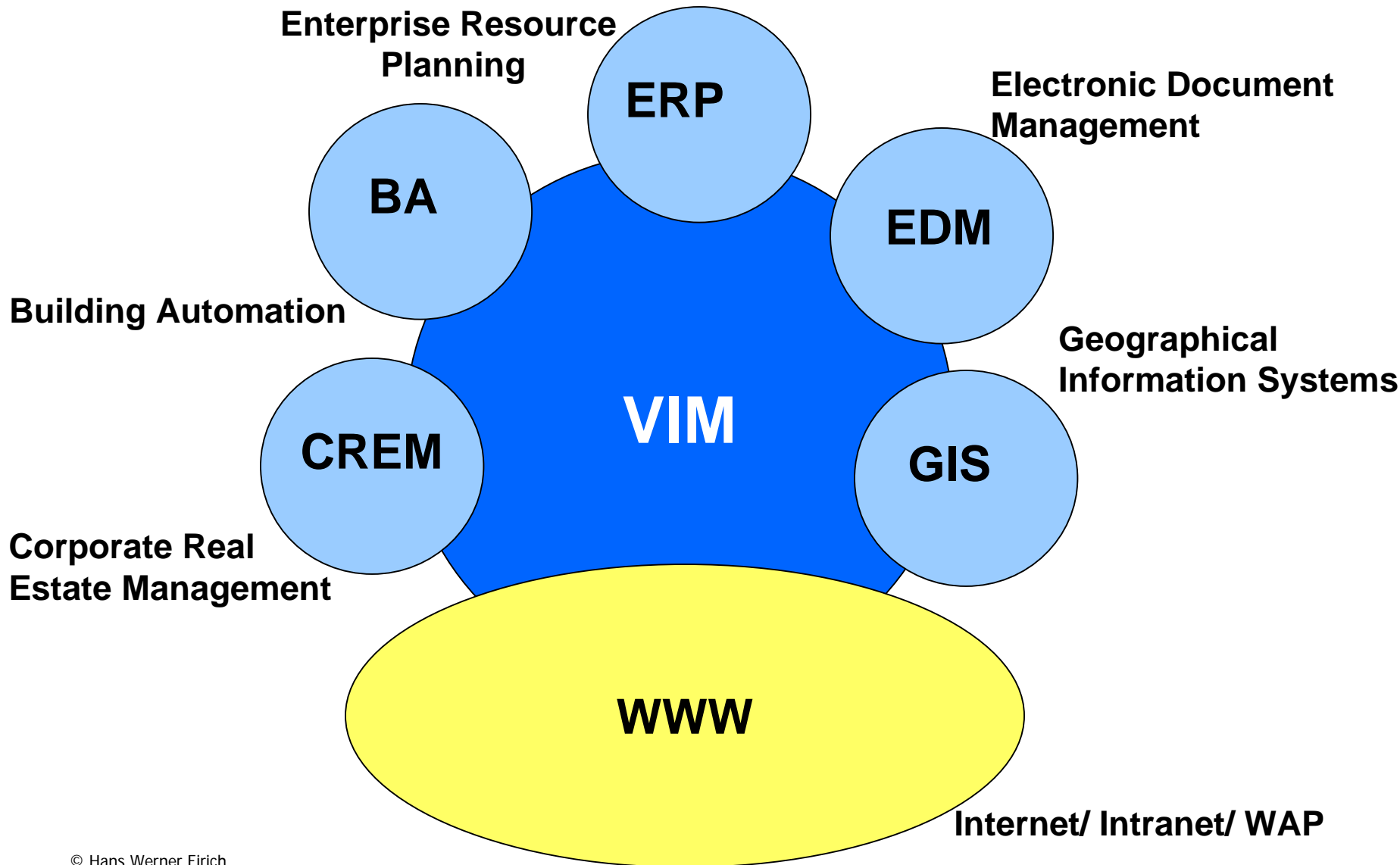
# **VIM (Visual Infrastructure Management)**

## **Notion and Concept**

# VIM - The Notion

- **CAFM as a concept needs to be significantly enhanced and broadened**
- **Complex infrastructural networks must be managed - not just buildings or plants**
- **Complexity can be drastically reduced by visualization tools**

# Visual Infrastructure Management (VIM)



# **The Future: Visual Infrastructure Management**

- **Corporate Real Estate is only one part of an organization's infrastructure**
- **IT and telecom infrastructure as an integral building feature become a competitive weapon**
- **Higher level of services required**
- **Core processes v/s support processes**
- **Heterogeneous building data have to be well organized to avoid high level of complexity**
- **Visualization of and navigation through building and CRE data help to reduce complexity**
- **ERP and VIM are complementing solutions**

# Examples of Existing VIM Solutions

- **Site management**
- **Integrated energy management**
- **Building services installation management**
- **Helpdesk/Service desk**
- **Conference room allocation**
- **Fleet management**
- **Customized visitor information and guidance system**
- **Security (escape procedures and plans)**
- **ERP/VIM combination for rental cost allocation and accounting**



# From VIM to Knowledge Management

- **VIM is a basic precondition for creating information pools**
- **Information pools constitute indispensable knowledge about real estate**
- **Knowledge is actual capital value in RE**
- **CREM must be a form of Knowledge Management**

# Real Estate Analysis

- **Comprehensive and integrated approach**
- **Combines process and object data with costs**
- **Connects primary and secondary value creation**
- **This combination is the only valid basis for integrated Portfolio Management**

# **Information pool as Value Creation**

- **Information pool as a basis for planning security, investment protection and value consolidation**
- **Consistent information and process management is indispensable**
- **Cost reduction potential or revenue increasing options become thus transparent**

# **GIS data as Part of Information pool**

- **Geographical data turn into an integral part of the building information pool**
- **CAFM Solutions as an extension to geographical data allow fully fledged analysis of buildings in their particular geographical environment**
- **Strategic valuation of RE is highly depending on coherent data and information flow from GIS to FM**
- **Consistent information flow represents the basis for strategic Portfolio Management**

# Examples

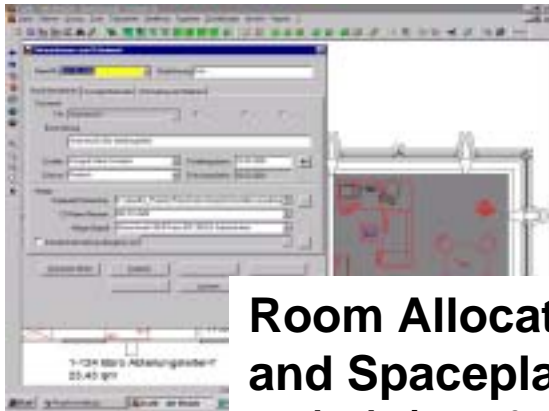
- 1. ERP and CAFM as complementary solutions**
- 2. Integration with Building Automation (BA)**
- 3. Integration with GIS**
- 4. Management Information Platform**

# Combining ERP with Graphics

- **ERP =**        **Leading system for core processes and corporate data**
- **CAFM =**      **Visualization and navigation of graphical building oriented data**

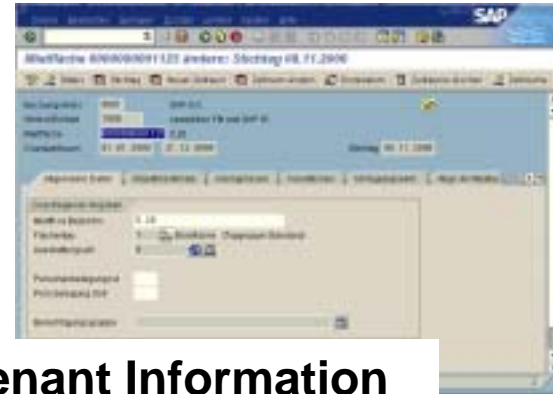
## *Examples:*

- *Flexible space management*
- *Workplace and space allocation*
- *Move management*
- *Maintenance and technical services*
- *Cost allocation*



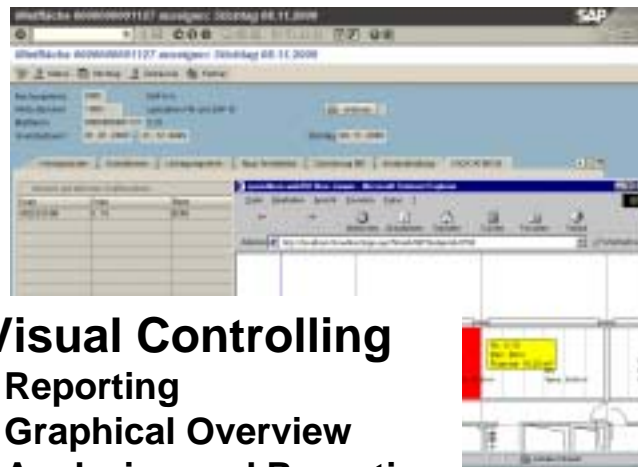
## Room Allocation - and Spaceplanning

- calculating m<sup>2</sup>
- utilization categories
- free or rented spaces



## Tenant Information

- rental units
- tenant rental agreements
- ...



## Visual Controlling

- Reporting
- Graphical Overview
- Analyzing and Reporting

Graphik - alle Module [Buchungssatz] Fenster 1

Datei Flächen Umgang Tools Dokumente Bedienung Topdown Einstellungen Ansicht Fenster 2

0551  
BÜRO  
21.00 qm  
00000003  
4200100001413  
3000 0003 004

**Objektinformation Fläche : 0551 : BÜRO**

Objekt | Merkmale | SAP | Sonstige Merkmale | Kostenstellen | Organisationseinheiten

Strukturdaten  
 Buchungskreis: 0001 Grundstück (GRT):  
 Wirtschaftseinheit (WE): 00002000 Gebäude (GE/B): 00000003

Vertragsdaten  
 Mietvertrag (MV): 2000.0003.001 Mietvertragsart / Anpassungsart: 5 Freie Anpassung  
 Konditionen:

Konditionsart	Gültig ab	K.-Betrag	Währung	Mieter
Grundrente	07.03.2000	504.0000	DEM	
VZ Betriebskost.	07.03.2000	52.5000	DEM	Adresse
VZ Heizkosten	07.03.2000	58.8000	DEM	Mietbeginn: 07.03.2000

Mietende: 30.09.00

Mieteinheitsdaten  
 Mieteinheit (ME): 00000003 Nutzungsart: Flächenvermietung

Flächendaten:

Datum	Fläche	Einheit	Art	Bezeichnung
01.01.1999	62,82	M2	01	Grundfläche

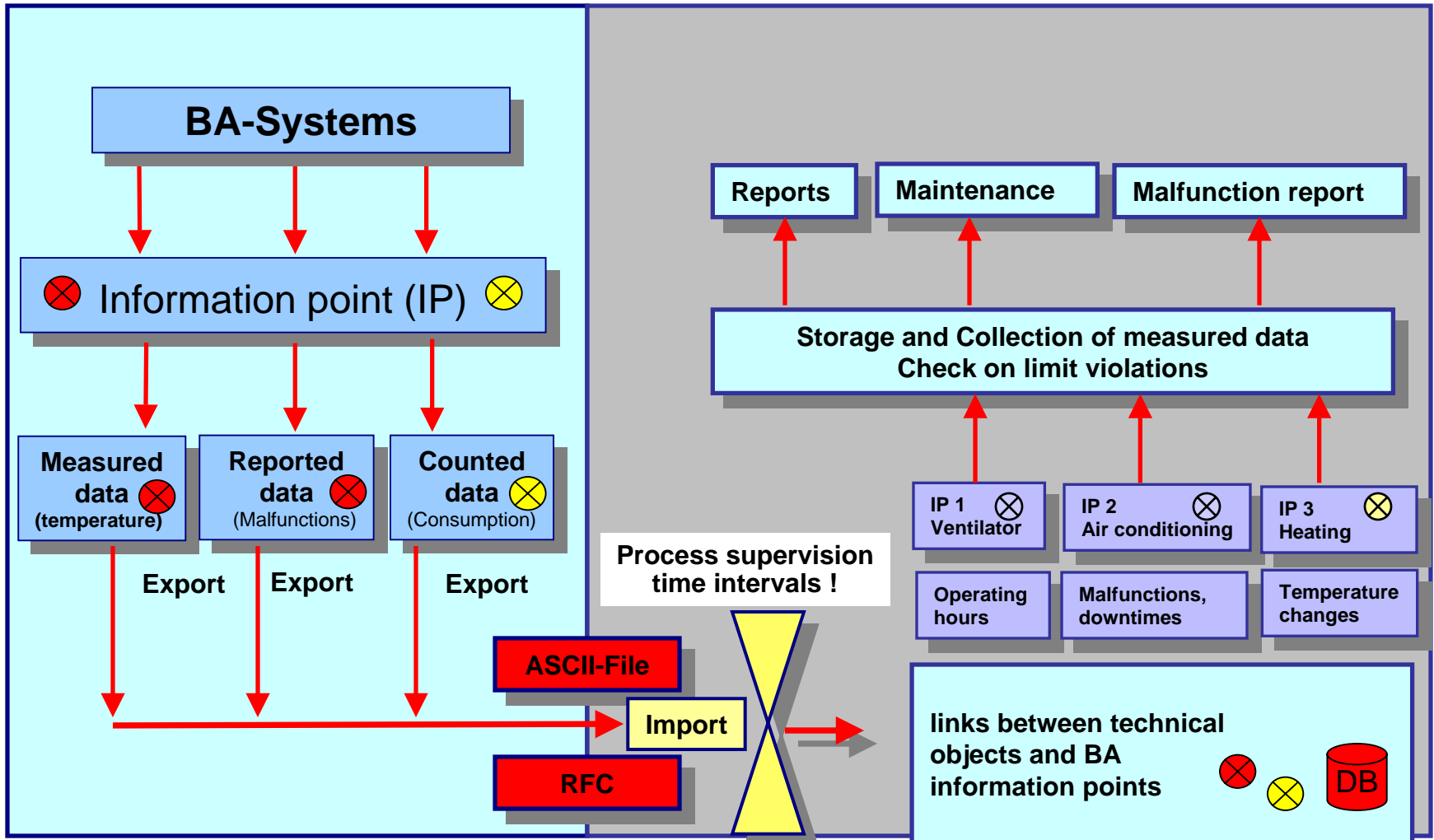
OK Abbrechen

Ändern Sie die Startdaten der Fläche 3x=11046085 7y=4044024 11.15

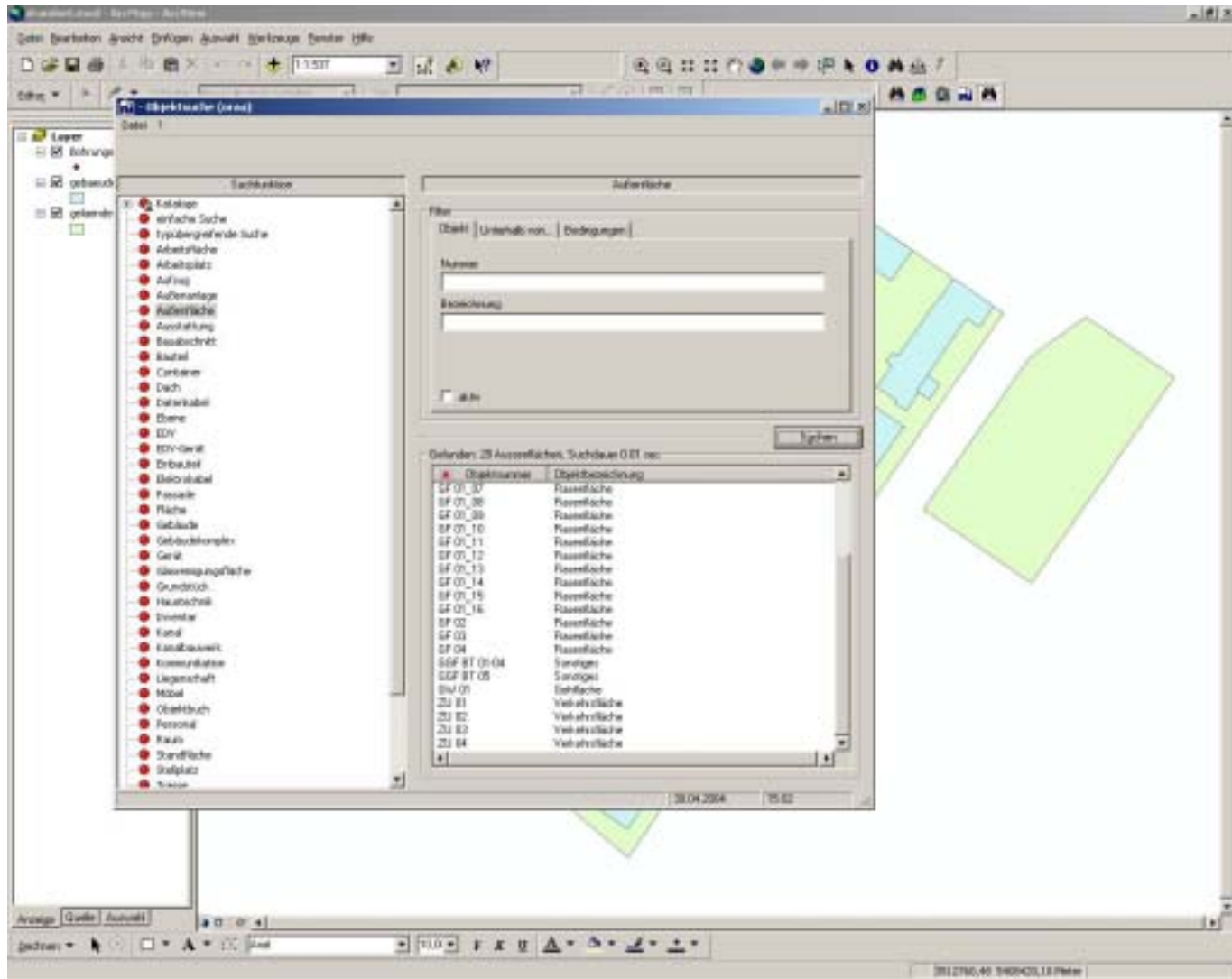


# Integration with Building Automation (BA)

# Maintenance Management based on BA



# Integration with GIS



# Management Information Platform

# Management Information Platform

- **All VIM relevant data are becoming consolidated and compressed**
- **Using powerful search engines and other data mining tools, these data are displayed via a Web-based Management Information Platform to the benefit of the user and the increase of ROI inside the corporation or in large network organisations**

**Kostenstellen**

Objekte

Suche

Suchergebnis

Aktion

- Einfärben
- Entfernen
- Stacking
- Report
- Report

Organisationseinheiten

Nutzungsartgliederung

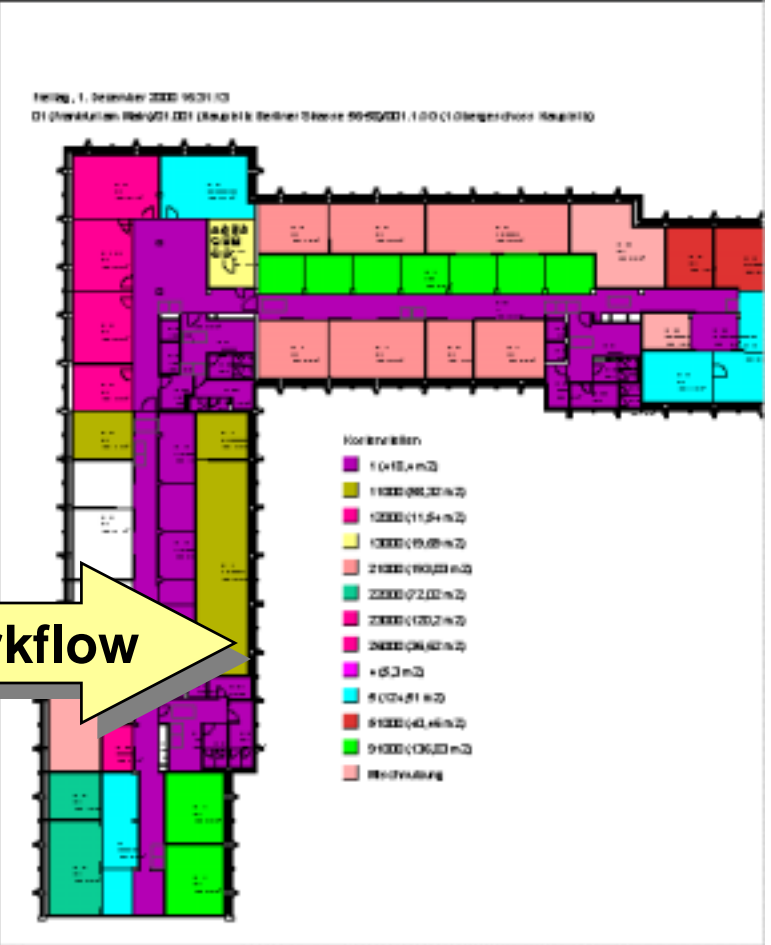
SAP

Reports

Allgemein

### Fläche 001.100

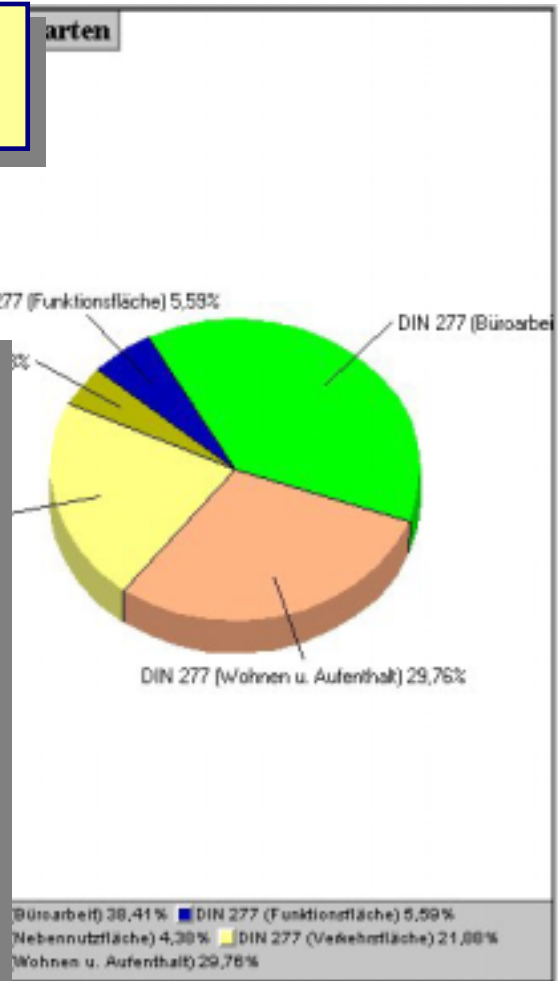
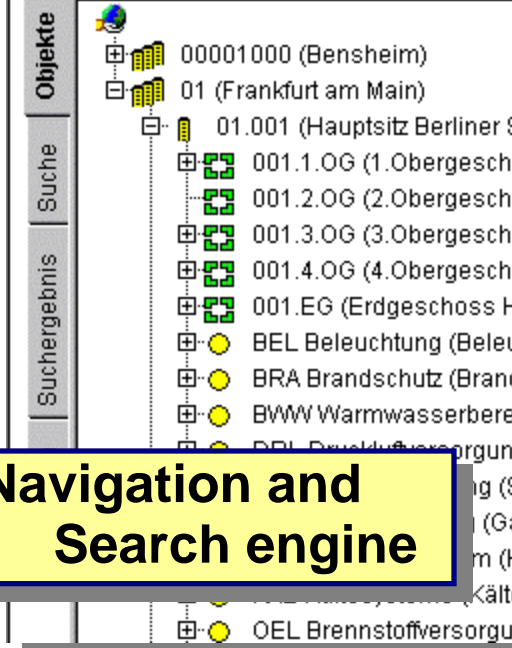
Beschreibung	Wert
Bruttofläche	32,91
Nettofläche	32,91
Brutto-/Netto- Fläche, Dimension	m <sup>2</sup>
Flächenart	Büroflächen vermietbar
Flächentyp-Code	0
Funktion	Bürobereich
Funktion-Code	0
Nutzungsart	Büroarbeit
Leistung	
Nutzungsart-Code	20
Flächenkriterium 1	eigegenutzt
Reinigungskategorie	1.1 Büroflächen Textile Bodenbeläge Saugen hochwertig



**Bidirectional Workflow**

## Current reports about facilities

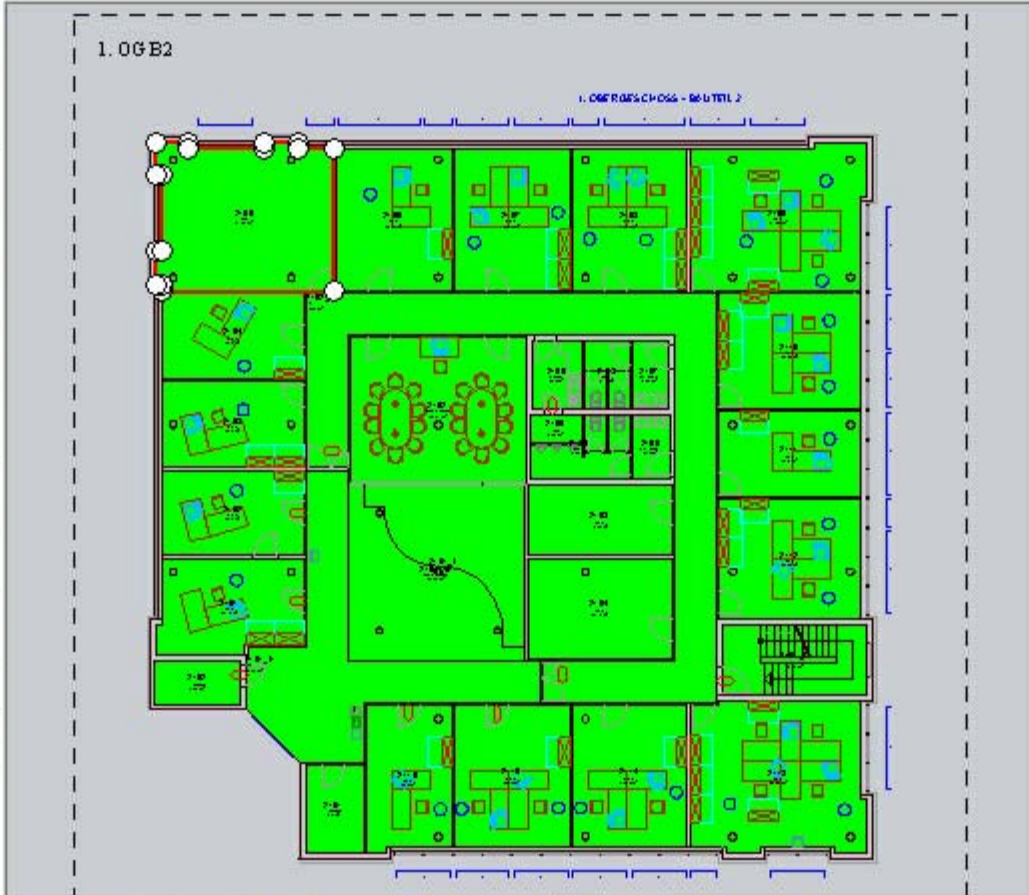
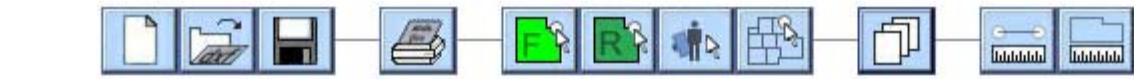
## Navigation and Search engine



# FM Webdesk

Grafik - Microsoft Internet Explorer

- System
- Grundrisse anzeigen
- Grundrisse editieren
- Desktop
- Serviceierung
- Updown
- Logout



**Fläche**

Objektnummer: 2105

Objektbezeichnung: Lager

Nutzung nach DIN 277: HNF4 (Lagern, Verteilen, Verk.)

Bodenbelag: Fbte (Beläge - Teppich)

Fläche: 41,890

Nettofläche: 41,890

Fläche CAD: 41,895





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