



OIL AND NATURAL GAS CORPORATION

Enterprise IT Architecture implementations: An ONGC Perspective

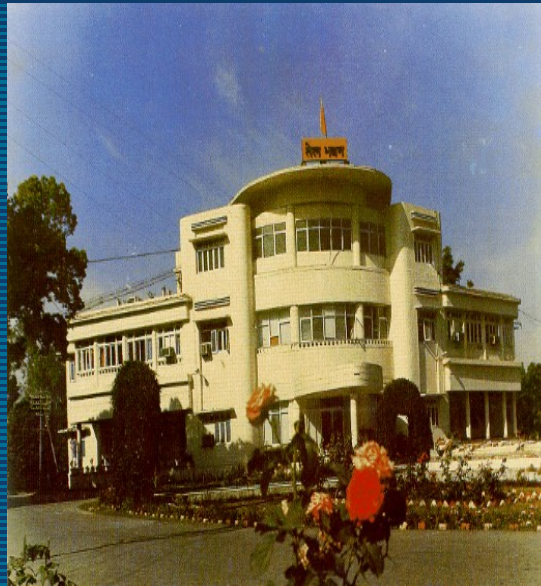
Speaker:--

Sarabjeet Singh Dhanjal,
WOB,ONGC.



ONGC

India's Most Valuable Company



One of the Largest

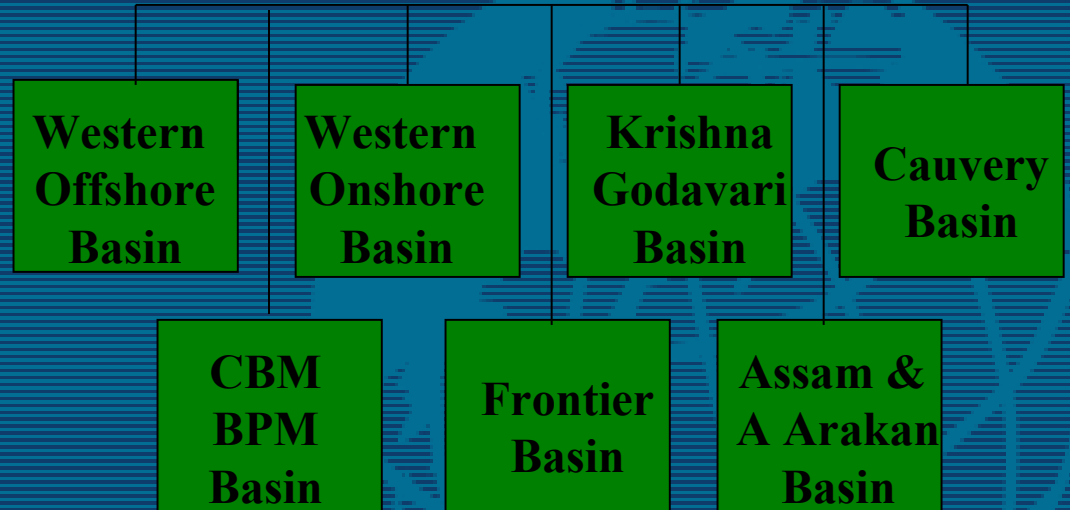
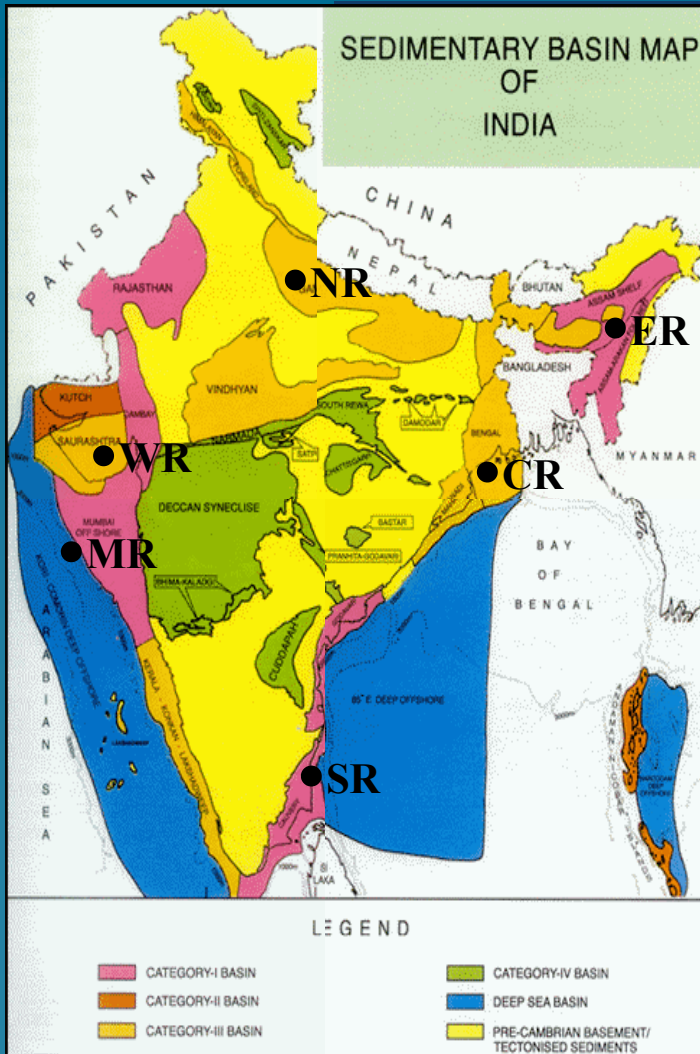
Integrated Exploration & Production (E&P) Company in the World



- ✓ Is Asia's best Oil & Gas company, as per a recent survey conducted by US-based magazine 'Global Finance'.
- ✓ ONGC contributes about 81.5% of domestic crude oil production and about 79.2% domestic natural gas production.
- ✓ ONGC's overseas arm ONGC Videsh Limited (OVL) is biggest Indian multinational, with 25 Oil and Gas projects in 15 countries.

Corporate Office, Dehradun (INDIA)
Registered Office, New Delhi (INDIA)

National Oil Company with Asset Based Structure

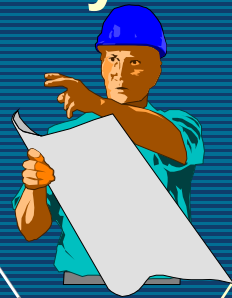


Operates in diverse logistics
In Onland & Offshore areas

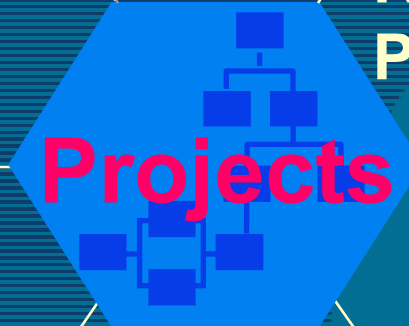
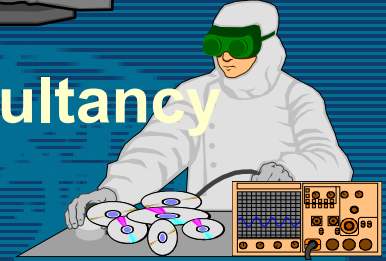


COMPANY PROFILE

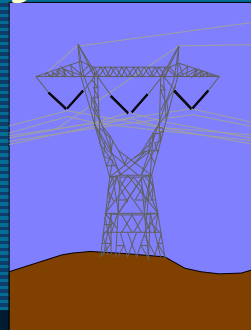
Survey Projects



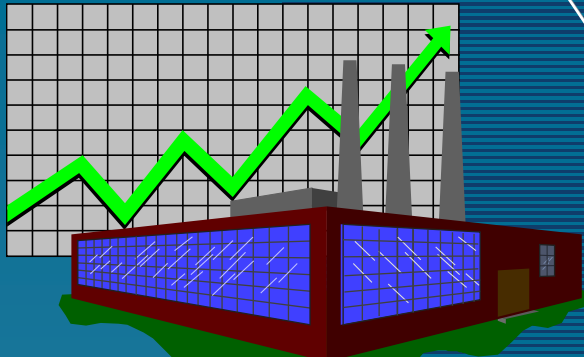
R&D / Consultancy
Projects



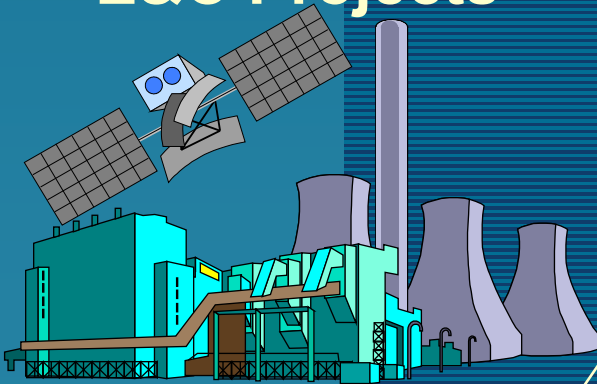
Dry Docking
Projects



Drilling &
Workover
Projects



Joint Venture
Projects
E&C Projects



Application Areas In ONGC

80s
and
90s



A Consolidated Standardized Information Management System was felt to be needed

Fragmented Management Information

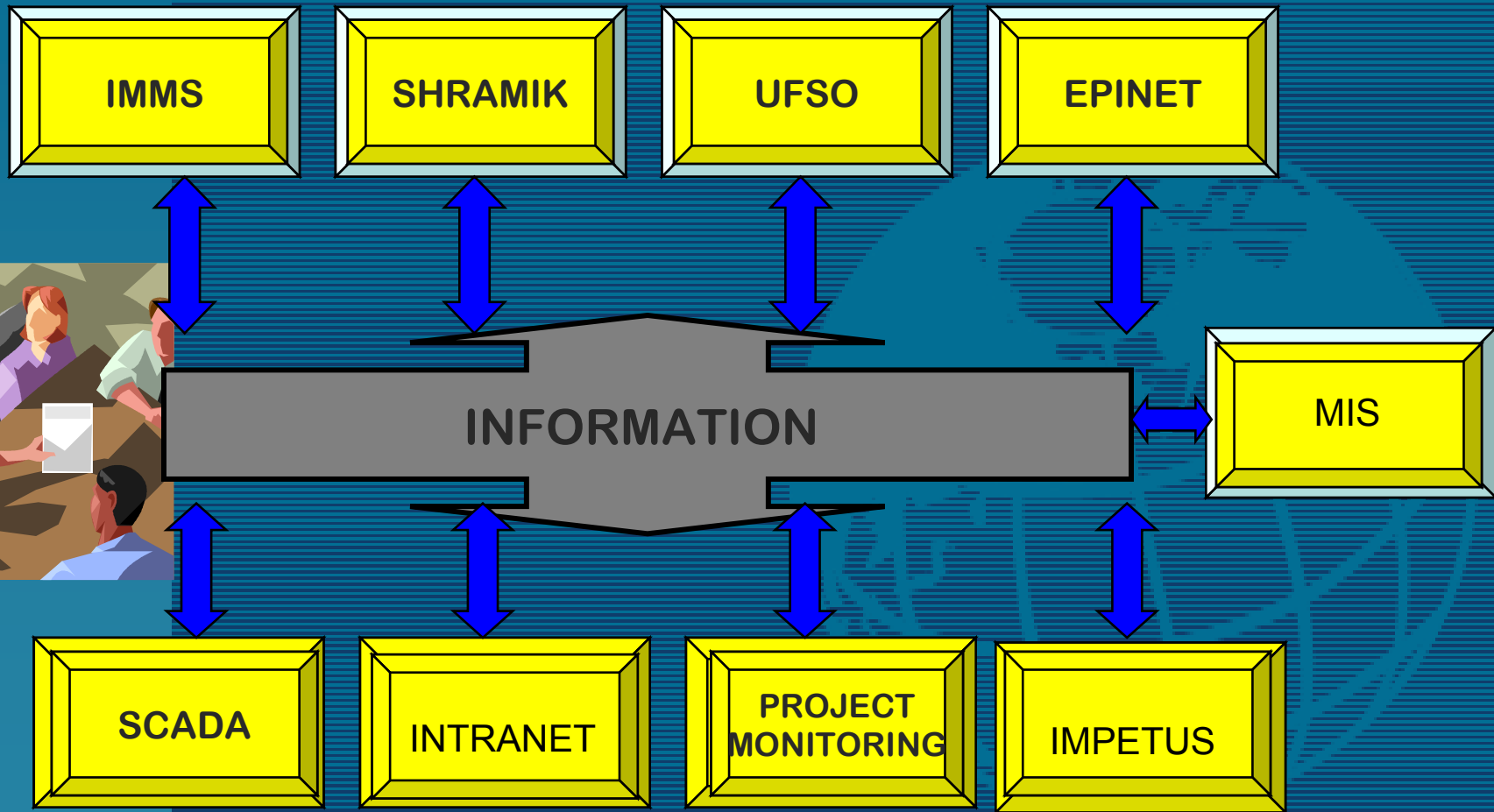
- ✓ **Function based Organization**
- ✓ **Multiple stand alone applications**
- ✓ **Time lag between market realities and decision making**

An Effective Integrated Information System to enable ONGC to achieve business excellence

ERP for Enterprise-wide Transformation

Past Reality

Function based Organisation, Multiple stand alone applications,
Time lag between market realities and decision making



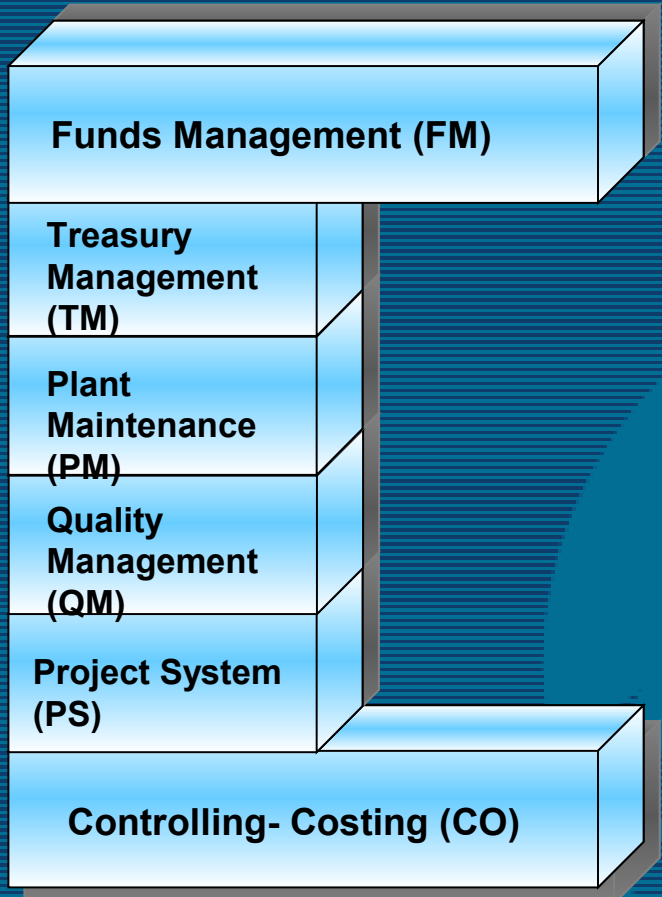
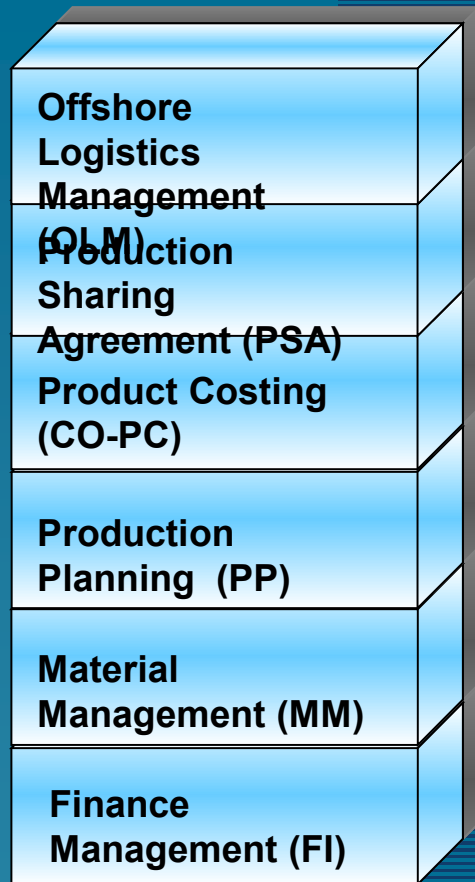
Interfaces between Islands of Information

INFORMATION CONSOLIDATION FOR EFFICIENCY

PROJECT ICE

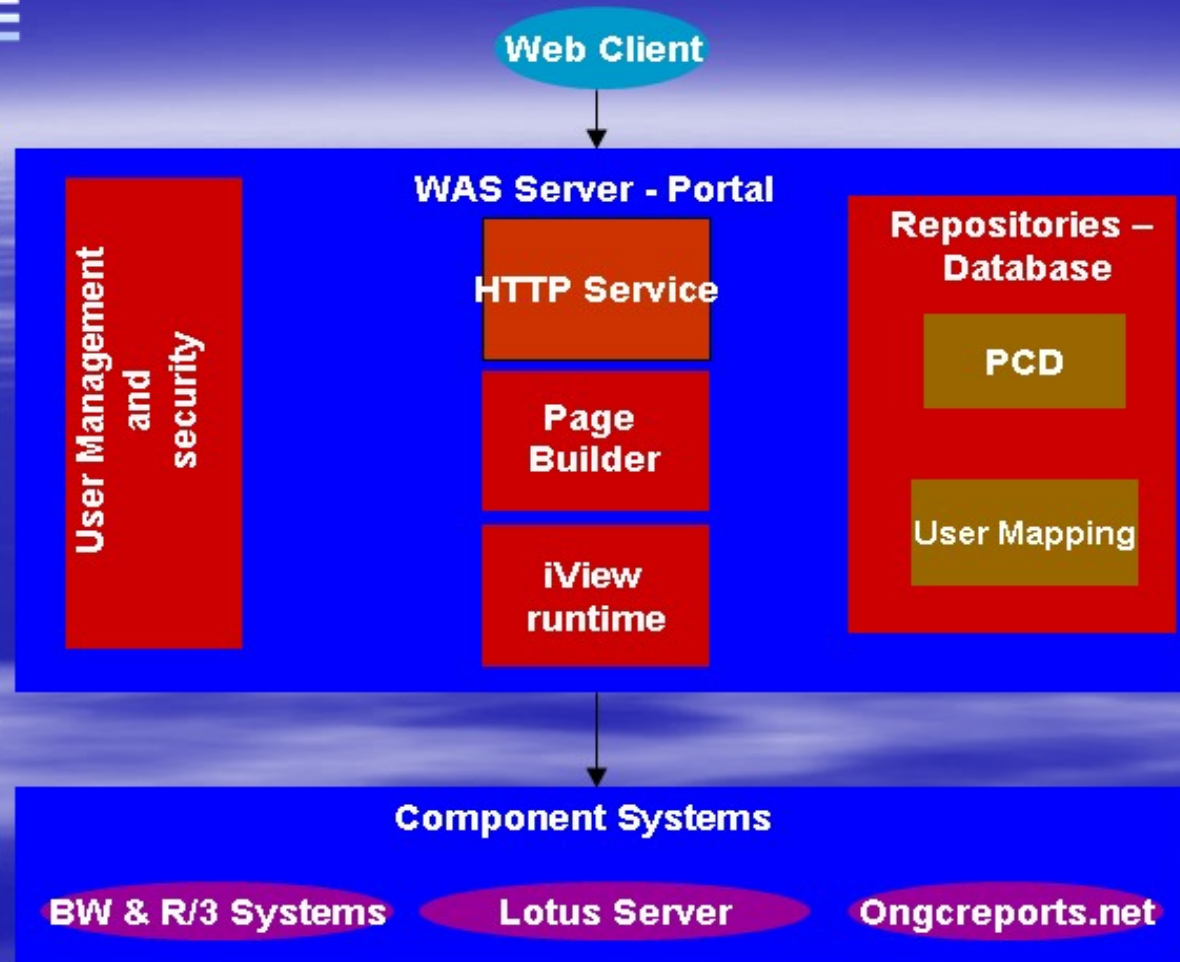
PRESENT SCENARIO

- ✓ Optimization and standardization of business processes to enable integrated information availability
- ✓ Elimination of duplication of activities across business processes by capturing data at source point.
- ✓ Facilitate information consolidation at corporate level.
- ✓ Availability of information at the right time, at the right place, thereby, enhancing managerial control.
- ✓ Integrating all business applications under single platform with minimum interfaces.

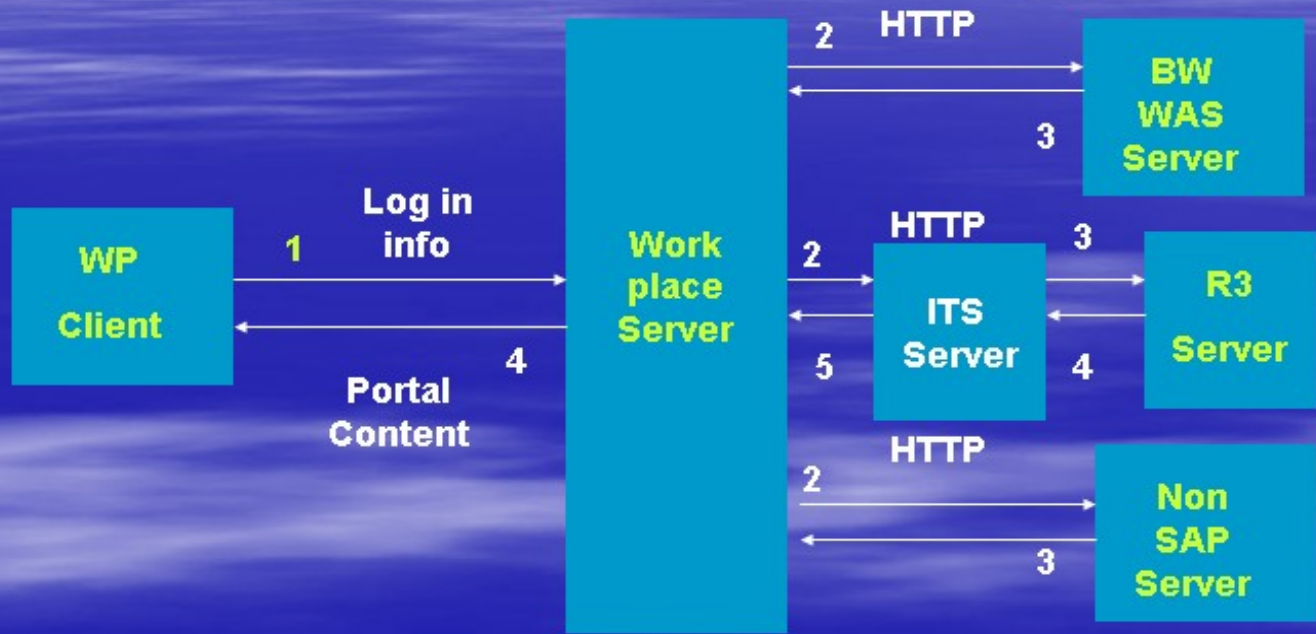


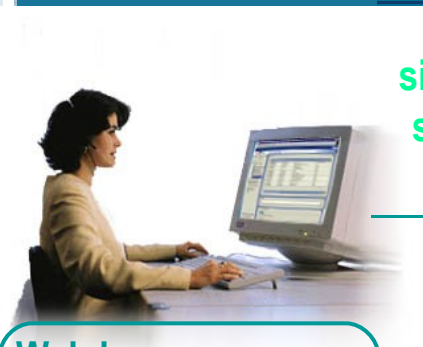
23 Modules Covering almost the entire Business

Architecture Of Workplace



Data flow





single sign-on

Web browser access

Portal
industry-specific
role-based
personalized
drag & relate
Cock-pits

INTERNET-BUSINESS FRAMEWORK

open Internet standards

legacy
Trim Optim

non mySAP.com

mySAP.com solutions

R/3
FI HR LO

Supply Chain

SEM

BW

PCS

CRM
BBP

company boundary

inside

outside

Market-place
Partner
SAP

- Key Executives can access from anywhere anytime
- e-procurement



Access from Anywhere Anytime



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Logon

User ID

Password

Log on

Guest Login

[New Bidder ? Apply for Access Authorization](#)

[Go to tenders.ongc.co.in](http://tenders.ongc.co.in)

[Guidelines to Bidders](#)

[FAQ's](#)

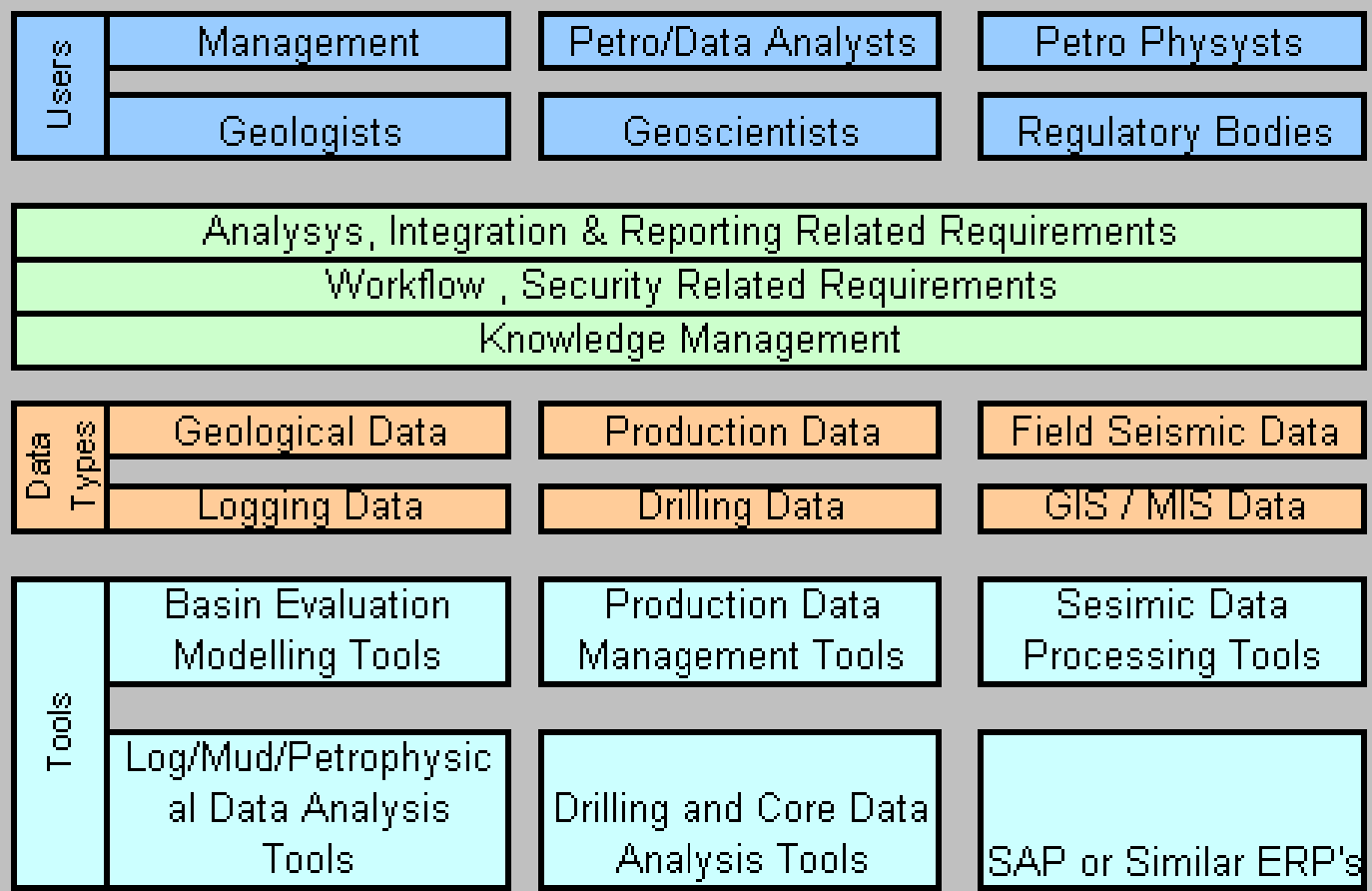
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BENEFITS

- ✓ **REDUCE COSTS.**
REDUCED PAPERWORK AND ABILITY TO COMMUNICATE WITH VENDORS ONLINE.
- ✓ **INCREASE REVENUE.**
E-TENDERING ENABLED TO GET BETTER SERVICE AND PRICES FROM SUPPLIERS.
- ✓ **SECURE OPERATIONS.**
ALL SUBMITTED BID DOCUMENTS ARE DIGITALLY SIGNED AND ENCRYPTED.

PROJECT ICE (cont.).



Integration of data is a core requirement in E&P

TYPICAL E&P INFORMATION TOPOLOGY

Data Acquisition

Data Processing

Data Interpretation

- Geology
- Seismic
-2D 3D &4D
- G M Survey
- Geochemistry

- Wells
- Drilling
- Logs & VSP
- Production
- Reservoir

- Films/Papers
- Tapes
- Cores

Data Processing & Management

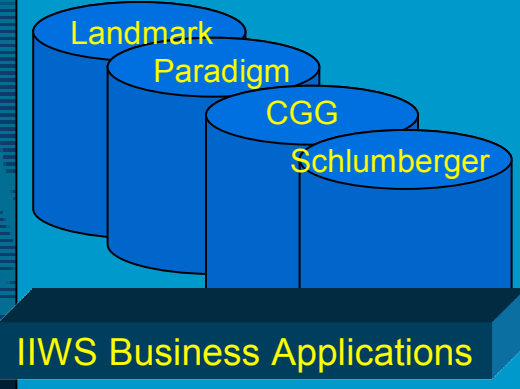
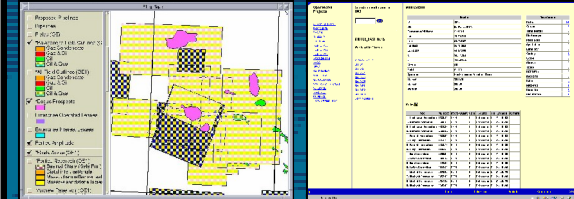
Data processing

Data Management

Data Access to users

Spatial browsing

Textual browsing



Exploration Activities

- Every day, all around the world, 1000's of E&P professionals **just can't find what they want!**
 - They want ALL relevant information, whether in digital format, on their laptops, on their shared drives, or

**EXPLORATION AND PRODUCTION INFORMATION NETWORK
PROJECT EPINET**

... data!
... people are
doing more work and are extremely short
of time.

**Single validated
E & P data base
throughout ONGC**

**Compliance of
industry standards
& best practices**



**EPINET
OBJECTIVE**

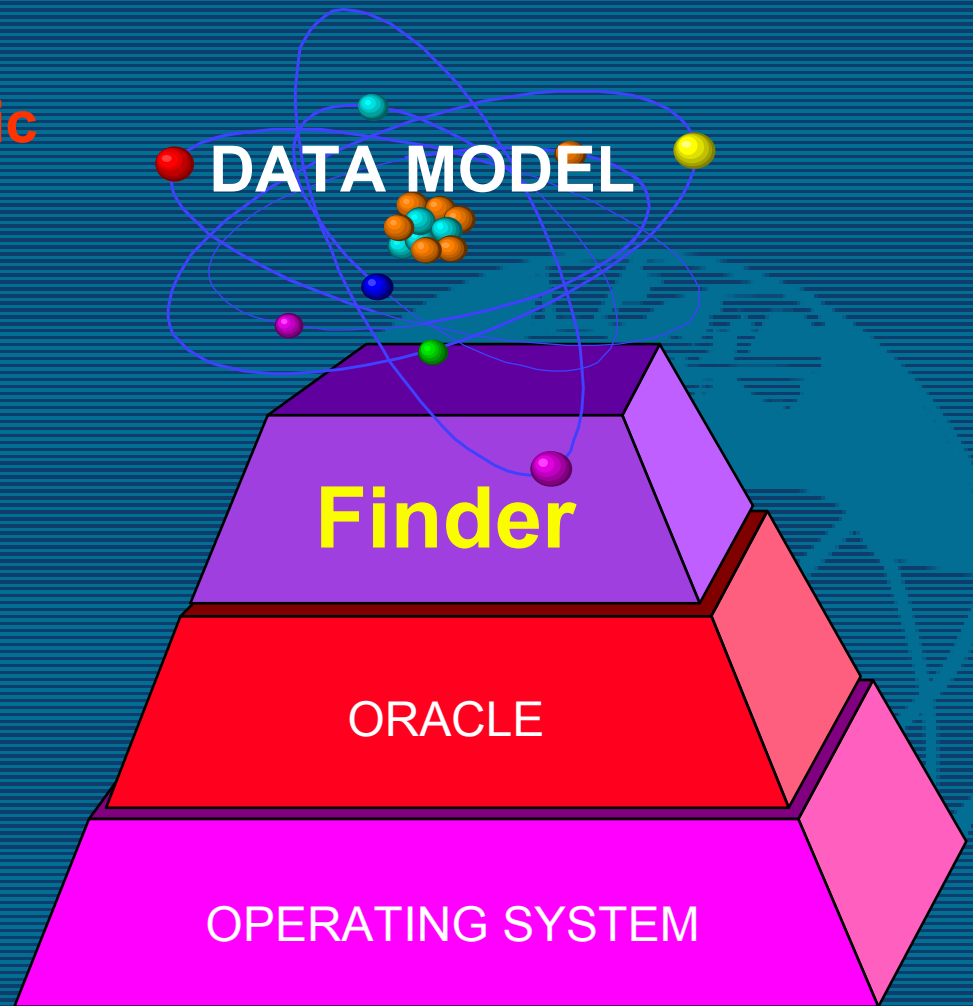
**Flow of analytical
& interpretation
Data to EPINET**

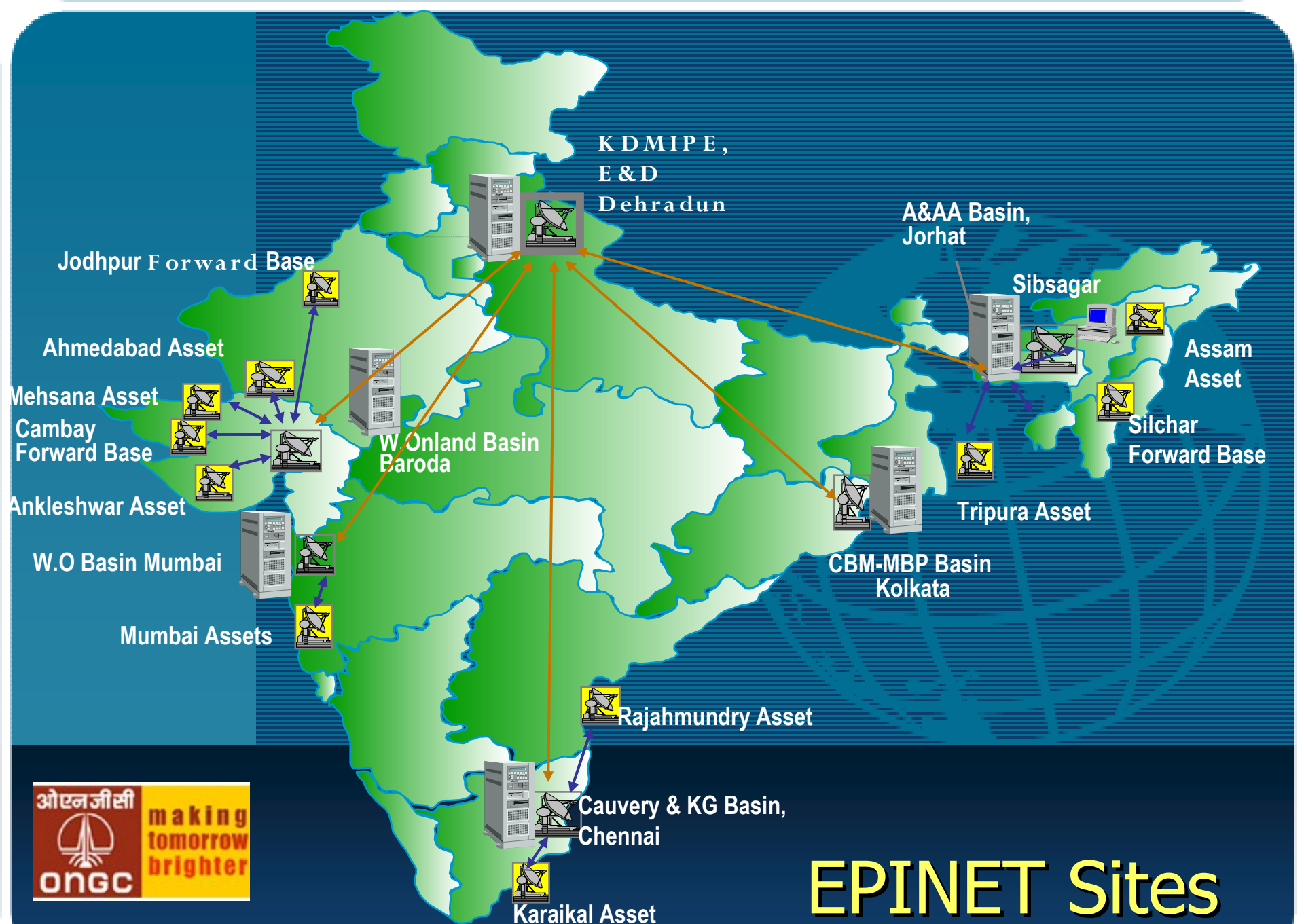
**Web based reporting
And current E&P data
flow into EPINET**



Integrated E&P Database

- **PPDM & POSC/Energistic compliant data model**
- **UNIX based application**
- **Database engine**
 - ORACLE 8i
 - ORACLE Forms 6
 - ORACLE Reports 6
 - SQL*Plus 3.3.2
 - PL/SQL 1.5.7
- **Operating system**
 - Sun Solaris 8
 - SGI Irix 6.5.3





EPINET Sites



SUPERVISORY CONTROL AND DATA ACQUISITION PROJECT SCADA

PROJECT SCADA

- ✓ 3-TIER ARCHITECTURE
- ✓ INCLUDES ALL 247 PRODUCTION INSTALLATIONS, 75 DRILLING RIGS AND 2 PLANTS COVERING ONSHORE AND OFFSHORE OPERATIONS
- ✓ ALL INSTALLATIONS SHALL BE MONITORED ON 24 X 7 REAL-TIME BASIS.

SALIENT FEATURES

OFFSHORE SCADA SYSTEM

TO
MUMBAI
HQ



WHP



WHP



WHP

TDMA
Links

SCADA

OPC Gateway

PROCESS
PLATFORM

DCS

PROJECT SCADA (cont.).

THE BUSINESS DECISION SUPPORT

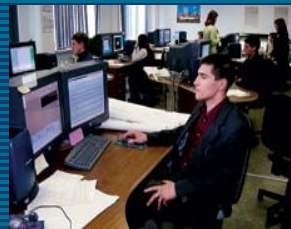
BOARD-ROOM



BOARD-ROOM

Tier-III

Integration for decisions



Tier-II

Interrelation and analysis of data

Asset control room

Tier-I

Collection of process data & field reports



Information



PROJECT SCADA (cont.).

BENEFITS

- ✓ REAL-TIME INFORMATION AVAILABILITY.

IDENTIFICATION OF PRODUCTION
/DRILLING RELATED PROBLEMS

- ✓ IMPROVED EFFICIENCY

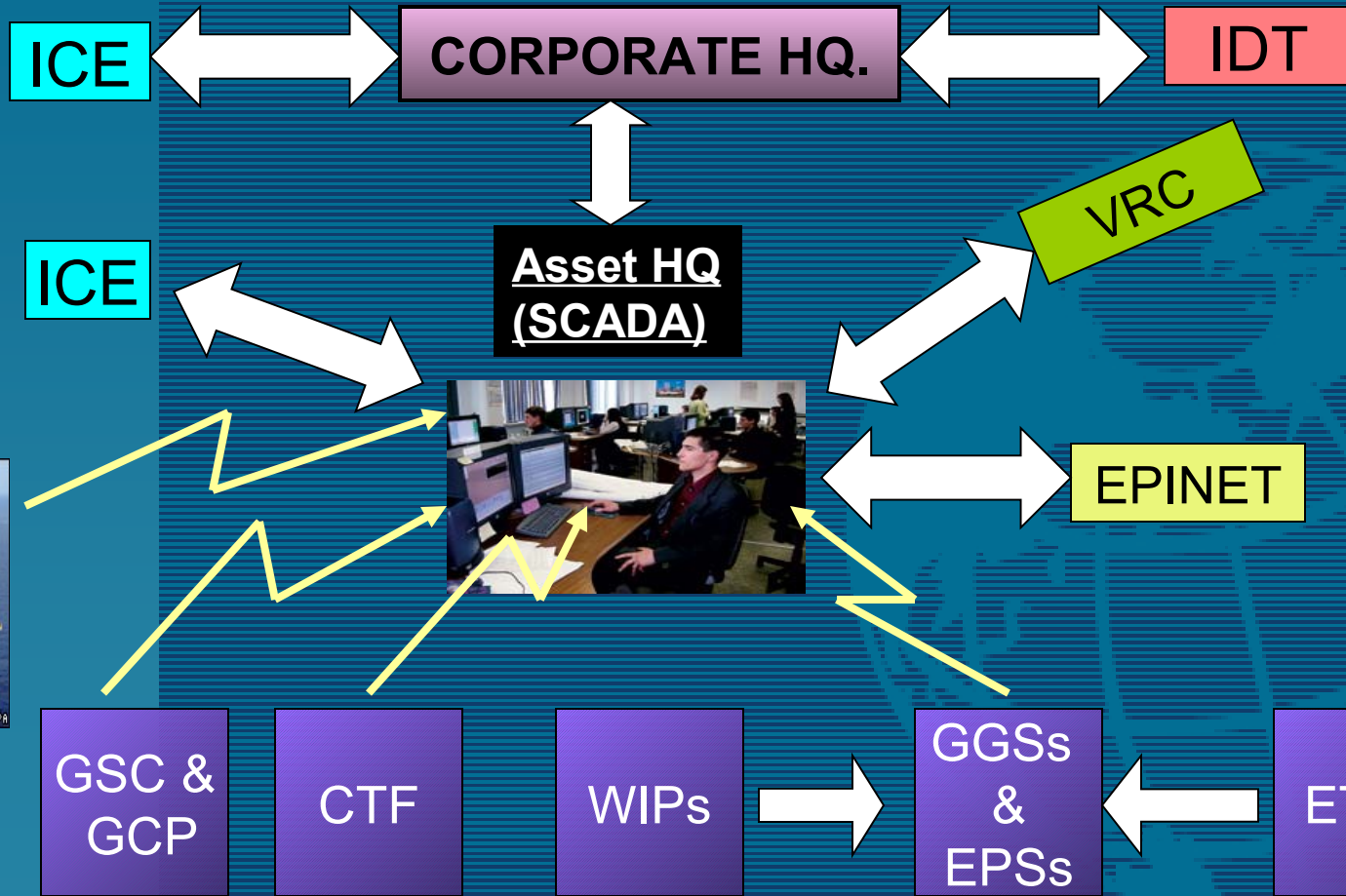
THROUGH REAL-TIME DATA COLLECTION,
INFORMATION INTEGRATION & DISTRIBUTED
MANAGEMENT.

- ✓ INTEGRATION WITH OTHER PROJECTS

DATA TRANSFER TO E&P DATA
REPOSITORY PROJECT *EPINET* AND
INTEGRATION WITH PROJECT *ICE*.

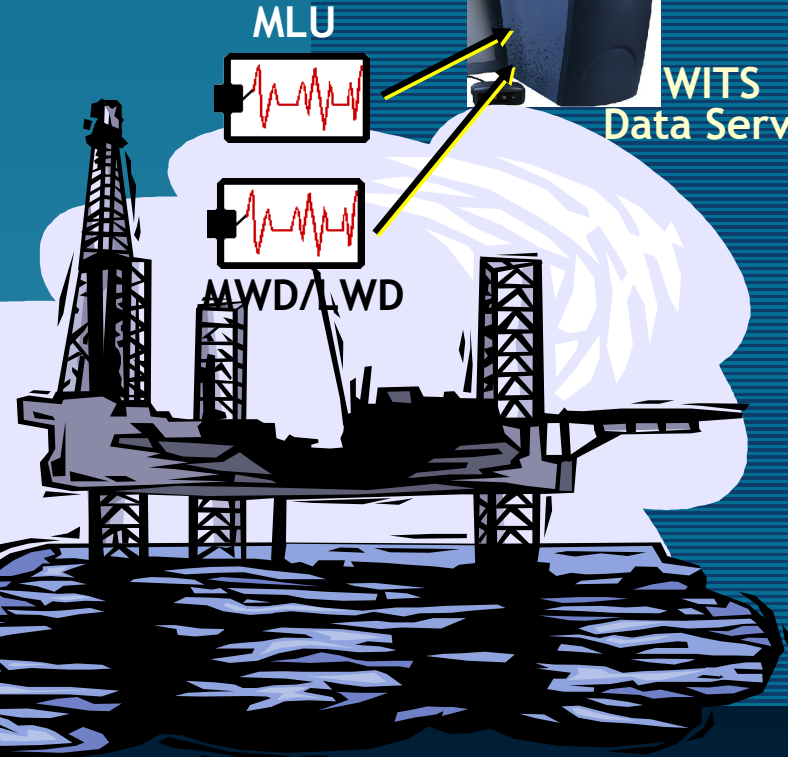
PROJECT SCADA (cont.).

ONSHORE DATA MIGRATION

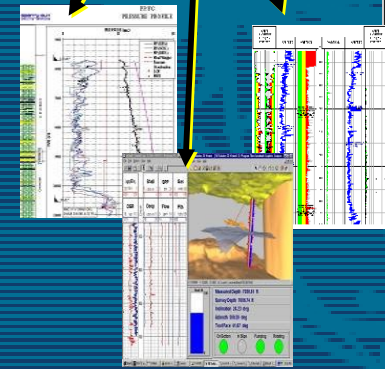


ENTERPRISE ARCHITECTURE IMPLEMENTATION.

RIG SITE ENVIRONMENT

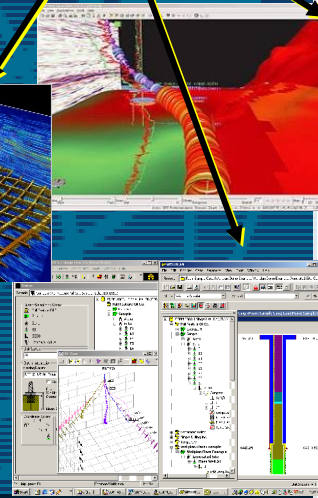


RTOC WITS Data Server



RTOC- VRC ENVIRONMENT

VRC G&G Applications Server



Integrated RT surveillance

WITSML PROTOCOL



- On-Line information directly from the Worksites.



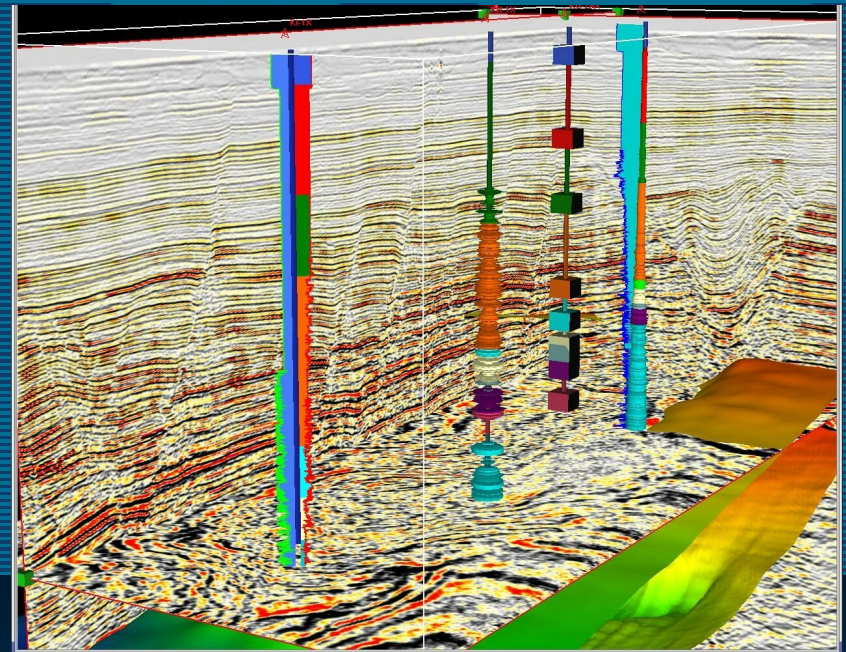
Response Time

Information availability



- Management Response Time Largely Reduced

- Common E&P Data Model throughout ONGC.
- Improved integrated interpretation
- Faster & focussed decision making
- Reduced exploration risk & cost
- Avoidance of data degradation
- Intellectual gains in terms of data management skills



- ✓ Energistics has provided reviews from time to time on EPINET project.
- ✓ ONGC and Energistics have jointly presented papers and participated in various E&P Conferences and Seminars.
- ✓ ONGC-Energistics technical programs organized during SPG-2004, SPG-2006 and during IORS-2004 in India.



**Association with
POSC/Energistics.**

- ✓ To get the benefits of standardization through SIGs (Special Interest Groups), ONGC constituted SIG teams on;

**Geology SIG,
Drilling WITSML SIG,
Production PRODML SIG,
Data Management SIG.**

- ✓ The four SIGs have the members from different domain executives of ONGC for participation & interaction of SIG activities and its implementation in ONGC.

- ✓ To get the benefits of standardization with continuing association with OpenGroup standards for pilot projects of ONGC and past projects as well.
- ✓ Looking forward to gain more about business standards by becoming part of OpenGroup Conferences and getting chance to discuss about the best practices in the industry.

Thank You