IT Applications in BSNL

C.S. Sharma
DGM(IT)
Why Computerisation?

- Increase in Efficiency
- Uniformity in Processes
- Easy Monitoring
- Change Management
- Accuracy of Information
- Timely Information
Computerisation

- Designing and Developing Application
- Computer Infrastructure
- Implementation
IT Infrastructure

Clients/Users

N/W

Application

RDBMS

NOS

Server
BSNL Systems

- DOTSOFT
- HR Package
- Resource Management
- PGRMS
- TVARIT, MIS, Fleet ...
- CDR
- ERP
Integrated Telecom Database System for
1. Commercial
2. Billing
3. Accounting
4. Fault Repair Service &
5. Directory Enquiry
running on a Wide Area Network
Server
Network
Software Used

➢ Operating System:
  ▪ Linux / Unix on Server.
  ▪ Windows on Client PCs.

➢ Application Software:
  ▪ Oracle on server.
  ▪ Developer 2000 / Forms 6i on Client PCs.

➢ Dotsoft Forms & Reports (in both Server & Client PCs)

Latest Version: 4.1.6 (May 2, 2008)
**Concise Description of Dotsoft**

DoTSoFT is an enterprise wide telecom database system that revolutionizes the operation and supervision of customer services by enabling all the personnel to work online.

The central server contains the complete database to which all the nodes anywhere in the district log in. The database is accessed using application software residing in the nodes which have GUI interface.
Concise Description of Dotsoft

The nodes in the customer service center service all the subscriber requests which flow to the comml and accounts sections as the case may be. After validation and approval from the concerned sections, the work orders flow to the different field units depending on the activity. After the completion of the work orders, the commercial and billing data of the subscriber gets updated.
Concise Description of Dotsoft

Bill generation is absolutely easy and totally secure. Payments are faster and completely hassle free for the customer and the counter personnel because of the use of bill scanners. Revenue accounting and ledger reports are available immediately at the end of the month. The system can generate any kind of detailed as well as statistical reports. Online enquiry is available for supervision and queries.
Features of Dotsoft

- Every subscriber is identified by an identification number which shall be unique all over the country (CCCSSAYYYYMMXXXXX).
- All-India shift and closure cases are processed immediately.
- Database security is implemented through database grants and dynamically changing menus.
- System is highly scalable and can run on a wide variety of operating system platforms.
Features of Dotsoft

- The system can run on both client-server or host based systems or web based intranet without any change in the software.

- All the parameters of the system are table driven.

- Central control of the WAN using a robust network management software.
Utility of Dotsoft

- All the work is done online which results in excellent customer service, non duplication of work, total supervision, complete transparency, better planning and with a facility of instant reports.
- Single window concept
- Concept of request registration number introduced through which the status of the request can be tracked and inquired.
Utility of Dotsoft

- Instant electronic flow of data between the offices and field units with facility to print wherever required.
- Various intimation letters to subscribers automatically generated.
- Priority execution of advice notes.
- Messaging system between CO and Field units.
Utility of Dotsoft

- Complete history of subscriber’s activities available online.
- Details of subscriber records & requests, bills, demand notes, wait list, payments and work orders available online.
- NPC advice notes once completed online are billed in the next schedule.
Utility of Dotsoft

- Un-addressed bills are generated when a DEL is working but the NPC advice note has not been completed in the system.
- Finalization of closed connections are settled and a summary of outstandings OR refund order is generated.
- Uncollected deposits can be billed in the regular bills and the accounting is taken care of.
- Supplementary bills can be issued.
- Outstanding details available
Utility of Dotsoft

- Debit charges and credits generated by the system and hence remove any requirement of manual entry.
- Automatic generation of ringing/disconnection list which can be ported to an interactive voice response system to alert the subscriber.
- Directory Enquiry shows the status at the moment of enquiry.
- Complete managerial supervision is possible about the activities happening anywhere.
Security Features of Dotsoft

- Blocking of User access to DOTSOFT menu if user password violating password rules.
- Dotsoft DBA can provide any role to a user.
- Database Security is implemented through Database grants and dynamically changing menus.
- Blocking of user access from unauthorized IP address.
- Allotment of Dynamic Roles at the time of login through DOTSOFT Menu as a security measure.
HR Package
Why HRMS Package for BSNL?

- Centralized Employee Information System
- Better and Efficient Services to Employee
- Transparency in HR Matters
- Effective Utilization of HR Resource
- Proper Accounting of Expenditure on HR
- Step Towards Paperless Office
- Long Term HR Policy
Features

- Web based on-line application.
- Complete and comprehensive solution for Human Resource management of BSNL.
- User friendly design.
- Integrated with Payroll.
- Caters to the complete employee lifecycle, from recruitment to retirement.
- Role based user participation.
- Centralised, secured database.
- Access to every employee in BSNL.
- On-line flexible reports for management.
Client System Requirement

- Pentium III with 128 Mb RAM & above Configuration
- System should have IE 5.0 & above
- System Should installed Acrobat reader 5.0 & above
- Pop up Blocker should be disabled
- Yahoo Toolbar shouldn’t be installed
- For Better Performance MPLS VPN / Lease line Connectivity
Modules of HRMS

- User Management
- Transfer.
- Nomination
- Verification
- End Of Service
- Pay Package

- Future Module
  - Leave
  - Promotion and Posting
  - Disciplinary
  - Quarters
  - Tour and Travel
  - Work Flow
  - …..
Resource Management
Resource Management System

- Inventory Management
- Asset Management
- Cash Management
- Fund Management
Web-based application:

- on MS Windows Platform with IIS as web server
- Oracle 9i as the back-end database.
- Being web-based, the users do not have any special software/hardware requirements
- Can access the system by I E browser 5.0 and above.
Design Philosophy

- Server Database - Oracle 9i
- Server Operating System - Linux
- Web Server - IIS
- Client OS - Windows
- Client Browser - Internet Explorer
- Access through Lan/Wan/Internet/Dial Up
- Address: http://mis.bsnl.co.in
Welcome, S.G.K. NAIR!

Message for Users of BRMS
The new version 2.0.0.0 launched from 1st of June, 2005
For details click here

Guidelines for item addition, manufacturer addition, menubar display, Station, branch & Section addition etc. Click Here
INVENTORY MANAGEMENT SYSTEM
Inventory Management System

- Envisages smooth flow of activities among various hierarchy of offices
- Aims complete paperless activities from the Circles to the SSA’s and to the field units
- Activities include
  - Preparation of PO
  - Preparation of PE & DE
  - Indenting
  - Allotments
  - Store receipt and issue
  - Bill payment
Sub Modules

- Administrative Module
- Master Data
- Planning
- Inventory
- Accounts
- Reports
- Help
Reports menu

Menu items include:

- Indent to Circle store/Other SSA’s
- Indent/Allotment – Field Units
- SSA Store
- Store Enquiry
- Allotment to SSA’s
- Purchase Order
- Receipt
- Issue
- Stock Balance
Bill Module Enhancement

- Link with www.bsnl.co.in
- Facilitate Manufacturers to log into the system
- They can know their Bill Processing Particulars
- CVC guidelines can be full filled
- This requires implementation of the complete system
FUND FORECAST AND ALLOTMENT OF FUND
Sub Modules

- Cash Requisition
- Allotment
- Reports
Cash Requisition

Requirement Field Units → Consolidation → Requirement by Unit

Cash Allotment by CO → Requirement By Circle

Cash Allotment by Circle

Requirement Filed Units
TEMPORARY ADVANCE & ACE-2 Bills
Sub Modules

- Application for Temporary Advance
- ACE-2 Bill
- Reports
Application Of Temporary Advance (ATA)

ATA Preparation → Countersigning → Field Approval

Countersigning → ATA Processing

Payment Approval → Countersigning

Pass Order → Cash Counter
ACE-2 Bill

ACE-2 Preparation → Countersigning → Field Approval

Final Approval → Countersigning → ACE-2 Processing

Pass Order → Journal Slip Entries
Works Accounting
Works Accounting Flow

1. Work Order → Requisition → Store Issue
2. M-Book → Work
3. Damage Charge → Billing
4. Billing → M-Book
Asset Management
Asset Management

- Management Certificate
- Asset Conversion
- Depreciation
- Decommissioning
- Reutilization
- Serviceable
- Diversion
- Unserviceable
- Scrapping
Reutilization/Diversion

Decommission Register → Inventory

Inventory → WIP

Inventory → Diversion to Other Unit

WIP → Asset
Scraping

- Proposal
- Evaluation by scrapping committee
- Recommendation
  - Anticipated sale proceeds
- Approval by Competent Authority
- ACE-9 preparation
- ACE-9 sanction
  - Writing off difference between Depreciated/Residual value and Anticipated Sale Proceeds
Scrapping

Proposal → Recommendation by Scrapping Committee → ACE-9 Sanction

Profit/Loss → Sale
Future Roadmap
BSNL CDR Project CRM module
CDR Project

➢ CDR Based Billing
➢ Convergent Billing
➢ CRM
CDR Project

- All the existing systems for Commercial, TRA, FRS and DQ will be replaced with the new system.
- The CDR Project is going to provide end-to-end customer care and billing systems for
  - Landline customers
  - CDMA
  - Broadband
  - Leased line customers.
CDR Project

- The new system will take care of Leased lines, provisioning and billing and therefore, TVARIT will be completely migrated to the new system
CDR Project - Zones

- There are be four zonal systems, one for each zone.

- The Hyderabad Data Centre shall take care of South Zone, Kolkata for East Zone, Chandigarh for North Zone, and Pune for West Zone.
# Zones

<table>
<thead>
<tr>
<th>ZONE</th>
<th>CIRCLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUTH</td>
<td>Andhra Pradesh, Chennai District, Tamilnadu, Karnataka, Kerala</td>
</tr>
<tr>
<td>EAST</td>
<td>Kolkata Telecom District, West Bengal Circle, Orissa, Jharkhand, Bihar, Assam, North East-I, North East-II, Andaman &amp; Nichobar</td>
</tr>
<tr>
<td>WEST</td>
<td>Maharashtra, Gujarat, Madhya Pradesh, Chattisgarh.</td>
</tr>
<tr>
<td>NORTH</td>
<td>Punjab Circle, UP-East, UP-West, Haryana, Rajasthan, Himachal Pradesh, Uttarakhand, Jammu &amp; Kashmir</td>
</tr>
</tbody>
</table>
Basic Features

- Change from MCU Based Billing to CDR based Billing.
- End to End Integrated Total Solution (OSS/BSS)
- SSA would continue to be the Service Owning, Billing and Accounting Unit.
Basic Features

- Payment of invoices generated within the Zone anywhere within the same Zone.
- Payment of CMTS Invoices belonging to the Zone anywhere within the same Zone.
- Integrated Accounting System (SAP/Oracle ERP)
System Components

- CRM.
- Provisioning.
- Mediation.
- Billing.
- Bill Formatter
- Payment Management System (PMS).
- Accounting (ERP)
System Components

- Web self care
- Inventory Management (sub)
- Directory enquiry
- Leased Line Billing
- IOBAS
- Revenue Assurance
- FMS
- Enterprise Reporting
E-Stamping
CDR Project - SI

- There are two System Integrators
- M/s. HCL is the vendor for implementing this project in South and East
- M/s. TCS is responsible for implementing in North and West.
The Project is going to be implemented in two phases; the first phase is called Proof Of Concept (POC).

The POC phase shall include 23 SSAs and was targeted for 31st July, 2008.

The roll-out in the remaining SSAs shall happen nine months from
Scope of CRM module

- Customer Management
- Billing Account Management
- Product Catalogue
- Order Management
- Service Order Management (Post Sale Support)
- Customer Care Management
- Sales
- Marketing
Hardware

- Data Centre (DC) Class servers which are high-end servers having 64 cores/CPUs in each machine for hosting the main applications such as Billing and CRM.

- Low-end servers which are two-CPU servers for small applications like Anti-virus, HTTP, Web servers, Authentication etc.
Network

- A country-wide IP network with MPLS as the backbone.
- Not Only for implementation of the CDR project, but also for implementing all other IT projects in future, such as ERP.
Connectivity

- All new technology switches such as OCB, EWSD, 5ESS, AXE, shall be connected using X.25 cards and Ethernet interface (wherever available)
- All CDOT exchanges will be connected to the LE router using CES equipment supplied by CDOT through HCL
- All E10B exchanges will be connected to the LE router through MTE (Magnetic Tape Emulator)
Connectivity

- Each LE router is connected to the Aggregation Router through E1 links.
- All the E1s coming from the different exchanges will be aggregated to the Aggregation Router.
Connectivity

- Each Aggregation Router in each SSA shall be connected over STM-1 link to the nearest MPLS node.
- For redundancy purposes, the connectivity shall be established to two MPLS nodes.
- The Data Centre is also connected to the MPLS network presently through STM-1 links, to start with. This end link will be enhanced to 1 GBPS link or more, later.
Connectivity

- The existing CSR network will also get connected to the Aggregation Router.
- Thus, all the terminals of Commercial, TRA, FRS and Directory Enquiry which are now connected to the local systems, will be connected to the Data Centres through the Aggregation Router.
IVRS and Integration with Call Centres

- Centralized IVRS (in each zone), CTI (Computer Telephony Interface), IP EPABX, etc.
- The core equipment required for Call Centre operations will therefore be installed at the Data Centres.
- The existing Call Centres, mostly one per each Circle, will then be connected to the Data Centres.
Hyderabad is configured as the DR site for Kolkata and vice versa.

Similarly, Pune is configured as the DR site for Chandigarh and vice versa.

The degradation of performance for the applications failing over to the DR site is permitted up to 50%.
Preparedness

- Connectivity of Exchanges
- Connectivity of CSR to Aggregation Router
- Reconciliation of data
- FRS and Sub Inventory data
- Availability of PCs, Scanners, Bar code readers etc
After CDR Project

- New Accounting Procedure (BF instead of invoice based)
- Late fee instead of surcharge
- Uniform Deposits (no OYT etc)
- New Billing Cycles
- Standard Tariff Plans
CRM defined in CDR project

- ‘CRM is one critical Application area using which a service provider wish to better manage their customers’ thus becoming one source of truth for Customer data throughout customer’s life cycle.
Scope of CRM module

- Customer Management
- Billing Account Management
- Product Catalogue
- Order Management
- Service Order Management (Post Sale Support)
- Customer Care Management
- Sales
- Marketing
Enterprise Resource Planning
Agenda

- What is ERP?
- Why ERP in BSNL?
- ERP Project – Current Status
- ERP Implementation Approach
- ERP Implementation Team Structure
ERP

- Enterprise Resource Planning
- System to integrate the data and processes of an organization into one single system
- Cover a wide range of functions and integrate them into one unified database
- Results in increased productivity and less types of softwares
Why ERP in BSNL?

- BSNL presently uses many independent systems with no communication across them.
- To integrate systems, ERP working across the organization is required.
- Benefits:
  - Improvement in the information flow.
  - Better and Timely Inputs of better decision making.
  - Improvements in productivity, cycle time, financial performance and information transparency.
  - Driving operational excellence across BSNL through process standardization.
Why ERP in BSNL?

Benefits...

- Single version of truth
- Accurate and real-time information availability
- Visibility on product and service costs
- Unified platform for one integrated organization view
- Overall improvement in the performance of the organization
- Enhanced stakeholder participation and satisfaction
- Enable BSNL’s vision “To become the largest telecom Service Provider in Asia”
ERP Project – Current Status

- Important Partners
  - M/S HCL  System Integrator
  - M/s SAP  ERP Solution Provider
  - M/s E&Y  Business Consultant

- BPR will be done along with ERP implementation
ERP Covers

Geographical Coverage

- Corporate office - 1
- Telecom Circles - 2
  - Karnataka Circle
  - Maharashtra Circle
- Project Circles - 1
  - Western Telecom Projects
- Training Institutes - 1
  - ALTTC
- Production Units - 1
  - Telecom Factory, Mumbai
- Maintenance Regions - 1
  - Southern Telecom Region

POC

Pan-India Rollout

- Telecom Circles - 22
- Project Circles - 3
- Training Institutes - 2
- Metro Districts - 2
- Maintenance Regions - 3
- Specialized Telecom Units - 4
- Production Units - 2
- Other Units - 4
ERP Implementation Approach

- Data Centers of CDR are to be used
  - Hyderabad – primary Site
  - Kolkata – DR Site
    - Security systems, Access control system, identity management etc. UPS, Storage etc. of CDR system shall be used.
    - Intranet of CDR will be default network for ERP as well. There will be a need for additional network for non-CDR units of BSNL

- Development Centre – ALTTC, Ghaziabad
- Centralised Installation with Single Database
- BSNL CO will be having complete view of BSNL
ERP Project – Timelines

- **Project Kick off** – 08th Jun 09
- **Project Preparation** - 08th Jun 09 – 15th July 09
- **BPR** - 22nd June 09 - 30th Sept 09
- **Business Blue Print** – 20th July 09 - 8th Dec 09
- **Realization** – 09th Nov 09 - 31st Mar 10
- **Final Preparation** – 15th Mar 10 – 20th May 10
- **POC Go-Live** – 1st June 10
- **Pan-India Go-Live** – 2nd June 10 – 1st Dec 10
**Module Teams – Subject Matter Experts (SME)**

- Responsible for
  - System Requirement Finalization (SRS)
  - BPR (Business Process Reengineering) Exercise
  - Association in implementation in the ERP system

**IT Cell / ITPC will be facilitator** for SRS, BPR, Implementation, setup, validate and maintain data center with required hardware, network and upkeep of ERP software.
ERP Implementation Team Structure

- Project Sponsor
- Steering Committee
  - ITPC
  - Module Team 1
  - Module Team 2
  - ...
  - Module Team 11

August 4, 2011
Project Sponsors

- BSNL: CMD & Corporate Office Directors
- CEO HCL Infosystems
- VP M/s SAP
- VP M/s E&Y (BPR Management Consultant)
Project Sponsors

Key Role

- To drive the engagement and giving overall direction to the Project team.
- Ensuring implementation meets set Goals based on best practices
- Review of progress and timelines
- Ensuring appropriate and adequate resources are assigned
- Final authority to resolve Project Issue / Conflict resolution (if escalated)
Project Sponsors

Engagement

- Formal project review meetings at least once a month
- Consultation by the Project teams during the course of the Project may be more in the form of informal meetings
Steering Committee

- BSNL: Chairman Director (O); Other Functional Directors; Executive Director (F); PGM ERP, CGM Gujarat, GM IT
- HCL Infosystems VP, Delivery Head
- M/s SAP Country head Delivery, Project Manager
- Country Head M/s E&Y (BPR Management Consultant)
Steering Committee

Roles / Responsibilities

- Review Requirements, Scope and Implementation Plans
- Review BSNL resource deployment
- Approve Scope Changes and/or schedules/timelines
- Approve changes in Business Policies resulting from SAP implementation
- Drive SBU Standardization initiative
- Take Change Management decisions
- Resolve cross-functional issues and policy related issues
- Review BSNL users’ Roles / Responsibilities post-SAP Implementation
ITPC : Facilitator for ERP Implementation

- Role and Responsibilities
  - Setup the ERP data center
  - Install and Commission and Validate ERP Hardware and Software
  - Set up country wide ERP user Network extending to each and every location and BSNL Point of Presence
  - Configuring the ERP system as per SRS document
  - Validation and AT of ERP system in association with Module teams
  - Co-ordinate activity of Data extraction, Conversion to electronic format and migration of data to ERP system in association with Module teams
  - Training of the BSNL officials etc.
  - Day-to-day operation and maintenance of ERP system and providing operation support to BSNL staff.
Module Teams

- Roles and responsibilities
  - To capture, map and document all the existing “as it is” Business Processes, Work Flows and Decision
  - Finalization of SRS (System Requirement Specifications) document of their Part
  - To carry out the BPR exercise with the help of SI and Management Consultant
  - To identify critical business for BPR and suggest new critical processes, work flows, re-engineering and optimization of existing processes, to simplify, improve and even speedup the work environment
  - Associate in configuring, validation and AT the ERP system as per the SRS finalized by them
  - Associate with CGM ITPC in coordinating activity of Data extraction, conversion to electronic format and migration of data to ERP system for their respective part
Create Standard Order: Overview

- Standard Order: [Blank]
- Net value: 0,00
- Sold-To Party: [Blank]
- Ship-To Party: [Blank]
- PO Number: [Blank]
- PO date: [Blank]

Sales

- Req. deliv. date: 18.12.2009
- Deliver. Plant: [Blank]
- Complete div.: [Blank]
- Total Weight: 0,000
- Delivery block: [Blank]
- Volume: 0,000
- Billing block: [Blank]
- Pricing date: 09.12.2009
- Payment card: [Blank]
- Exp. date: [Blank]
- Payment terms: [Blank]
- Incoterm: [Blank]
- Order reason: [Blank]
- Sales area: 1000 / 10 / 00
  - Germany Frankfurt, Final customer sales, Cross-division
### Document Flow

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<thead>
<tr>
<th>Document</th>
<th>On</th>
<th>Status</th>
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<tbody>
<tr>
<td>Standard Order 0000013118</td>
<td>09.12.2009</td>
<td>Completed</td>
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<tr>
<td>Delivery 0080020158</td>
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<td>Completed</td>
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<tr>
<td>Invoice (F2) 0090036554</td>
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<td>Accounting document 0100000143</td>
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SAP Easy Access - User menu for SAP01-08

- Favorites
  - User menu for SAP01-08:
    - Logistics
      - Materials Management
      - Purchasing
        - Purchase Order
          - Create
          - Change
          - Display
      - Master Data
        - Inventory Management
        - Logistics Invoice Verification
        - Material Master
      - Sales and Distribution
      - Production
    - Accounting
    - Human Resources
    - Tools

KNOWLEDGE PRODUCTIZATION SERVICES
**Display material BOM: General Item Overview**

**Material:** R-B108  |  **Casing**
**Plant:** 1000  |  **Werk Hamburg**

### Material

<table>
<thead>
<tr>
<th>Item</th>
<th>ICt</th>
<th>Component</th>
<th>Component description</th>
<th>Quantity</th>
<th>Un</th>
<th>As</th>
<th>Sls</th>
<th>Valid From</th>
<th>Valid to</th>
<th>Change No.</th>
<th>Ph</th>
<th>Sort</th>
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<tbody>
<tr>
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<td>L</td>
<td>R-T108</td>
<td>Slug for spiral casing</td>
<td>1</td>
<td>PC</td>
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<td></td>
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<td>L</td>
<td>R-T208</td>
<td>Flat gasket</td>
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<td>PC</td>
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<td>0030</td>
<td>L</td>
<td>R-T308</td>
<td>Hexagon head screw M10</td>
<td>8</td>
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<td>31.12.9999</td>
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</tr>
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</table>

**Position:**  |  **Initial**  | **Entry**  | 1 / 3
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Material</th>
<th>Short Text</th>
<th>PO Quantity</th>
<th>Deliv. Date</th>
<th>Net Price</th>
<th>Curr.</th>
<th>Per</th>
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</thead>
<tbody>
<tr>
<td>10</td>
<td>R-T108</td>
<td>Slug for spiral casing</td>
<td>10 PC</td>
<td>21.12.2009</td>
<td>5.11 EUR</td>
<td>1 PC</td>
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**Material Data**

- **Material group**: 001
- **Vendor mat. no.**: EAN/UPC
- **Vendor sub-range**: 
- **Batch**: 
- **Vendor Batch**: 

**Vendor**: BALTUS08 Baltus AG Gr.08

**Document Overview On| Print Preview| Messages| Personal Setting**

**Doc. date**: 09.12.2009

**Standard PO 4500017153 Created by SAP01-08**
Bharat Sanchar Nigam Limited, India

SAP Easy Access - User menu for SAP01-08

- Favorites
- User menu for SAP01-08
  - Logistics
  - Accounting
  - Human Resources
  - Tools

KNOWLEDGE PRODUCTIZATION SERVICES
Thanks
Thanks!