Implementation of SAP and Integration of Port Operations System

at

Mormugao Port Trust

Goa

India

A case study on conversion of traditional port with stand alone computer systems to modern port with integrated port solution

Section I

Introduction to ERP at Mormugao Port Trust (MPT)

1.1 Introduction

Mormugao Port, ever since its inception as a seventh Major Port of India in 1963, constantly strives to be totally customer-centric organization consistently delivering Value-Plus services to all its clients by offering faster turnaround times, lower costs to port users, being adaptable to every requirement and consistently offering customers quality and reliable services. As a result Mormugao Port Trust plays a key role in the growth of the trade and also the region's economy.

In many ways, Mormugao Port enjoys an enviable position amongst the major ports.

1. It is the premier iron ore exporting Port of India with an annual throughput of around 33.81 million tonnes of iron ore traffic. The Port accounts for about 36% of India's iron ore export.

2. Though ore is the predominant cargo, there has been a steady increase in liquid bulk and general cargo traffic ever since its joining the ranks of the Major Ports of India. Since 1992, there has been a regular container feeder service from the port and the container traffic has registered a rapid growth within a short span of time and presently handles about 14,227 TEUs per annum.

Excellent facilities, high productivity, streamlined administration, and a dedicated workforce all go towards making this Port one of the most efficient Port in the Indian subcontinent. With all these attributes, Mormugao Port has tremendous potential to cater to the needs of trade and industry and to contribute to the economic development of the Nation.

Mormugao Port occupies a prominent position as India's premier iron ore exporting port.

1. A quantity of over 32.72 million tonnes of ore is exported annually through this port mainly to China, Japan, Korea and European countries. This accounts for about 35% of the total iron ore export from India.

2. During the financial year 2008-2009 the port handled a traffic of 41.68 million tonnes which is 8% of the total traffic of 530.37 million tonnes handled by all the twelve major ports of India.

3. The traffic during the year consisted of 33.81 millions tonnes of iron ore including iron ore pellets, 5.20 millions tonnes of coal/coke and 1.40 million tonnes of petroleum products and other liquid cargo.

4. The remaining traffic consisted of cargoes like fertilizer, alumina, limestone, containerized cargo, Sugar. The Mechanical Ore Handling Plant loaded 11.51 million tonnes of iron ore.

5. The general cargo traffic was 6.48 million tonnes. A quantity of 1.47 lakh tonnes of containerized cargo was also handled at the port during the period.

The MPT management had identified Information Technology as one of the key enablers in its modernization and productivity improvement drive and decided to deploy integrated systems across the major functions of the organization to exploit the full potential of Information Technology. MPT decided to select a packaged Information Technology solution or an Enterprise Resource Planning (ERP) solution which provides globally accepted best practices in the areas of Materials Management, Vendor / Purchase Management, Financial Accounting, Cost Controlling, Financial / Performance Reporting, Maintenance Management, Human Resource Management, Capital Asset Management etc. In addition to this, MPT took a very important decision to develop Port Operations System (POS) using ERP solutions. Development of POS included computerization of internal operations of Port and also interfacing various stake holders like Agents, Banks, Portal developed by Indian Port Institute which is called Port Community System and Indian Customs Authority . None of the ERPs were having this solution at the time of implementation of ERP in MPT.

1.2 The need for ERP systems

Over the years MPT has developed many Information Technology (IT) systems covering different functional areas of the business. These systems were developed at different instances of time and on different platforms. Some of the systems developed earlier suffer due to lack of adequate support and it has become almost impossible to upgrade them. Although there is an enterprise wide Local Area Network (LAN) and the usage of computer applications has spread to almost all the functional areas of the business, these systems have not been able to deliver the best of support to the business functions because all these systems are stand alone entities. MPT recognized the need to implement an integrated systems for the following reasons

1. To avoid multiple entries of data: like attendance recording and entry of attendance information to the payroll and finally entering the salary payout information to the accounting system.
2. Time delay between the transaction and availability of information: like financial transactions were processed once in month as accounting system was dependent on data entry rather than on transaction. Similarly the reflection of the cost of maintenance in the financial system is far removed in time from the actual cost of maintenance / material consumption.
3. Accuracy of information: The accuracy of the inventory data in terms of value and quantity is different in different places since information of purchase value; current value, depreciation etc were all stored in different systems captured at different instances of transactions.
4. Reports: Informed decisions on many operational as well as strategic aspects of the port are dependent on timely availability of reports like volume of business, operational efficiency, turn around time etc. When the information for a particular report has to come from multiple systems, the timely availability of information and information on comparable transactions as well

as comparable time intervals was extremely difficult to get and time consuming to compile.

5. Multiple data bases: The information about related entities as well as transactions was maintained in different data bases leading to problems of reconciliation and comparison.
6. Integration of the processes: As the business volume and complexity increases, the need for integrating the processes increases. For example planning the maintenance based on the arrival and departure of ships or the loading schedules and planning to buy the materials in line with the maintenance schedules, would make business efficient, responsive and flexible. This is possible only when the different processes, in this case, traffic, maintenance and materials management processes are integrated, meaning different people across the organizations have visibility into transactions / information / decisions of other departments / functions.

1.3 The expectations

Solution provided should seamlessly integrate with other application packages or tools (for Port Operations) which form the building blocks to complete the comprehensive solution.

1. A standard ERP package should provide the platform for integrating all the present and future processes of the MPT. Thus the ERP must provide support to the maximum functional areas of MPT.
2. Meet MPT operational requirements in its Core Business Processes to the maximum possible extent, requiring minimum customization and minimum changes to the processes of MPT
3. Support large user base of MPT and large data volumes, easy to maintain and upgrade
4. Software should have the flexibility to allow for upgrades
5. The applications should be scalable to support the future expansion in users as well as expansion of the business processes

1.3.1 Desired Benefits

MPT expected following benefits in respective areas from the ERP system.

1. Analysis of the performance of the port operations
2. Planning, management and control of port operations
3. Preventive Maintenance of the Port Machinery
4. Planning of port infrastructures
5. Control of financial management
6. Control and planning of human resources of the port
7. Integration with Agents and Banks
8. Integration with the Port Community System (PCS)
9. Integration with Customs Authority

1.3.2 Analysis of the performance of the port

The prominent role of the port in the local and national economy explains the interest in port information from external bodies: public authorities, trade organizations like shipping agents, Stevedores, Chambers of Commerce and Industry, banks, exporters, and importers and local or regional media including specialized publications. Publishing statistics related to the performance of the port operations contributes to transparency and promotes the corporate image of the MPT. So the consistent analysis of the port operations both for external communication and for internal decision making was one of the key benefits MPT was seeking from implementing the ERP system.

1.3.3 Planning, managing and controlling port operations

Efficient management of port operations is ensured with thorough knowledge of the physical activities regarding ships, goods, or passengers. Only the analysis of carefully selected, processed, and presented data can achieve this goal. MPT expected that such statistical information will be made available for internal use through the ERP system. It was expected that these will be mostly in the form of charts and graphs with standard indicators showing information about specific organizational units. The main purpose was to help management to take measures that minimize the ships' transit time in the port, speed up transit of goods through the port, reduce costs and ensure an efficient use of facilities and labour.

1.3.4 Preventive Maintenance of the Port Machinery;

With the operational data on the performance of the key machinery and physical assets MPT expected that it will be possible to increase the productivity of the machinery through preventive maintenance operation. The ERP system was expected to facilitate the reduction of unexpected breakdown so that MPT will be able to take corrective & preventive actions of a breakdown. Complaints may arise, at any time, either from ship-owners or shippers. It is vital to analyze and answer queries concerning the quality of services during operations by providing quantified data, in case a ship-owner is displeased with the long stay of his ship in port or handling productivity when compared with that of rival ship-owners or with productivities in other ports. And the answers should be found in a single database after the implementation.

1.3.5 Planning port infrastructure

The planners are interested in the traffic trends and long term operations, given that major projects may take several years to complete. MPT also needs these data for simulations to assess extra facilities or upgrading existing facilities. For this purpose, statistics on traffic flows and operational performance and costs are needed, and it was expected that ERP system will support this effectively.

1.3.6 Financial management control

Financial indicators have to be submitted to the Finance Department so that managers can group the trends in traffic and services. This data would help define how financial information should be collected and processed. There is a wide range of data starting from the follow up of revenues from port dues from the main traffics to the revenues from the rental of equipment to staff expenditures in the different sectors of activity. The analysis of the data collected usually lead to the enforcing of measures to boost the performance of port activities. All these were expected to be captured in the finance module of the ERP system.

1.3.7 Human Resources planning and control

Efficient management of MPT requires the Human Resources Department to have current records of the staff in each and every sector of activity within the port, their skills, age, experience, and background. For an efficient redeployment of staff, absenteeism, sick leave, work accidents, or others have to be closely followed. The analysis of data collected on human resources is of vital interest for recruitment planning and career management. The human resource module of the ERP was expected to cover all these functions.

1.3.8 Integration with Agents and Banks

Major stack holders of Port are the port agents like Shipping Agents, Cargo Handling Agents , Stevedores, Custom House Agents and so on. There is obviously business to be carried out with banks with whom Port as well as other stake holders are transacting with. These facility is already existing in legacy system. Better system was expected from ERP solution so that day to day business with all these agencies can be carried out on line electronically.

1.3.9 Integration with the Port Community System

Indian Port Association had decided to establish a centralized/uniform Port Community System covering all its major ports, as a part of its collective, collaborative, and co-operative approach to EDI implementation, for the benefit of all the members of the Indian Port Community. The proposed system will link through the internet all members of the Port Community including Exporters, Importers, Custom House Agents, Shipping lines, Shipping Agents, Stevedores, Transport operators, Banks, Ports, Terminal Operators, Customs, and other organizations / companies in the maritime logistics chain. The ERP system wss expected to facilitate exchange of vital information needed by each member from other members of the community to perform their functions effectively and to improve the overall efficiency of maritime trade and transportation cycle.

1.3.10 Integration with Customs Authority

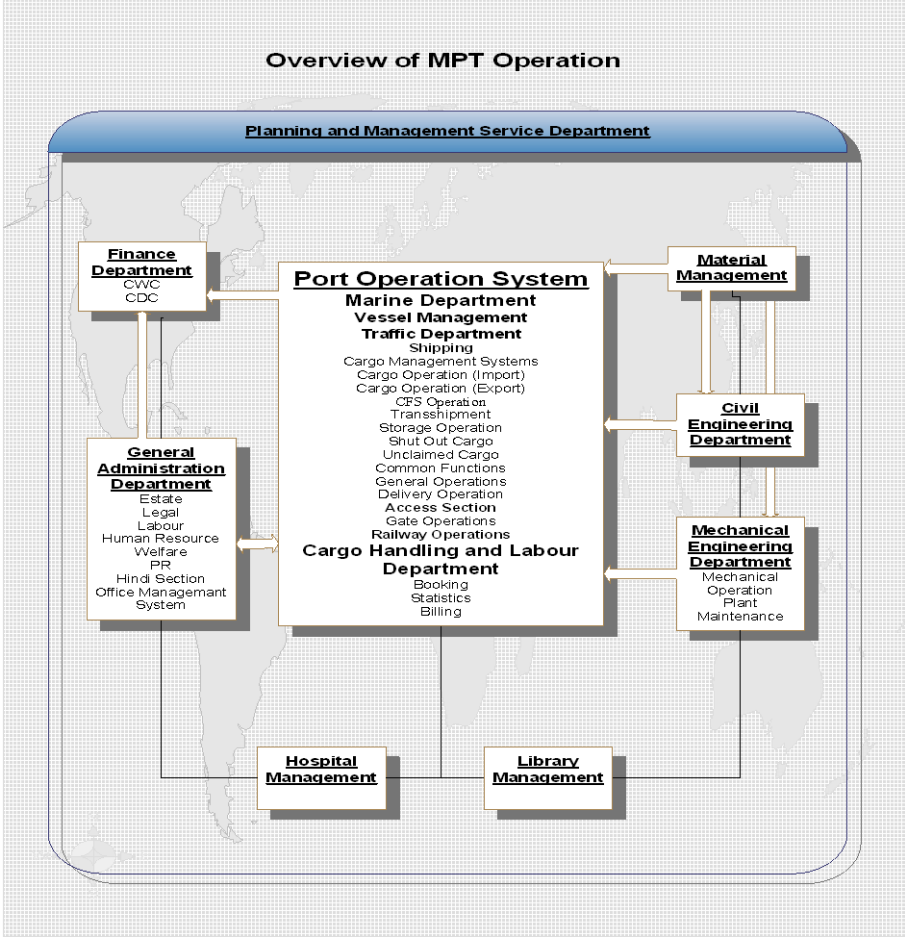
All the ports are involved in import and export of various types of goods. As a result of this integration with Customs Authority is a very vital activity. ERP solution was expected to provide the integration of Port with Customs Authority.

Section II

Highlights of the operations of MPT

2.1 Operations of MPT

The operations of MPT can be divided into two broad areas – the core port operations and the support activities as shown the diagram. The different functional areas and the key characteristics of these functions are:



1. Finance / Accounts management – Management of the finance, payments and receivables, book keeping etc.
2. CDC (Central Document Centre): The customer billing operations are done by the CDC. CDC receives the data of the services rendered from different operational units of the port and generate bills based on Schedule of Rates.
3. Materials Management: Managing the material inventory and purchasing of materials is carried out by this department.

4. Mechanical Ore Handling Plant: Loading and unloading of the ore is carried out by this department

5. Mechanical Engineering Department: The mechanical equipment of the port are planned and maintained by this department
6. General Administration Department: The HR and administration are part of this department
7. Civil Engineering Department: the port infrastructure is planned and built by this department
8. Cargo and Labour Handling Department: This department provides the labour to different port users for different activities
9. Traffic Department: The cargo and container operations are managed by this department
10. Marine Department: The vessels movement within the port are managed by this department
11. Planning & Management Services: This department prepares different types of report on the operational performance of the port.

2.2 The port operations

Port Operations covers the following areas: - Signal Station, Marine Shipping Section, CCP, Shipping Section, Receiving Section, CME's Office, Cargo Berths, TM's Office and CDC. The major function of Marine Department is managing ship movements. The major function of Traffic Department is handling the cargo. The major function of Cargo Handling Labour Department is to supply labour. The major function of CME's Department is to handle iron ore.

2.3 Operations of Marine Department

2.3.1 Interface with the Port Users

1. Registering each voyage of the vessel by authorized Shipping Agents through the remote log on system of the port or through the Berthing Section of the port. (Each voyage shall be uniquely identified by a Vessel Identification Number).
2. Filing of application for allotment of berth by authorized Steamer Agents through the remote log on system of the port or through the Berthing Section of the port.
3. Self assessment of the estimated charges payable by the Steamer Agent through the remote log on system of the port.
4. Transfer of funds to the Port's account electronically.

2.3.2 Operations of Marine Department

1. Creation of vessel profile uniquely identifying them (IMO number of the vessel) and storing the same in the port's database
2. Capture of Pilotage and towage information for inward, outward and shifting operations.
3. Capture of the time of each movement of vessel like berthing, unberthing, shifting, sailing etc and any significant delays to a vessel's activities in the Port right from the arrival at outer anchorage of the port till its sailing are being recorded.
4. Providing other services rendered to the ship like fresh water supply, bunkering, non-standard services, shore supply, telephone etc
5. Mobilizing the resources (craft, tugs, pilots, berthing/ mooring crew etc.) required for inward/ outward / shifting pilotage and berthing / unberthing operations.

2.4 Traffic Operations

2.4.1 Import Operations

1. Receipt of copy of IGM from Customs electronically & Receipt of passed Bill of Entry from Customs electronically.
2. Verification of Customs Clearance & Payment of port charges at Transit Shed/ Open area and Issuance of gate pass/vehicle ticket.

2.4.2 Export Operations

1. Filing of Export Application electronically as well as manually & Recording of receipt of export cargo shift wise/day wise against the Export Application.
2. Comparison of Shipping Bill with Boat Note (Boat Note is prepared by respective exporter/CHA mentioning the type of cargo, marks & no., vessel name as specified in the Shipping Bill which is handed over to comparing clerk)
3. Preparation of Tally Sheet from Boat note & Loading of cargo in accordance with the Export Tally Sheet

2.4.3 Railway Operations

1. Receipt of wagons (for inward cargo and outward cargo) & Receipt of pilot memo & Rail Receipt from SWR/ consignee and Intimation to concerned consignee
2. Receipt of intimation from consignee about completion of discharge of cargo and issuing readiness memo to SWR
3. Receipt of freight /haulage / terminal and other charges and remittance to CDC for collection.

2.4.5 The Finance function

1. Updating/Posting of the delivery particulars electronically against the IGM.
2. Generation of Out Turn Statement (vessel wise) after 30 days from the date of sailing of vessel.
3. Record of accepted payments from Shipping Agents/Cargo Agents based on the self assessment made in Vessel Related Services (VRS) Forms, Cargo Related Services (CRS) Forms after having been verified by Sr.Clerks of CDC (Marine) and CDC (Traffic) and,

4. Vessel Related Services (VRS) Billing With and Without Estimation and Billing of Vessel Related Services like Port Dues, Pilotage, Berth Hire, Anchorage (Idle & Working), ELTS, Special Charges for WISL, Water Supply to Vessels and Miscellaneous Services like Cancellation, Detention, Use of Tugs, Hire of Flotilla, etc. Also Scheme for Operation of Bunker/Water Barge. Adjusting the actual charges against the advance already collected through refunds/ credit notes or through additional demand / debit notes.
5. After approval by the officer in charge the Bills are dispatched to the concerned parties.

2.5 Operations of Cargo Handling & Labour Department

2.5.1 Key process of Booking Section

1. Record of attendance of cargo handling workers/winch cum crane operator sets
2. Booking of gangs/set taking care of rotations and providing necessary flexibility. Booking slip for set/gang
3. Receipt of daily loading/unloading register from agents (tally sheet) & Preparation of booking muster for gang/set, labour indent and supply statement, daily performance of vessel, Hazree register for cargo handling workers

2.5.2 Key processes of Billing Section

1. Receipt of Bank Guarantees from Stevedores & Preparation of Billing advice for advance payment to CDC by agent & calculation of Cargo/container handling charges & Preparation of Ship/shore operation bills
2. Creation of Billing advice for cargo handling charges & Maintenance of agent account details
3. Preparation of Journal Voucher & Monitoring of Bank Guarantees

2.5.3 Key processes of Statistical Section

1. Preparation of daily performance of vessel, Monthly analysis of labour output, Average employment for the month, Total number of ships handled for a period
2. Cargo handled statement -cargo type, tonnage, and output, Performance of vessels handled in stream, Traffic handled for a period

2.5.4 Key processes of Finance department

Cargo Related Services (CRS) billing With and Without Estimation and

1. Billing of Cargo Related Services like Wharfage on Cargo, Container Handling Charges, Equipment Hire, Royalty.
2. Billing of electricity charges for Reefer Containers.

2.6 Operations of Mechanized Ore Handling Plant

2.6.1 Key processes in Engineering (Mechanical) Operations

1. Operation and Maintenance of Mechanical Ore Handling Plant (MOHP), - Efficient utilization of MOHP & Monitoring the operations & maintenance of MOHP
2. Planning of spares & materials for MOHP & Coordination with material department for procurement of various materials required for MOHP
3. Acquisition, installation, maintenance of the floating craft, light & Mooring Buoys, fork- lifts, wharf cranes, mobile cranes, locomotives, vehicles & other support equipment.

2.6.2 Key processes in Plant Maintenance Operations

1. Defining different maintenance schedules as per manufacturer's recommendations & Preventive, Periodical and break down maintenance
2. Capture of data on equipment availability, down time and utilization & Alerts on the due dates for preventive maintenance

3. Alerts on the due date for insurance renewals, expiry of warranty and other similar events
4. Generation of maintenance schedules & Maintenance activities of Crafts Equipment/ cranes electrical installations Civil structures

2.6.3 Key processes of Civil Engineering Department

1. Preparation of Civil/ Mechanical/ Electrical Engineering Estimation with standard schedule of rates, reusable data for estimates
2. Registration of Contractors & Tendering process for all types of works right from issue of NIT, amendments, clarifications, evaluation of bid documents – technical and commercial, preparation of comparative statements etc

Project Planning – work break down, estimation of resources, timelines,

3. preparation of PERT chart, identification of significant milestones, critical path
4. Preparation of Billing – running bills, part bills and final bills including recovery, adjustment of advances, release of SD, EMD etc
5. Coordination with Materials department for procurement of various materials required for the department

2.6.4 Key processes of Finance Department

1. Annual Billing of Lease Rentals as per Agreement or Scale of Rates (SOR) or both.
2. Monthly Billing of Lease Rentals as per Agreement or Scale of Rates (SOR) or both.
3. Billing for water supplied to parties occupying premises or land
4. Billing for power supplied to parties occupying premises or land
5. Receipt and scrutiny of bills/invoices received from various departments/sections and preparation of pay orders & Payment through cash section of all works bills.
6. Issuing receipts for payments made through EDI, DD, Cheque, Banker's Cheque (Bank Pay Order) or Cash and linking them against respective bills.

2.7 Material Management Department

2.7.1 Key Processes of material department

1. Registration of vendors. & Workflow for approval / amendment / approval of amendments of requisitions.
2. Work flows for conversion of requisitions to enquiries, preparation of comparative statements of quotations received, approval by competent authority, preparation of draft PO, firm PO
3. Management of bids & tenders
4. Record against the purchase order the quantities received, accepted and rejected (returned to supplier) and reason codes & Return of goods after receiving and link to the processing of Debit/Credit notes

2.7.2 Key processes of Finance

1. Receipt, scrutiny, preparation of pay orders & Payment through cash section of all miscellaneous bills

2.8 General Administration Department

2.8.1 Key Processes of Estate Management

1. Updating of available warehouse, office and land area for rental complete with details and layout plan
2. Application for rental of warehouse, office and land area electronically & processing of the application, send reply or approval to the applicant
3. Monitoring and collection payment of rented warehouse, office, land etc
4. Allotment of lands on tender or directly & Allotment of lands on tender or directly
5. Allotment of quarters to employees, pending list of applications for quarters, allotment of garages, vacation of quarters and exchange of quarters,
6. Coordination with Civil/Mechanical/Electrical department for maintenance of estate

2.8.2 Key processes of HR Management

1. Capture of personnel data at the time of entering the service & Updating the status as and when the events occur preferably direct from the relevant module itself.
2. Status changes of the employees – promotion, reversion, suspension, transfers, deputation, study leave, temporary assignments etc.
3. Capture of Time, attendance, leave, absence, overtime of the employees either through direct interface to other devices like smart card/ access control device or through manual entries.
4. Employee work scheduling (shift / roasters)
5. Preparation of
    a. Salary bills – wages, OT, holiday OT, NW, incentives for Port employees
    b. Salary bills – wages, OT, holiday OT, NW, incentives for CHLD employees
    c. Remuneration for Trainees/Apprentice/Contract/Part Time employees
    d. Honorarium, LTC, Medical Advance, Tuition fee, scholarships
    e. Loans and advances
    f. Calculation, disbursement and payment of PF, Bonus etc.
    g. Self service – like TA/DA claims/advance
6. Calculation of retirement benefits, pension entitlements and final settlements for superannuation, VRS, SVRS, resignation and termination
7. Maintenance of PF accounts

2.8.3 Key processes of Legal department

1. Record of cases in various courts (local, high court),
2. Time schedule of hearing of cases in high courts
3. Record of court hearing and correspondence
4. Right to Information Act- number of applications and progress report,
5. Management of Board and Trust meetings and record of proceedings,

2.8.4 Key processes of Labour department

1. Details of industrial disputes – pending, closed and fresh applications,
2. Labour court – on going cases, pending cases & filing of new cases,
3. ESI – details of labour (only contract labour) entitlement, deductions, payments etc,.
4. SC/ ST and OBC roster for all employees by various categories & periodic reporting,
5. Retirement figures, net employees on roll – monthly figures for Ministry
6. Records of Physically handicapped employees,
7. Preparation of Accident report to Board,

2.8.5 Key processes of Finance Department

Payments to employees – clearing and signing pay orders relating to Salaries & Wages, Productivity Link Reward, Incentive, Festival advance and other

1. personal claims - detailed records and monthly reports,
2. Records of all advances, recoveries & net balances from employees with periodic reports for employee viewing,
3. Process all bills relating to employees salaries, festival advance, ex-gratia payments, PLB bills,
4. Details on PF loans, recoveries, PF balances,
5. Processing payment of incentive schemes for eligible employees,
6. Verification of Proposals with respect to financial feasibility, verification of estimates, availability of Budgets
7. Statement of annual lease bills raised in respect of plots, buildings and foreshore lands leased to private parties/Government organizations and details of posting in the respective Register maintained for the purpose.
8. Raising of monthly lease bills towards occupation of shopping complexes at Headland, Port users Complexes at MRH by private parties/Government organizations and posting of the same in the Register maintained for the purpose.

9. Checking of annual Lease bills in respect of plots, buildings, and foreshore land leased to private parties/Government organizations prepared by the Sr.Clerks of Lease Section,

Section III

Over view of the solution

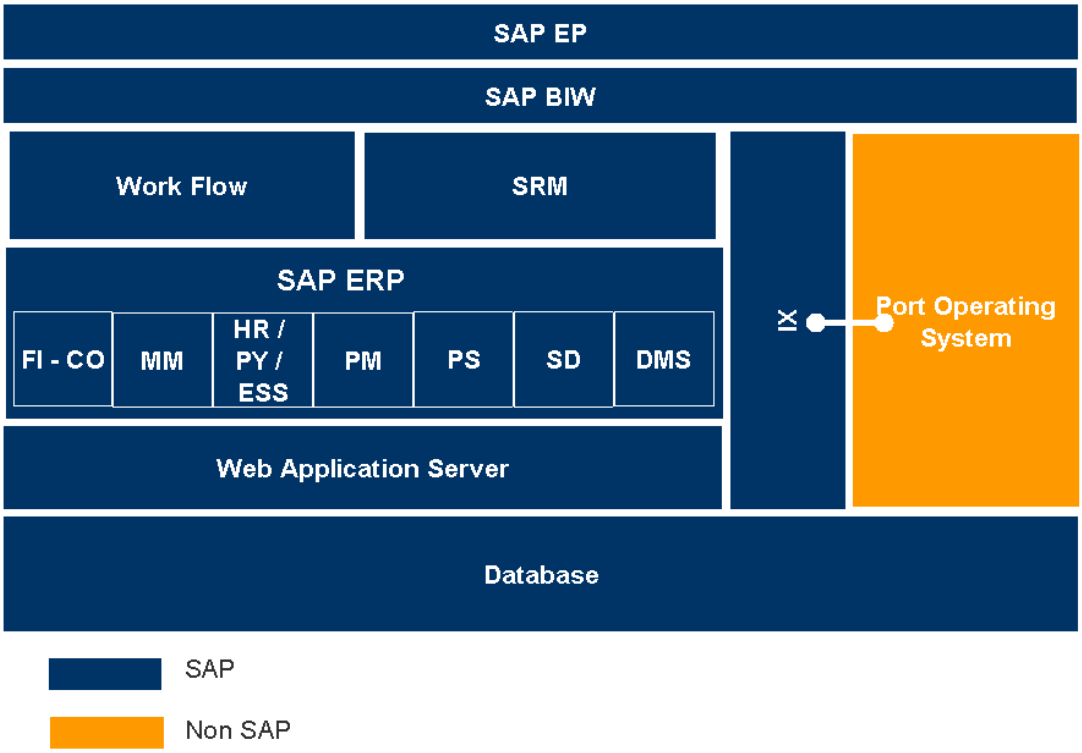
3.1 Software to be implemented

MPT selected SAP ERP software in order to meet the key objectives described above covering Organizational, Geographical, and Functional and Technological scope as described in the sections below.

The solution module which are selected for implementation were :

1. Finance and Cost Controlling (FICO)
2. Sales and Distribution (SD)
3. Materials Management (MM)
4. Plant Maintenance (PM)
5. Sales and Distribution (SD for Billing)
6. Real Estate (RE)
7. Project System (PS)
8. SRM(E-Tendering)
9. Document Management System (DMS)
10. Business Intelligence (BI)
11. HR, Employee Self Services (ESS), Payroll
12. Enterprise Portal (EP)
13. The integration infrastructure – XI
14. Port Operating System (Using CS, PM and developments)

Solution Map



Section IV

What is achieved

4.1 GOING GREEN

Journey towards paper-less office has started. Printing of proposals for Procurement of Materials and Services, Purchase Orders, Goods Receipt Notes, Measurement Books, Endorsement for payment, etc. has been stopped. All these documents are created in the system and approvals for the same are obtained through proper release strategies. Document Management System (DMS) is being used for administrative approvals like Vendor Registration Approval, Tender Document Approval, approval of Administrative proposals, approval of letters, Tender Advisory Committee Recommendations and for storing Board proceedings, circulars and autocad drawings. 1st May 2010 has been earmarked for stopping all the paper documents by using DMS fully.

4.2 INTEGRATION ACROSS THE ORGANISATION

Generally, all departments in an organization work efficiently for carrying out activities which are intra-departmental. However, when it comes to inter-department, efficiency comes down, reason being employees in a department are well-versed with activities carried out by their department whereas they are not aware of activities from other department. As a result of this, departments work like an isolated island. However, through SAP, all the departments are integrated together and they are working like a solid land mass.

4.3 INTEGRATION WITH USER COMMUNITY AND BANKS

Integration between any organization with their user community is difficult as various organizations use their own systems which are developed independently. To overcome this situation, module required for user community and banks has been developed in Port Operation System (POS). As a result of this, Port Users and Banks can directly access MPT servers and carry out day-to-day transactions like booking of berths, making advance payments, receiving the bills and making final payments. This connectivity is done through portal so that users and banks can connect to MPT servers through internet.

4.4 INTEGRATION OF PORT COMMUNITY SYSTEM AND CUSTOMS

Port has to integrate with Port Community System (PCS), which is a portal developed by Indian Ports Association. Similarly integration is also required with Customs Authority. Earlier integration with Customs was carried out using File Transfer Protocol (FTP). Now this integration achieved by transferring XML messages through PCS portal. XI module of SAP is used for transacting these messages from Port to PCS portal and visa versa. .

4.5 INCREASE IN COMPUTER ITERACY

Generally, in any Government Organisation, mobility of employees is very less, as a result of which, majority of the employees who work there are above the age of 40 years. Many of them are above 50 years of age also. Similar situation is also prevailing in MPT. As a result of this, computer knowledge across the port was limited. For the purpose of implementation of SAP, all the employees were trained in computer usage by training them in Word and Exel. Hence, computer literacy in MPT has increased to a great extent.

4.6 GETTING READY FOR REDUCTION IN MANPOWER

As per Government policy, recruitment of employees in Government organization has been stopped. Due to this, number of employees available is reducing day by day. In the year 2000, no. of employees available in our Port was around 3800. However, the same no. is 2800 as on today. This trend will continue in future. SAP in our organization will take care of reduction in manpower as overall workload will reduce due to integration across the departments.

4.7 BETTER CONTROL OF PROJECTS

We have introduced Project System (PS) module from SAP. This has enabled us to monitor physical and financial progress of all types of projects, review budgets, capitalized assets on real time. Budget allocation, sanctioned cost and actual expenditure can be viewed together on real time. Monitoring tools like Bar Charts, CPM network have also enabled better control of projects. Profit & Loss Account Statement and Balance Sheet are available on-line. Dash

Boards are being developed for all executives which will help them in taking day to day decisions.

4.8 SPREAD OF THE PORT

Port is spreading across three different towns, namely, Vasco, Sada and Harbour spread across 5 kms. Port area is surrounded by sea on three sides. All the activities of Port are controlled by eleven departments and Heads of these departments report to Dy. Chairman and Chairman. For the purpose of computerization, all these departments are connected through Local Area Network (LAN) using OFC cables as a backbone. State of art Data Centre is built for housing servers and network components. 600 licenses of SAP have been procured for implementing SAP. This has helped in integrating all the departments fully.

I4.9 INVOLVEMENT OF PERSONNEL

Involvement of employees and unions in implementation of SAP is very positive. Unions were involved is SAP implementation right from beginning. Memorandum of Understanding was signed with unions prior to implementation of SAP. As a result of this SAP implementation was smooth.

4.10 ROAD MAP

SRM will be introduced for e-tendering and our Port will march towards a dream of a paper-less office by using various modules provided by SAP. Through dynamic leadership of our Chairman, Shri Praveen Agarwal, IRS, many projects are being implemented in our Port. Project System will be used effectively for monitoring these Projects so that they can be completed on time. All the information will be provided to various executives using Dash Boards will help them taking correct decisions on right time there by increasing port productivity. As MM, PM, PS, RE and POS are happening on real time upto date operational data is made available. Similarly finance transactions related to these activities also happen real time. This has resulted in availability of online profit and loss statement and Balance sheet. Year end account finalisation will happen in the month of May, which was earlier happening in the month of June/ July. Efforts will be on to make this available on 1st April .

Section V

S U M M A R Y

5.1 Areas covered under SAP
(Live from 1st December 2009)

- Finance and Controlling
- Materials Management
- Document Management System (DMS)
- Project System
- Plant Maintenance
- Sales and Distribution (All Billing)
- Real Estate
- XI (For PCS and Customs messages)
- BASIS Activities

5.2 Areas covered under SAP
(Will Go live from April 2010)

- POS
- Human Resources
- Payroll
- Business Intelligence (BI)

5.3 Important Decisions taken for ERP Implementation

- Customised Solution or ERP
- Clear Direction for change
- Development of POS under SAP
- Appointment of Consultant
- Freezing Requirement
- Separate tender for ERP licenses,
- System Integrator, Hardware and LAN

5.4 Important Decisions taken for ERP Implementation

- Appointment of Full time Core Team Group
- Keeping this team ready for ERP
- Infrastructure availability for Core team
- Decision regarding developing reports internally
- Confirming whether these requirement is available in ERP solutions
- Training of CTMs in SAP

5.5 Important Decisions taken for ERP Implementation

- Availability of Hardware, Network and Data Center at appropriate time
- Basic Computer training for end users
- Lead by Top Management
- Review meetings of Steering Committee
- Change Management team
- Master Data Team

5.6 Benefits of SAP implementation

- All the transaction of MM and Finance and Billing electronically
- All the payments electronically
- PCS and Customs messages through SAP
- Better Control of Projects
- Moving towards paperless office
- Integration of all the Port activities
- Consistent and timely reporting at all the levels