Labmate®.net ERP LIMS

Enterprise Resource Planning (ERP)
Laboratory Information Management System for Medical Diagnostic Laboratories
Introduction

Labmate.net is an ERP (Enterprise Resource Planning) software for laboratory information management systems (LIMS). With deployment of product in thousands of establishments Labmate software has integrated most of the information workflows in Laboratory Management. The Labmate.net is suitable for all types of medical laboratories such as hospital, private, clinical reference, clinical research and clinical trial Management laboratories. The product of 25 years of research and development has integrated the concept of laboratory information management with ERP. It provides integral connections to front desk operations, laboratory data, instruments, analysis, reports, online analytical processing (OLAP) and backend operations. The product is fourth generation LIMS software and provides optimum interoperability with corporate infrastructure. It provides successful management of the LIMS implementation and maintenance. The product provides regulatory compliance with existing international standards such as ISO 15189, 21 CFR Part 11 from the Food and Drug Administration (US), ISO/IEC 17025, and Good laboratory practice (GLP). The system also works towards paperless environment by providing complete workstation wise control with user security.

Architecture

The product decentralizes client/server architecture thereby providing optimized resource sharing. Developed on .NET platform, transmits data between .NET framework and client/server architectures to offer a rich client side GUI application. Industry standard MS-SQL database has been used as data server backend. A Web-based application provides LIMS functionality thru web-browser. It shares the same .NET framework, database and components. The application can be interchangeably used for thick-client, web-enabled, web-based and thin-client LIMS environment depending upon the organization needs and resources availability. It provides rich functionalities utilizing client local print, storage and multimedia capabilities. Enterprise deployment at cross-locations can be done using web-enabled, web-based and synchronization applications. The dual architecture avoids the need of real-time access to the server for client functionality in remote locations. The application uses AJAX for providing rich GUI features at client location. The application helps in redundancy check, improves performance, ease of access, role based security, ease of use, reduced hardware software and IT costs. The application can run on cross platform browsers such as Chrome, Mozilla Firefox, besides IE as well.
Regulatory Compliance and Security
Labmate.net ERP keeps compliance with a wide range of different regulatory standards including: ISO 15189, 21 CFR Part 11, with features including:
• Comprehensive audit trail
• E-signatures
• Analyst training & certification
• Instrument and reagent management
• QA/QC
• Document/SOP management
• Location, user wise

Workflow management

Registration
The workflow starts with registration of patient at the main reception or at remote locations. The registration process keeps track of old patients, accounts, revisits, clinical history and photos. The user can direct the patient with the pre sampling instructions and procedures involved. User can also record registration documents required, additional clinical parameters required as per test requisitions. The patient requests such as urgent/stat requirements, mode of delivery of reports, home collections, appointments, reminders can also be noted down. The system automatically calculates the standard charges, corporate charges and discounts available. Enhanced test search facility helps in quick test selection. The patient can be issued a booking slip, receipt, bill, or test requisition form (TRF). The requisition can also be received via internet or electronic media such as email, flash drives from various medical establishments.

The Sample control
The Sample collection and receiving department maintains complete control over the number and type of samples to be collected and received. The predefined sample types are shown with respective tests in sample color code. Once the relevant sample is collected the technician can print barcodes and can send the sample for preprocess or transport sample accompanied by test requisition forms. Predefined warning messages are shown regarding method of collection, temperature of collection, receiving, sending, and rejection criteria. A comprehensive test outsourcing management system has been provided to keep track of outsourced samples. The process time management (TAT) is initiated to control the turnaround time management. The sample control keeps track of place of sample collection, sample status, type or site of sample collection, temperature of sending and receiving the sample, reason of repeat with user record. User can keep control on samples collected, not collected, repeated and received depending upon laboratory location. Search filter and options are also provided to search patients and samples.

Sample transportation & receiving
This module keeps record of transportation of sample from various collection centres, and locations. The system maintains the record for each batch with the date and time of dispatch, temperature of sending and receiving the batches at the processing centres. Special options are provided to record discrepancies. The sample are received at various workstations using barcode system.
Good Laboratory Practice is monitored using security and audit trail

Workload list Management
Labmate.net ERP LIMS assigns the tests to appropriate workstation for processing. The workstation technician has access to the assigned department, workstation, analyzer and tests with patients as per the security settings for the user. The online workstation control helps the technician to look at sample status, work status, interface results and result reporting. The output on paper of workload list is totally avoided thus saving paper. The module shows current samples, previous samples to be processed and repeat samples to be processed. Special checking at three levels is provided in terms of checking, provisional authentication, and final authentication.

Labmate connect: Analyzer interface management
The analyzer interface provides complete control over laboratory analyzers. The analyzer workload can be managed manually in case of unidirectional interface or can be managed automatically thru bidirectional interface. The workload list is loaded automatically on the respective analyzer thru barcode in real time or in batch processing modes. The date and time of analysis started, finished, quantitative results, qualitative results, location of the sample, analyzer details are recorded. The results are marked with normal, abnormal, panic color coding for immediate attention depending upon the predefined ranges. The physical interface protocols such as serial communication, Wi-Fi, TCP/IP protocol and file transfer protocol can be used. Industry standard data protocol such as HL7, ASTM-1394 data transfer protocol, proprietary protocols have been developed to provide interfacing with most of the analyzers available in the industry.

Result Report Entry
The result can be entered manually or directly thru interfacing analyzers. The results are marked with normal, abnormal, panic color coding for immediate attention depending upon the predefined normal ranges. The result reporting can be done depending upon the department, workstation, test and patient. The security authorization of the user shows only the allowed parameters to the reporting user. Special checking at three levels is provided in terms of checking, provisional authentication, and final authentication. The reports are released for printing and distribution on final authentication. The result modification is monitored and is recorded with reason. Modified results are also kept along with the user details. The module keeps track of process times at all times for TAT purposes. The reporting doctor work can be tracked and summary reports can be printed.
Capture Image directly
Direct image acquire from microscopes and other imaging equipment. Paste into patient reports or use for other purposes.

Bar Code Printing
The barcode application can be printed on most the documents. The barcode type, size can be defined as per the requirements.

Results graphs printing
The module provides facility to acquire graph data from analyzers such as cell counters. User definable graphs can be printed in patient reports

Advance Result Reporting features
All the external reports such as graphs, analyzer printouts can also be attached using a document management system. The reporting doctor can attach special comments for reference. The results can be repeated from same sample or fresh sample with the reason for repeat. Images can be acquired from microscopes directly or other imaging equipment using special image capture button. The acquired or scanned images can be edited and printed in the patient reports. The special report formats for numerical reports such as biochemistry, word reports for urine analysis, descriptive and synoptic reporting formats for histopathology and tabular reports for microbiology are provided.

Histopathology
The specific need to control the anatomic pathology department is addressed thru this module. The module is integrated with image capturing and analysis system. The microscope images can be captured directly or scanned for attaching with investigations. Easy to use built in synoptic reporting and word processing facility has been provided to type descriptive reports. The slide registers, report registers are printed. Block labels, slide labels can also be printed.

The histopathology module starts with details of histopathology sample preparation functions such as fixation, grossing, block preparation. The details of sample processing functions such as Embedding, section cutting, Staining are also kept along with Turn Around time (TAT) details. Each slide detail is maintained with barcoding. The slide ownership details are also maintained. The international synoptic reporting pattern is used. The result record with ICD 9/10 coding can be coded. The gross images, section images are kept and can be shared using emails as well. This modules helps in keeping standard reporting patterns with international standards defined by organizations such as WHO. It helps in recalling, searching thru all the earlier reports using various filters. Additional result analysis and information search modules are also included.

Microbiology
This is specialized module for reporting microbiology laboratory results. The system is linked with Vitec series of analyzers for organism identification and AST for automatic result transfer.

This new system is innovative because it presents a summarized index of the patient’s laboratory results, followed by the detailed, descriptive text of each result. This system helps to access vital laboratory results quickly in standardized format. The standard format for reporting results in this system is to feed record of each observation result in chronological order for every test ordered.

Each observation results records source of the specimen (blood,
Microbiology (contd..)
cerebrospinal fluid, and urine, etc., incubation period, temperature etc., along with the results. The results are coded as positive, negative, or pending for each observation. If the result is positive for the observation, the system will allow to enter further details. The further details such as organism isolated, biochemical report, staining required, antibiotic results, macroscopic and microscopic results are recorded. A final summary result is entered in culture results option for the test.

Reporting management
The reporting module shows list of all patients to be reported on a particular date with status on the basis of various filters such as patient id, workstation, department, and analyzer as per user security. The reports status such as reported, checked, provisional authenticated, final authenticated, printed, and pending with dates are shown. User can change and update parameters such as test not performed (TNP) or unsatisfactory results (UNSAT). Special options have been provided for recording TAT delay, repeat tests, important remarks, attachments of reports and documents. Reporting or authenticating user can also view patient clinical history, patient test result history and contact persons related to the patient.

Reflex testing
A reflex test is a laboratory test done subsequent to an originally ordered and resulted test. Reflex testing occurs when an initial test result meets predetermined criteria (e.g., positive or outside normal parameters), and the primary test result is inconclusive without the reflex or follow-up test. The software provides option for defining reflex test against any laboratory test performed (with or without charge). The special reflex conditions can also be defined. The system checks for reflex tests and blinks with a warning. The user can check for reflex tests and can take effective action.

Result diagnosis
This is an option for recording diagnosis of each result. International classification of disease such as ICD9, ICD-10 and SNOMED-CT codes can be searched and recorded. Diagnosis wise summary reports are printed on this basis.

Delta Check
Delta check is a quality control method that compares present and previous test results of patients and detects whether the difference between the two results exceeds pre-defined criteria. Delta check methods ensure the detection of pre-analytical errors, clerical errors, and random errors that cannot be detected using commonly used quality control methods, thereby improving the reliability of clinical tests. Labmate provides use of standard delta check methods-delta difference, delta percent change, rate difference, and rate percent change-for each of the test items.
Report Printing
The report printing module can print reports using several types of formats depending upon centre or customer. The reporting formats are user definable and can be configured. The user can set fonts, color, header, footer and test format using the configuration setup. The provisional or final reports can be printed for one patient of group of patients depending upon various filters. Printed reports can include patient history as well external attachments. It also keeps count of paper used for each patient report.

Reports delivery
Report delivery can be done by several modes such as direct, email, SMS, courier, direct to Doctor or hospital. The software keeps track of each delivery along with dates and reference.

Auto emailing and SMS of Reports
The completed reports are emailed or SMS automatically. The system keeps record of all the emails and SMS sent for reference purposes.

Report release management
The module helps in delivery of reports after authentication (verification). The reports printing, SMS, email, web download can be done only after release. All the automatic server applications, and services are linked with this modules.

Sample Storage and discard management
After processing of the samples and report release, the samples can be stored or discarded using this module. It keeps record of stored sample location in analyzers, freezers and cabinets. The sample trays, racks, storage locations are barcode. The sample archiving systems use bar-coded specimens that are scanned and placed in numbered positions in numbered trays. Retrieval of specimens is initiated by entering the patient’s sample accession number or a medical record number into the archival system’s database. The rack number and the position in the rack are determined and displayed for the user. The system also include a refrigerator location record for sample storage and automatic disposal of samples at predetermined times.
A full functional web application provides a hybrid application environment

The Hybrid Structure:
The Labmate.net ERP hybrid application design helps in optimum upkeep of application at thick-clients, Thin-clients, Web-enabled and Web-based application. It has rich GUI application design with real time data and synchronized data access capabilities.

Labmate.net Web

Labmate Sync
It is a full functional labmate.net web interface for remote locations. A distributed database is separately maintained at each location. It makes each centre independent of main data server. The location will keep on working even if internet connection is not available. The data gets automatically synchronized in the event of a successful internet connection with the main data server. The application consists of patient registration, test booking, TRF printing, bar code printing, receipts and bills printing. The sample collection, receiving, result reporting, printing modules are controlled by the user security. A total audit trail is maintained.

Labmate Online
It is a full functional online labmate.net web application for remote locations. During the online registration, test booking, TRF, bar code, receipts and bills can be printed. The sample collection, receiving, result reporting, printing modules are controlled by the user security. A total audit trail is maintained. The database is maintained at the main server location.

Labmate Online booking download reports only (Franchise)
This is an online booking and report delivery for franchise and collection centers. All user wise security for franchise is implemented thru web application.

Labmate Web downloads reports only
This is an online report delivery module over internet for patients, referencing doctors, referencing labs and associated companies.

Patient Portal
This is an e-commerce responsive website portal of Labmate. The laboratory can use this as face website as well. The contents can be loaded by administrator using an admin panel.

The patients can use the portal as guest or registered user. The registration can be done with linked mobile phone (an OTP is sent for verification). The doctors, service providers can use the website by using credentials provided by the laboratory administrators.

Registered patients can enquire, ask for home collection, book appointment and select tests or services required. On selecting the online payment gateway option, payment can be made by the user. This portal keeps the record of all the account activities of the user. The user can download reports, view result history, view transaction history using account management.

Anybody visiting the portal can find nearest lab with address, services offered, location and direction map. A detailed tests and services search option has been provided to search tests by name, by code, by condition and by diseases. The portal also shows dashboard with details of events, brochures, webinars and newsletters. The users can also give feedback on the visited centre.
Green application: Paperless control at every stage of operations

Patient Record Management and Services

Patient Home Sample collection Management
The home collection requests are maintained in this module. The collection executives can be issued collection schedules with preprinted receipts. Collection charges and executive share reports are printed. SMS can be sent to executives for home appointments.

Patient Reminder
The module sends special reminders for follow up cases, birthday, anniversary reminders thru SMS, emails and mail merge letters.

Patient Appointment management
The patient can be issued appointment time and date along with instructions and receipts.

Estimate Management
This estimate management tool for is for providing estimates to patients for the requested tests and services. The estimate is stored and can be recalled. An estimate slip can be printed. In case of booking, the patient can be booked directly from the estimate windows.

Patient result analysis management
Archived results can be analyzed to search for result values, laboratory ranges, and mean, median, and normal values reassignments.

Patient Document Management
Document management keeps patient prescriptions, clinical histories, old report documents, results attachments from other analyzers in many formats such as PDF, DOCX, RTF, XLSX, HTML and most of the picture formats. The documents can be delivered along with patients reports and billing.

Patient History Management
All the previous visits of the patient are recorded and older result details can be printed in tabulated format. The history of previous results can also be printed in patient reports on demand.

Patient forms Management System
The complex requirements of consent forms, insurance companies, and test forms are automatically prompted at various operational levels. These forms are filled automatically and can be scanned for record keeping. The user can define and attach as many documents required for each test.

SOP Manager
Standard operating procedure (SOP) documentation is the main requirement for accreditation. The Documents are kept in a proper filed manner and are available on demand as per user security setups.

Patient additional information management
The additional information requirement for test is prompted at registration and various other operational levels. The user can define these parameters for each test.
**Patient Report Attachment**
The system keeps patient reports attachments from analyzers, outsourcing labs, old reports in several formats such as PDF, DOCX, RTF, XLSX, HTML and most of the picture formats. The documents can be delivered along with patients reports and billing.

**Loyalty Card Management**
The regular visiting patients can be issued loyalty cards along with standard discounts. The patients can be issued reminders, history reports, and greetings.

**Membership card management**
The registered patients can be issued a membership card. The main member details along with family member details are stored. The card benefits are applied to all the members. Separate discount rate list, coupon rate list can be applied to these membership card owners.

**Reward point management**
The reward and redeem point management is linked with membership card or loyalty card. These cards may have barcode, magstripe or RFID chip. The cards are allotted to the members at the time of registration. The reward points are automatically calculated and can be redeemed on any future registration as virtual currency.

**Queue Management**
This queue management system is used to control queues at patient registration area. A token number is used for calling each patient (printed at waiting area) to a designated counter. A display system at waiting area shows the designated place and counter to visit for registration. The display system is user configurable to show Q status. It can be programmed to show promotional videos and pictures to customers at waiting area.

**Workstation Patient Management**
This is patient management solution that allows managing flows from initial patient registration to the service given at various workstation and departments. This intelligent management systems allows to increase productivity by ensuring that customer is served by the staff that are the most qualified according to the request. It is aimed at increasing customer satisfaction by reducing the actual waiting time, creating a pleasant environment and a fair reception. This solution cover 6 stages:
- Give appointment to a customer for a service
- Inform customers of the expected waiting time
- Announce the customer’s arrival if he/she has an appointment
- Provide for the customer to be recognized by name, number, bar code, identity card etc., by a workstation or receptionist.
- Allocation & direction
- Dedicated video displays or attendants to allow customers to take their place in the queue for a service at workstation

The special features of the software includes:
- Workstation wise time required for each service
- Workstation wise service providers
- Adjust waiting time according to the importance of the service to be provided
**Accounting**

**Third party Insurance Management**
Third Party Assurance (TPA) Management is a comprehensive insurance management system. It keeps record of all required documents, information for billing and accounting purposes. The insurance file details and allowed limits are kept.

**Collection executive accounting**
All collection executives are monitored using home collection, appointments system with patient home sample collection management.

**Referencing lab management**
All referencing lab samples and accounting can be monitored using this package. The systems controls special rate list, discounts and credit limits. An account receivable package maintains the accounts.

**Referred To Lab Management (Outsourcing)**
The outsourcing package maintains record of sample sent to other laboratories, mode of transport, date and time of sending sample. The rate list of the outsourcing laboratory is managed for account payable purposes. The test request forms (TRF) can be printed for every outsourced lab. The TRF can be designed as per requirements. The report received is attached with patient result reporting. The Directory of Service (DOS) can also be imported using excel sheets for quick reference. The report received from the laboratory can be attached for reference purposes.

**Reporting Doctors management**
All the reporting doctors' workload and output is maintained thru this module. The business generated, requirements, test requests are also maintained in this module.

**General Accounting**
A comprehensive general accounting package maintains the general accounting. Special functions are also given to link with industry standard accounting and SAP modules.
Advance Modules

Volunteer Management System (VMS) for Clinical Trials
Volunteer Management System (VMS) is an integral part of clinical trial management systems (CTMS). It records the activities related to volunteer before and after study participation in clinical trials. The pre-registration communication and then during registration, details including personal details, medical history, volunteer biometrics, consents, language proficiency, signature, photo, ID’s, and documents are recorded. VID cards can be printed. On selection for screening, details such as X-ray, medical examination, screening lab tests can be recorded. An eligibility criteria can be set for study participation. A searching option helps in searching eligible volunteer for study on the basis of various study parameters. The study parameters can be stored as master data. A communication module helps in sending and recording all telephonic and SMS messages. The subject ID cards can be printed after enrollment in study. A study working and follow-up module helps in keeping ambulatory, vitals, ECG, sample, end of study and mid-study timings and results. The module also helps in recording payment details to volunteers. A finger biometric identification and verification system controls the movement of volunteers in the system at various stages.

Clinical Trial Management System (CTMS)
CTMS software system is for biotechnology and pharmaceutical industries and clinical research institutions to manage the large amounts of data generated with the operation of a clinical trial. It maintains and manages the planning, preparation, performance, and reporting of clinical trials, with emphasis on keeping up-to-date contact information for volunteers (participants). Its main features are Patient Management, Study, stage management and reporting. It is fully integrated with Labmate patient, reporting, analyzer interface systems. It is in compliance with regulations such as ISO 15189, 21CFR Part 11, GLP and compatibility with other data management systems.

Payroll and Attendance Management
It is HR and payroll management system. It keeps record of employee’s master details, salary details, attendance (linking with any biometric devices), loans, transfers, promotions, leave, training programs, medical records, documents, items issued, appraisals, terms and conditions of employments. Salary slips, registers and MIS reports can be printed.

Process time management (Turnaround time TAT)
Process time management module records process timings at each stage of processing from the time of registration till the report delivery. Process time delays can be calculated on the basis of test, workstation, and department for routine and STAT patients using various filters.

Environment Management
The environment data acquisition module can record temperature, humidity, rotations, pressure round the clock from rooms, fridges centrifuges etc. Special SMS, email are generated to the concerned authorities in case of emergencies.
Total Quality Control Applications

Labmate QC Management
Labmate QC management is designed to find, reduce, and correct errors in a laboratory’s internal analytical process prior to the release of patient results. The system keeps record of each Analyte along with various controls and Westgard rules to be applied. Interpretation of quality control data involves both graphical and statistical methods. Quality control data is most easily visualized using a Levey-Jennings chart.

Non Conformance/CAPA
Non Conformance recording and Corrective Actions and Preventative Actions (CAPA) programs are an integral component of quality management systems. Labmate.net ERP helps your laboratory improve compliance through improved documentation and follow up on all CAPAs generated. The user can record issues related to department, and workstations. Administration can make an action plan after evaluation of the problem and allocate the responsibility to the concerned staff. The management can record the problem along with reasons associated with it. The information can be shared (based on the permissions) so that each member of staff benefits from the knowledge gained from the NC/CAPA process.

Document Management System (DMS)
The Labmate Document management system (DMS) is for management of digital documents and is used to track, manage and store documents. It helps in reducing paper, easy access, and security. The software is capable of keeping a record of the various versions created and modified by different users (history tracking). The content of each document can be stored as text document (MS-word document), PDF, picture, video and multimedia documents. A workflow system maintains user level request and permission procedures.

Labmate- Employee Training Management is the key (ETM)
Labmate-ETM can help you cost effectively implement a metrics-based employee development system. This module helps in effective management of personnel training and educational requirements. The enrollment, training schedule, certifications, and assessment can be managed. This will help employers, instructors, supervisors in effective management of professional level of employees. It will ensure that employees receive proper training program they need.

Labmate- Employee competency Management (ECM)
Competency assessment is one method by which you can verify that the employees are competent to perform laboratory testing and report accurate and timely results. This module provides procedures to evaluate the competency and documents it for record and training management of the employees on the basis of their responsibilities. The competency evaluation programs can be designed as per employee level and work assigned to them.

Assets management System
It is fixed asset management system. It keeps record of laboratory equipment details, AMC, preventive maintenance, insurances, and complaints and calibrations. MIS summaries can also be printed.
Total Quality Control Applications (Contd...)

Patient Satisfaction Survey

Patient satisfaction surveys helps to understand the quality of laboratory services from the patient perspective. A good healthy survey helps to improve patient services. The system records each response and provides overall rating for all the services provided. The user can configure the survey and design the same as per needs.

Dimager® RIS LIMS integration

It is a Radiology Information System (RIS) integrated with front desk operations. It stores, manipulates, and distributes patient radiological data and imagery. The system consists of patient tracking, scheduling, and result reporting and image management capabilities. The same can be used for tele-radiology working. It has following modules

- **Dimager® Server** - DICOM PACS server for image storage with multimodality option.
- **Dimager® Workstation** - DICOM workstation with view, Image processing, Attributes setup, Annotation Labels, Measurement Labels, PS, Slide Show, DICOM film printing, DICOM CD write, Image transfer and retrieve using C-get, C-move. Reporting function are built into the system.
- **Dimager® Viewer Windows/Web** - DICOM viewer with view, Image processing for web viewing.
- **Dimager® Labmate Viewer** - DICOM viewer with view, Image processing linked in Labmate reporting module.
- **Dimager® MWL and MPPS** - DICOM workload list management along with Modality performed procedure set linked with patient test orders.
- **Dimager® reporting module** - Reporting module for word reporting and printing.
Marketing and communications

Marketing/communication Management
The marketing executive team can record the call visits to referring doctors, companies and laboratories. Team can maintain service list of customers. Comprehensive hierarchy of marketing team is maintained. MIS summary on the basis of visits vs. turnover, marketing location, geographical location, product type, market type can be generated to ascertain the impact of marketing.

SMS Management
A SMS server keeps record of all SMS send and received from the system. Special SMS to patients, referring doctors, companies and associates are generated automatically. The SMS are delivered thru GSM mobile phones, modems and Web push services.

Email Management
An email management setup allows the auto-email send function. Emails can be sent directly from the system, or saved as attachment or saved into servers like MS outlook.

Labmate Multi Center Data Transmission
The location wise data is managed using Labmate Data-Sync synchronization. The data is synchronized automatically over the secured network. The data can also be transported in HL7 files or text files thru internet FTP services, storage media such as flash drives cd’s etc. The remote locations can work independently even if internet connection is not available with the main server.

Mobile applications
The System has several mobile applications
Lab Mobile app: Details about the Laboratory, instruments, tests, rate lists, locations, sample collection facilities. Patients, doctors, franchise can download the app for sending requests and checking the test and sample details.
Collection executive on Mobile: Collection executive can record all the details about patient, test request and samples. The executive can submit the details via Wi-Fi or Mobile internet connection.
Marketing Mobile app: Marketing executive can record all the details about marketing and meeting clients and can submit the details thru Wi-Fi or Mobile internet connection.
Business Intelligence and OLAP

Data Warehousing
The Labmate.net ERP LIMS data warehouse is used for preparing analysis reports for senior management on the basis of time analysis. It is a storehouse of data which is created by assimilating data from one or more data sources which are current operational data and archival data. It creates an information mine for easy and timely retrieval of information. It helps to bring entire management to a universal view for quick distribution and consolidation of information. It helps departments to correlate and manage information easily with a focused view on old and new data for comparison and trends analysis. It keeps standardized model for data keeping. It provides data drill down, drill up, slicing, and dicing and pivoting table operations.

Command Center
It is an OLAP query module. It shows record of registration summary from various locations, workload status, reporting status, account status with a click of mouse. It is used mainly to view and print summarized reports on daily, monthly and periodic basis. The reports are essential business monitoring and work reports produced by the various departments on a daily basis.