

ERP Solution Suite

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Introduction

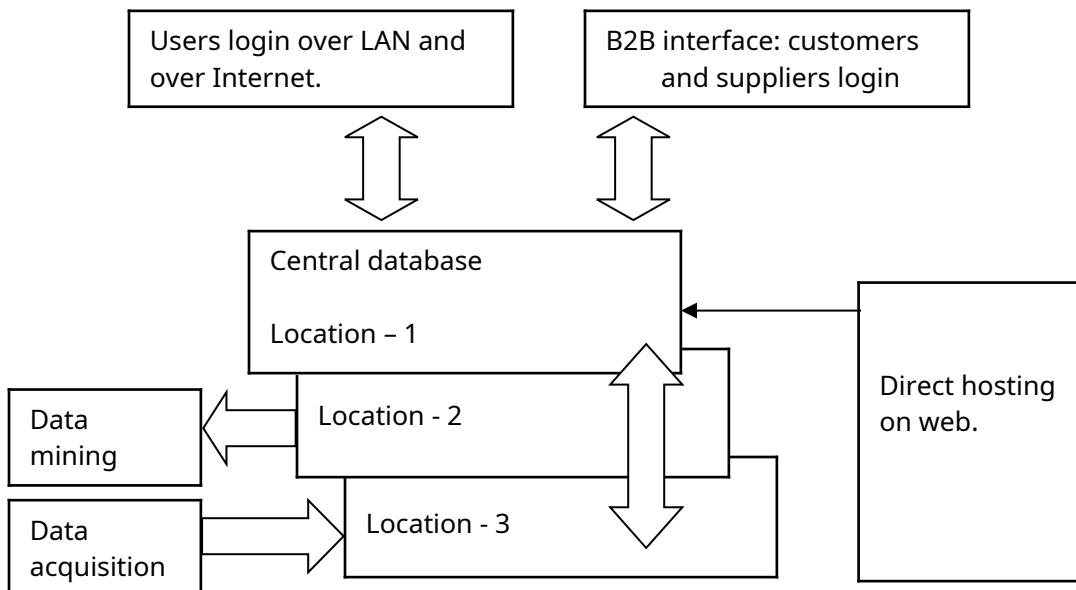
Galaxy is an enterprise resource planning (ERP) solution useful for small, medium, and large size manufacturing industries. It is configurable and fulfills requirements of a spectrum of industry segments - discrete engineering, fabrication, process, assembly, projects, sugar manufacture, chemicals, food, pharmaceutical, and so on. The industry may have standard or custom-made products.

Modules can be customized to meet customer specific needs and also to enhance performance of key business processes.

Latest technology platforms with complete web enabling are used for development.

Solution is useful to single location companies and even to business groups having multiple companies with multiple manufacturing locations, warehouses, marketing branches, and distribution network.

System structure



Technologies

- Back-end database and server: PostgreSQL database and Apache Web server that can run on Red Hat Enterprise Linux, Unix or any one of Windows family of servers.
- Development Tools: PHP, JavaScript
- Front end – User Interface: Browser Google Chrome Microsoft Edge on Desktops, and Laptops running on Windows, Linux. Tabs and Cellphones running on Windows, Android, iOS
- App wrappers: React

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Features

- *On line processing of transactions that are stored on a central integrated database* ensures that every transaction entered immediately effect all the related records. Thus an entry of a goods receipt note will immediately increase stock at stores, reduce pending purchase orders, and affect material requirement planning; and will be reflected in all related reports in a consistent manner.
- *Multilevel authorization and access control* ensures that every person is restricted by his predefined set of rights and is restricted by the system from doing anything for which he is not authorized.
- *Built in operational controls and business rules* make the system follows a set of rules.
- *Drill-down facilities* allow users to access 'related' data with few clicks.
- *Query facilities* allow quick 'mining' or digging up of data from the central database.
- *Ready formats for submission to authorities and auditors* give printing of all documents and statutory reports like tax returns, excise registers and so on as required by various authorities. System also facilitates electronic filing.
- *Audit trails* ensure logging of changes in data.

Integrated workflow and alert mechanism

Integrated workflow through central task console tracks and manages the 'moving traffic of tasks'. It proactively prompts users to complete tasks like approval and authentication. It also alerts users on 'preset events'. The task management is user-configurable. Time based controls allow automatic movement based on time. Finally, tasks, their sequence, business rules, alerts, and time-based controls all are synchronized to make the system 'live' in execution. Below are some examples that can be 'set':

- Don't allow sanction to a leave application if a task is pending with an employee.
- Move task to senior manager if not completed within 48 hours in normal course.
- Post alert to the indenting person on receipt of the indented material by stores.
- Do not allow user to proceed beyond login if a critical task is pending for him.
- Set 'legal calendar' to generate tasks for statutory submissions on a particular day every month.
- Post alert on stock level of a critical item going low OR on a purchase order raised for an item readily in stock.
- Generate task for payment towards advance against purchase order.
- Accept a sales order only if 'contribution' as derived from standard costing is not below acceptable level.
- Create tasks for transaction execution – to make GRN after entry at gate, and to make inspection report after making of GRN.

Reporting on tasks gives user-wise pending and overdue tasks, user-wise and flow-wise average time of execution, critical tasks in transit etc. Tasks can be closed, cancelled, and transferred to other user too.

The workflow offers immense benefits to the organization to establish impersonal reminder and follow-up mechanism that ensures completion of tasks in time. It also reduces average time of business cycles dramatically.

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List of modules and sub-modules

- CM Common information

- SL Sales and Distribution
 - o Inquiry, quotation, and their tracking
 - o Order processing, invoicing, dispatch
 - o Sales analysis
 - o Sale of general material, trading items, capital items, scrap and services
 - o Sales returns
 - o Customer complaint handling
 - o Export invoicing and documentation

- MM Materials Management
 - o Material requirement planning
 - o Purchase of RM, general stores, service
 - o Rate control and vendor rating
 - o Inward material quality assurance
 - o Inventory - raw material, finished goods, and general stores
 - o Subcontracting and material accounting
 - o Instrument calibration

- MF Manufacturing
 - o Capacity based planning
 - o Loading plan entry
 - o Production recording and WIP control
 - o In-process QA and process information
 - o Rejection, rework, scrap, by-product, and salvage of material
 - o Manufacturing costing
 - o Engineering
 - o Productivity, utilization, OEE, and shop efficiency analysis

- FM Finance, Assets, Budget, and Taxation
 - o Financial accounting
 - o Fixed assets management
 - o Budgeting and provisions
 - o GST Integration and Income Tax

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- PR Payroll
 - o Salary and wages
 - o Attendance and leave accounting
 - o Loans and advances to employees
 - o Employee perks and benefits
 - o Bonus, arrears, gratuity, final settlement
 - o Employee TDS

- MN Maintenance Management
 - o Preventive, Breakdown, opportunity and predictive maintenance
 - o Maintenance planning
 - o Maintenance costing
 - o Machine performance and history reporting

- CS Product Costing
 - o Standard costing
 - o Actual costing and variance
 - o Cost contribution analysis

- TR Tool room
 - o Tool manufacture and costing
 - o Tool utilization records from production
 - o Tool repair and maintenance
 - o Tool performance, failure, tool history

- AD Systems Administration and Utilities
 - o Systems parameters definition and transaction control
 - o User management and access control
 - o Workflow management
 - o Data backup and recovery
 - o Help Facilities
 - o Data exchange with web and with other data sources
 - o Auto mailing and messaging

- WB Web interface
 - o For customers and suppliers
 - o For branch (with stock) and field staff
 - o For corporate office
 - o For employees

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Module Overview – Common Masters

'Common masters' is a set of master data records containing information that is used across multiple modules of the system.

Most of the common masters contain very few numbers of records.

Units, Item Types, Tax Forms, Locations, Formulae for Calculations, Currencies, TDS codes for Income Tax are some of the common masters.

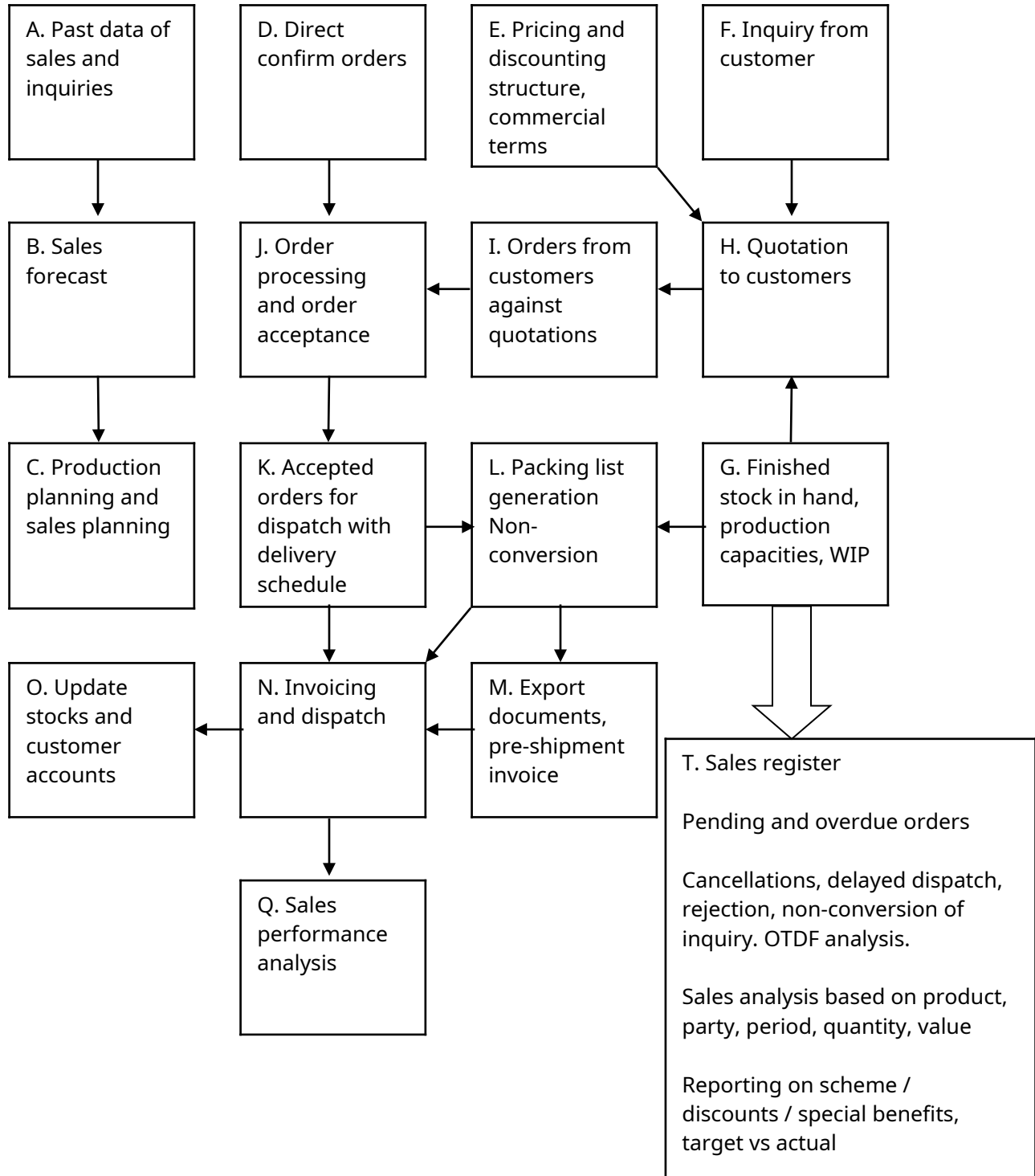
Module Overview and Flow – Sales

The sales module offers following functionality to users

- Definition of customers of various kinds, consignee, standard commercial terms, territories, and areas
- Definition of product pricing policies, discounts, and price lists.
- Receipt of inquiry from customer, facility to give quotation, to receive orders from regular customers as well as orders against specific quotations.
- Integration with FG stores, packing list generation, invoicing, and dispatch.
- Update of accounts receivables, stocks, and excise balances.
- Facility to setup sales targets for customers and for locations in terms of turnover and product quantities
- Reporting giving sales and order registers, pending and overdue orders, sales analysis, and performance against targets.
- Facility for customer-item master, upload of schedules and price revisions
- Facility to make commercial invoice, pre-shipment documents and other export documentation.
- Customer complaint handling

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Flow Diagram - Sales



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Module Overview – Materials Management – I

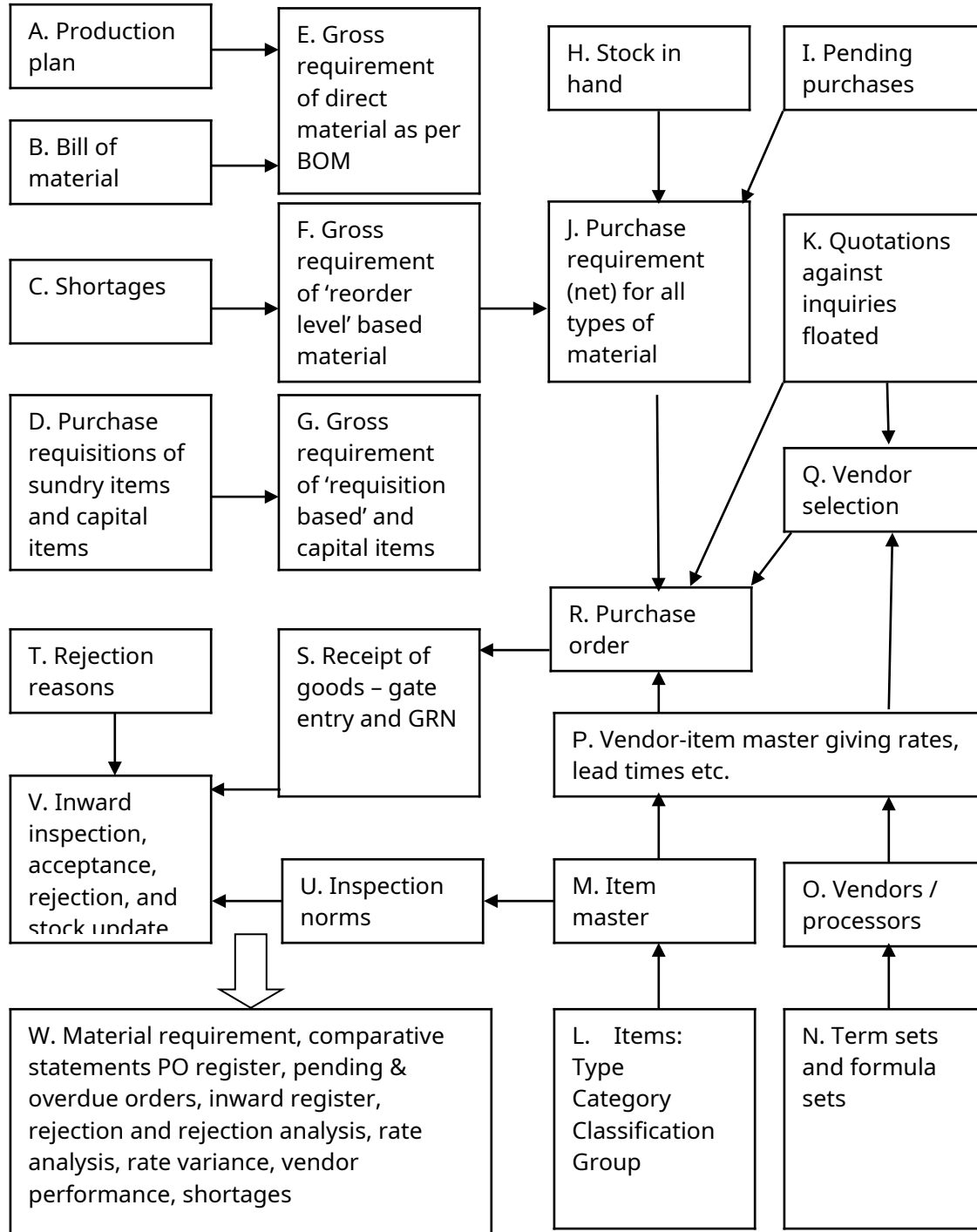
The materials module offers following functionality to users for material requirement planning, purchase, inward inspection, supply follow up, and vendor rating.

- Definition of a multi-location setup for inventories. There can be more than one physical or logical location where material can be stocked. This covers for all types of material stores, warehouses, stock in transit and so on.
- Material requirement planning depending upon inventory replenishment policy. Bill of material (BOM) base for direct raw material, reorder level base for consumables and indirect materials, and indent (requisition) based for irregular items.
- Provision for non-coded items allowing transactions (ordering, receipt, issue and bill-passing) for non-inventory items.
- Grouping and sub-grouping of material in various ways giving selective reporting and summary reporting.
- Facility to float enquiry, receive quotations, compare quotations, select vendor, view vendor history, view purchase history, and place a purchase order.
- Facility to make all routine commercial and stock transaction related to materials management. The documents can be printed and e-mailed as well.
- Purchase and complete cycle of purchase – receipt – inspection – bill passing for capital items, services, transportation, and for works contracts. Receipt can be of goods or of services.
- Facility to amend, cancel, and short close orders and schedules.
- Separate definition of 'periods of delivery schedule' and special interface to specify 'schedule of delivery'.
- Facility to specify inspection parameters and norms of inspection for items. Inspection is done against norms where actual values of parameters are recorded. Material is accepted, rejected, or accepted under deviation. Rejection can be tagged with reason – giving reason-wise rejection analysis.
- Facility to specify reorder-levels, minimum order quantity, and vendor-wise standard packing quantity.
- Facility to specify shelf life and get report on expired / due expiry items report
- Batch-wise control of inventory and traceability

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Flow Diagram – Materials Management – I

Material requirement planning, purchase, and inward inspection



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Module Overview – Materials Management - II

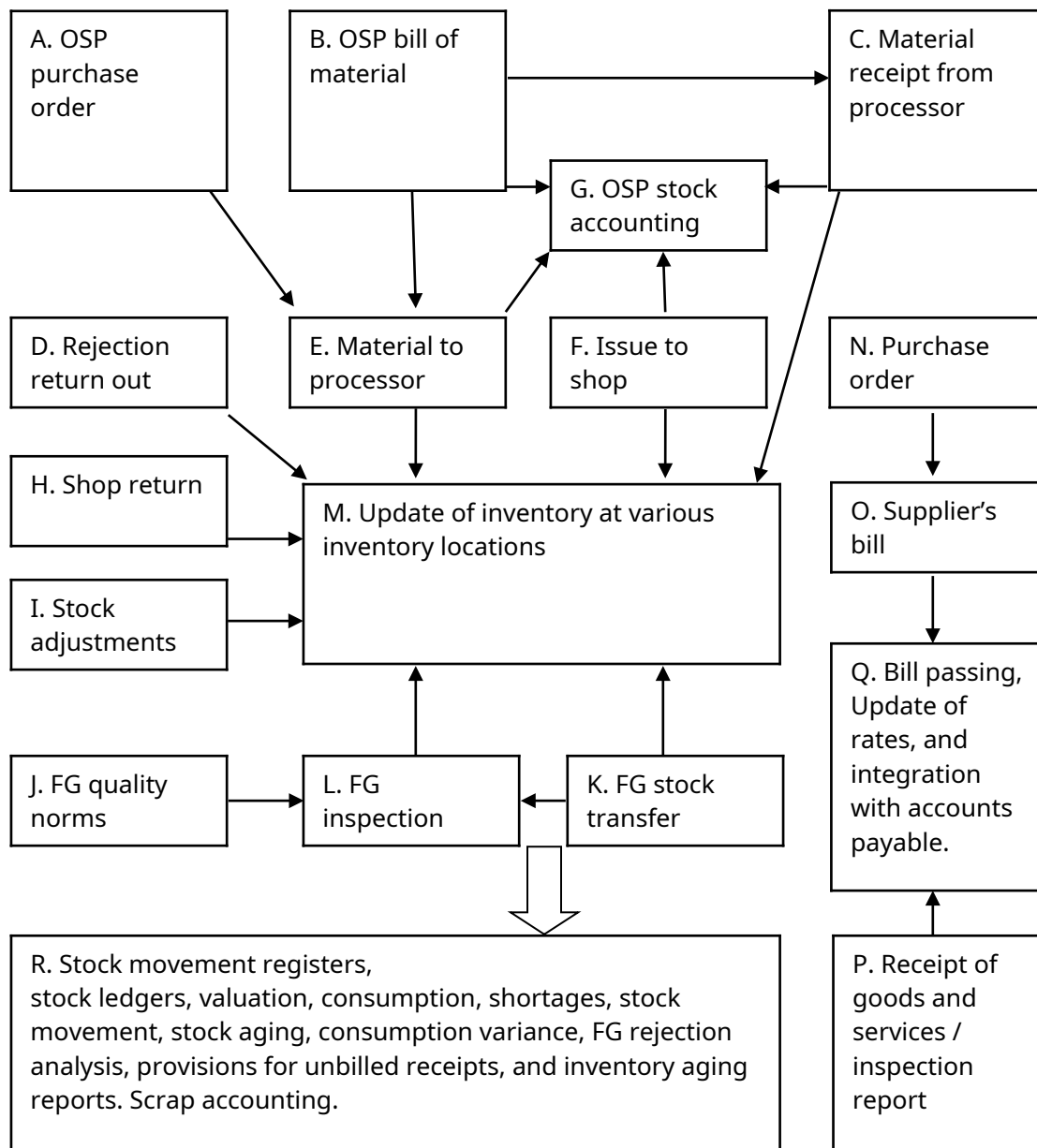
The materials module offers following functionality to users for inventory management, subcontracting, and bill passing

- Work-order based issue system giving control on consumption and variance analysis.
- Finished goods stock transfer and inspection of finished goods, with registers, ledgers and valuation.
- On line stock positions with periodic valuation. Stock reports as ledgers, movement analysis, stock aging,
- Facility to keep batch-wise stock, maintain expiry date, and date of re-inspection.
- Integration with GST for purchase, sale, subcontracting, and inter-plant movements
- Control of flow of material with subcontractors. This is based on subcontractor's bill of material (SBOM). Purchase order gives details of material to be sent. The SBOM defines basis for material accounting. This has provision for standard rejection, and standard scrap. This gives complete material accounting of the subcontractor.
- On-line bill passing based on purchase order and accepted material. Excise accounting is completely integrated with financial accounting to avoid reconciliation problems.
- Material valuation – 'FIFO', 'cumulative monthly weighted average', and 'cumulative yearly weighted average' are the methods supported for valuation.
- Integration of material consumption with costing

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Flow Diagram - Materials Management - II

Inventory management, subcontracting, and bill passing



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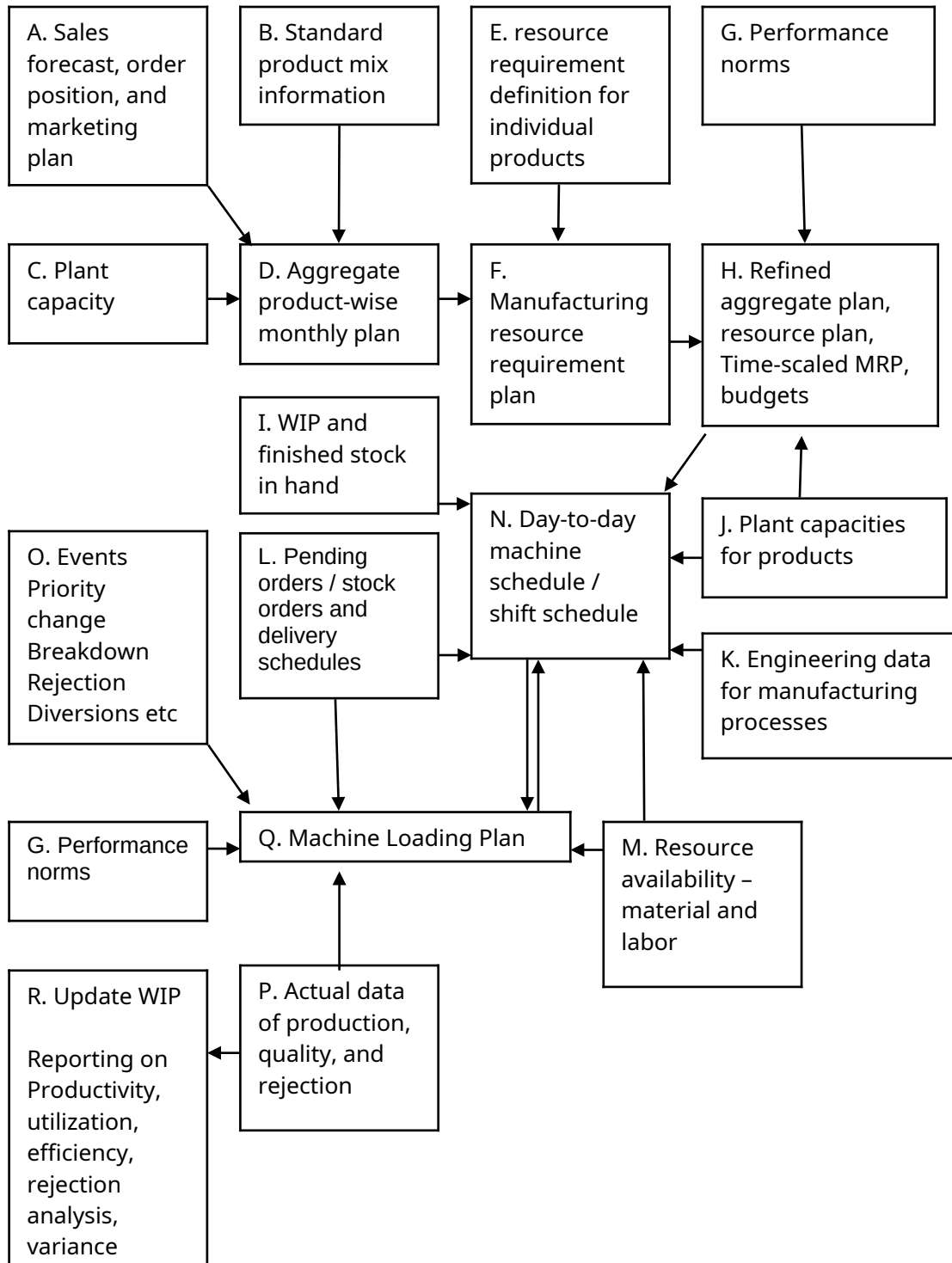
Module Overview - Manufacturing

The manufacturing module offers following functionality to users

- Definition of manufacturing resources and their availability, and plant capacity
- Maintenance of engineering data, resource bill, and norms for other material consumption
- Definition and maintenance of manufacturing processes for products
- Maintenance of norms for production process, quality assurance, and productivity
- Definition of master production plan and planning of resources for the same
- Recording of production actual record. This also covers for recording of in-process values related to product quality, process parameters, and operating conditions of machines.
- Periodic recording of process parameters
- Production records linked with process schedules and job-orders give stage wise accounting of WIP and various reports related to production. The reporting covers machine-wise / job-order-wise / worker-wise production, rejection, rejection analysis, productivity, efficiency. Reports give a clear picture of shop to the production managers and line supervisors.
- Linking of work orders to orders of customers. This is to plan for dispatch and to know the position of deliveries committed.
- Machine loading for daily production
- Flash reporting for day-to-day control of shop operations
- Material control to ensure accurate accounting of material on shop and also to prevent excess consumption.
- Complete integration with costing

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Flow Diagram - Manufacturing



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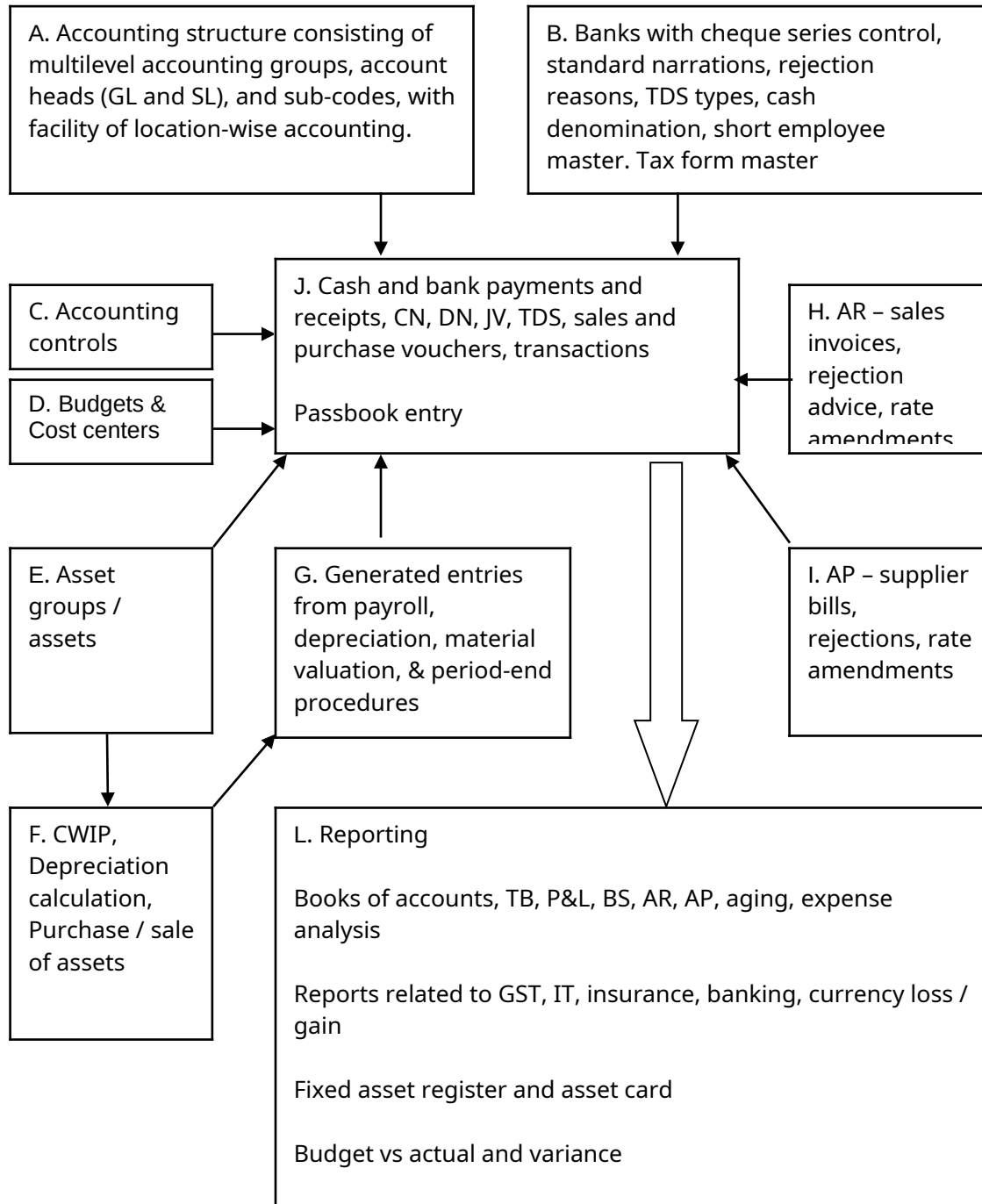
Module Overview - Finance

The finance module offers following functionality to users

- Definition or set-up of accounting structure. This consists of multi-level grouping of accounts, GL and SL heads, and sub-codes.
- Cash and bank entries with booking of account heads and information of cost centers, cash parties, employees, and additional details that are specific to account heads. The entries may be cross-referenced (adjusted) with other accounting entries.
- Credit and debit notes made because of rejections, short supplies, rate differences, sales promotions, and so on.
- Reporting covering books of accounts, TB, P&L, BS, AR, AP, aging, expense analysis, fund flow and financial MIS.
- Definition of asset groups and assets, calculation of depreciation (income tax, company law, and MIS purpose), generation of asset card, asset register, and location-wise reporting of assets on hand. Creation of Capital WIP, purchase of asset, value addition to asset, capitalization, sale / disposal. Physical verification and location-wise tracking and reporting of assets.
- Definition of budgets for account heads and budgetary controls. Consumption budgets are covered under materials management module and sales targets are covered under sales module. Reporting covers budget versus actual and variance.
- Cheque series based control
- Bank reconciliation
- Procedures and reporting related to import, export, insurance, and banking. Interest calculation.
- Integration with sales and purchase bills and payroll. The purchase bill booking and invoicing is discussed under purchase (materials management) and sales systems respectively.
- E-invoicing, e-way billing, and complete integration with GST. Upload of data to portal, and reconciliation of supplier's bills as per ERP with those uploaded by them on portal. Intimation of deviations.

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Flow Diagram - Finance



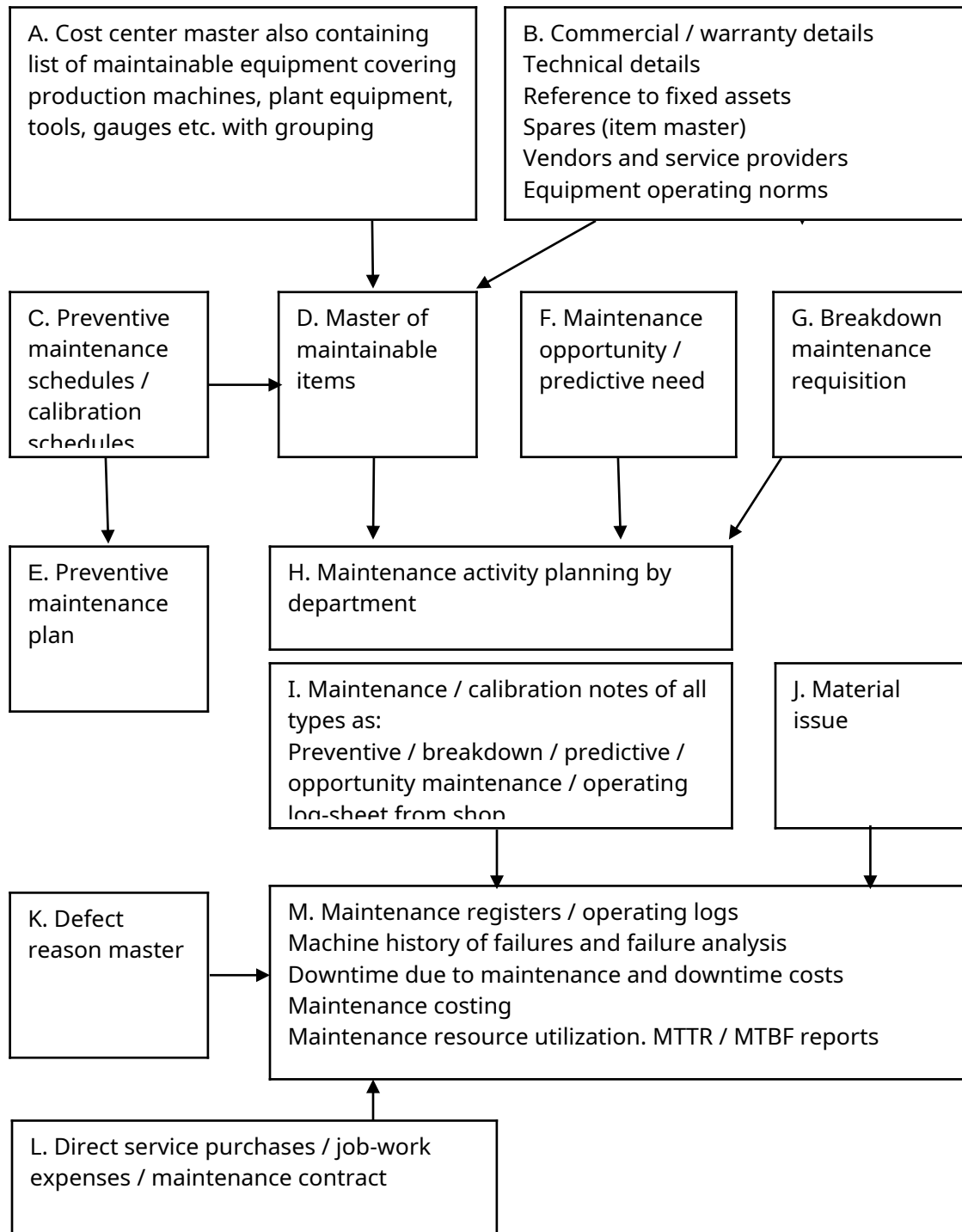
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Module Overview - Maintenance

- Definition of maintainable machines, equipment, tools, and instruments with various technical and commercial details, vendors / service providers, associated spares, and preventive maintenance schedules.
- Generation of preventive maintenance plan.
- Facility to add maintenance requisitions for breakdown and predictive maintenance
- Facility to declare equipment availability for opportunity maintenance
- Entry of maintenance note and integration of maintenance with stores and finance.
- Reporting giving machine history, failure analysis, downtime analysis, maintenance costing, downtime costing, and
- Computation of information for resource planning for maintenance activity itself.
- Facility to store standard operating norms for equipment operations and entry of log of actual values against them.

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Flow Diagram - Maintenance



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Module Overview - Tool Room

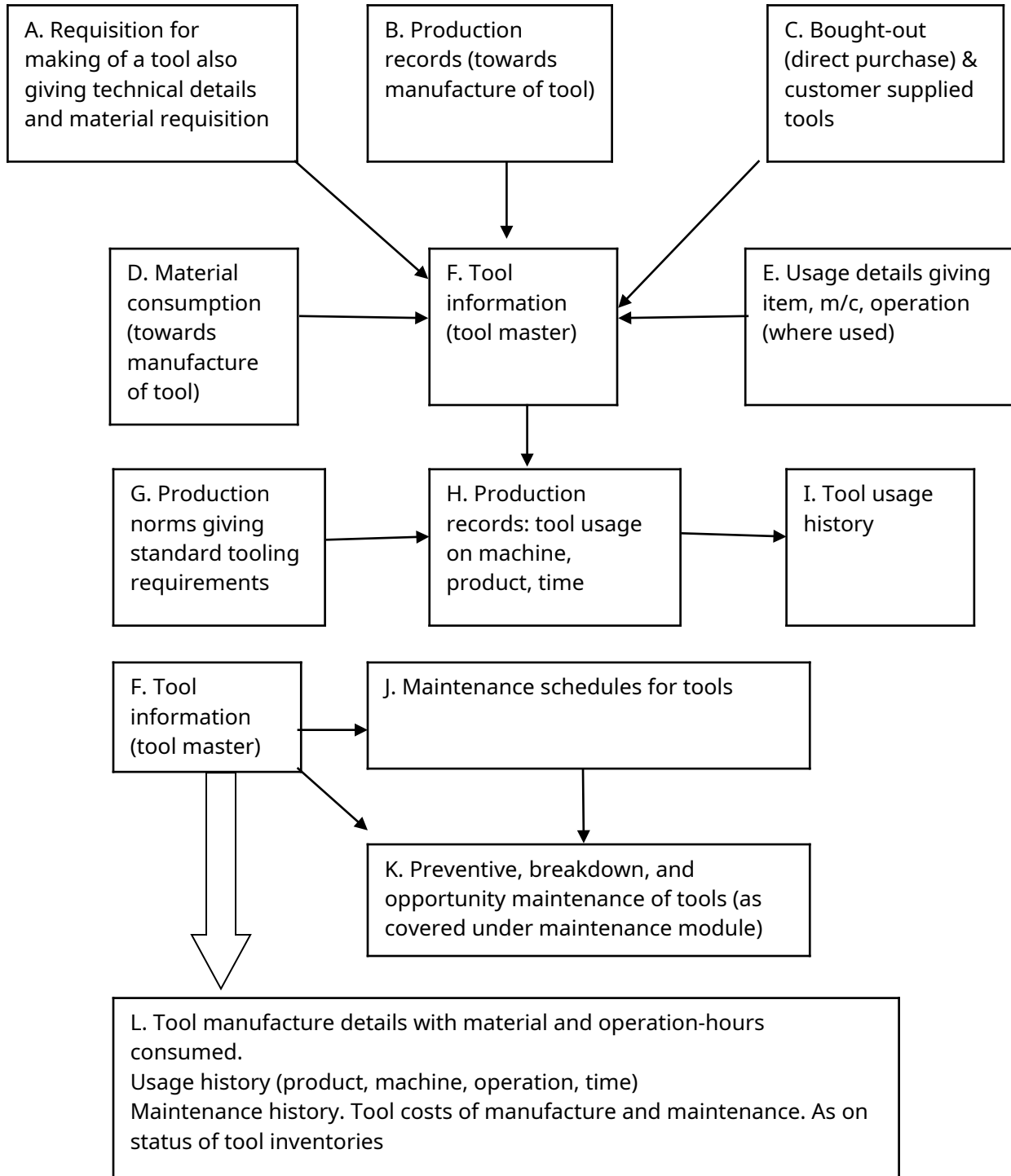
Tool room module covers manufacture, usage, and maintenance of tools, dies, and fixtures.

It offers following functionality

- Manufacture – manufacture of a new tool as initiated through work order. The work order gives material requisition, technical information, and process details. Material issue and production records are entered against the work order to know resources consumed on making of the tool. This also gives cost of tool as material cost plus operation cost based on standard machine hour rate. Other direct costs on activities like design etc can be added directly.
- Facility to procure tools directly from supplier.
- Possibility of customer supplying tools.
- Usage of tools in production operations. Tools master gives details of product, machines, and operations where tool is used. It also gives norms for usage.
- Recording of actual tool usage through daily production records. This data gives history of usage in terms of machine, operation, product, operator, and time.
- Maintenance of tools: Tools can have preventive maintenance schedule, and can undergo preventive, breakdown, and opportunity maintenance. This follows through transactions of maintenance module. History of repair, maintenance, and re-dimensioning can be known from these records. Cost of maintenance incurred is calculated based on material, operations, and maintenance overheads. Costs incurred on tools in manufacture and maintenance should be linked to operation costs to load them on products.
- On-line information of tools and tool inventory and tool availability as such that is used by planning department.

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Flow Diagram - Tool Room



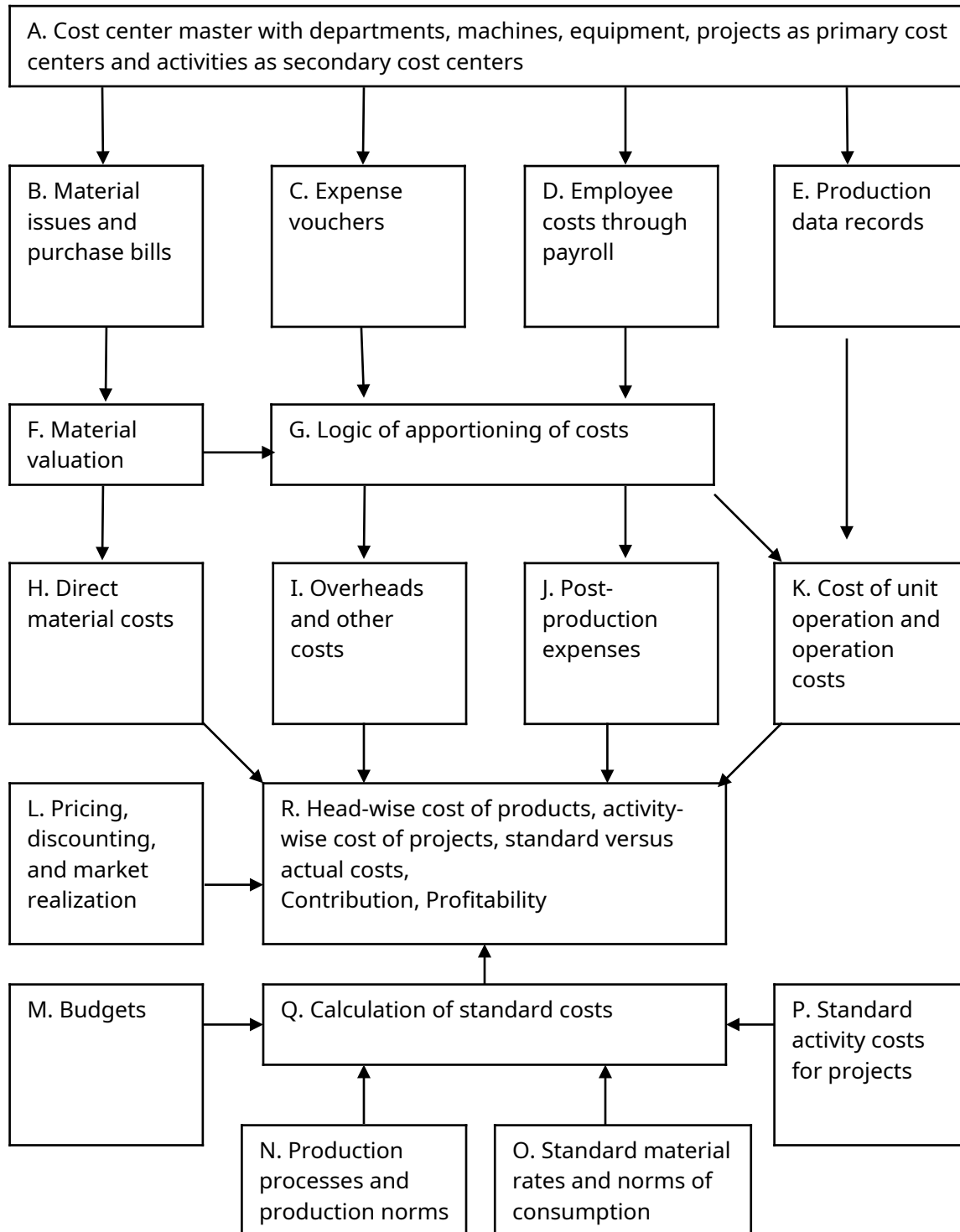
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Module Overview - Costing

- Costing is a generic system. It is completely integrated with basic transactions of rest all modules for the purpose of data capture so that there is assured reconciliation.
- Product-costing calculation based on captured data can be completely customized with diverse methods for apportioning costs over individual products or batches.
- The costing structure assumes typical scenario of manufacturing company where cost components of a product can be broadly divided into:
 - Material costs
 - Conversion costs (manufacturing costs)
 - Post manufacturing costs
 - Overheads.
- System gives:
 - Segregation of individual cost components
 - Head-wise reporting for products and batches on standard costs, actual costs, and contribution
- Variance reporting gives variance of standard costs versus actual costs.

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Flow Diagram - Costing



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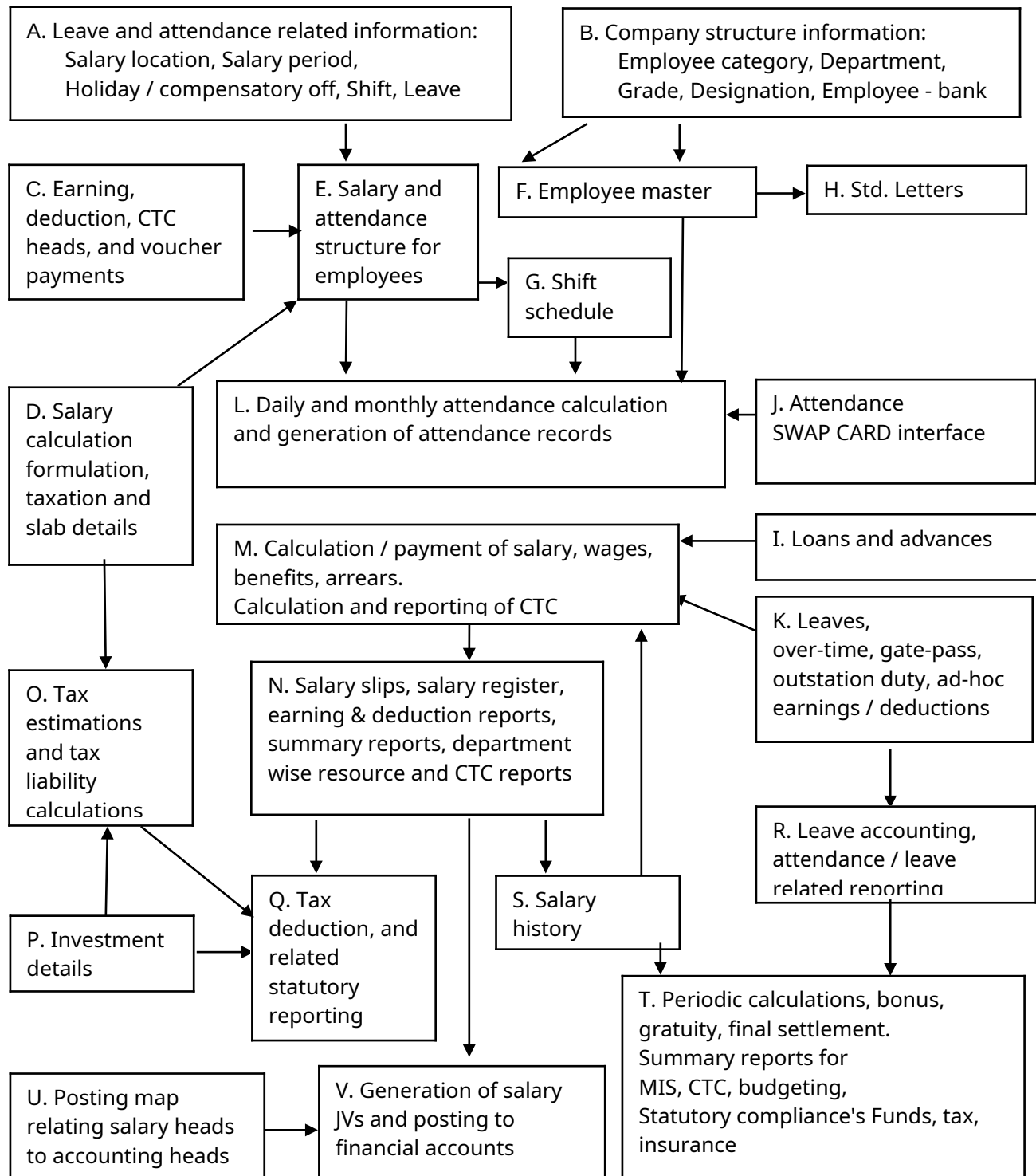
Module Overview – Payroll

The payroll module offers following functionality to users.

- Definition of a multi-location setup for employees with facility of location-wise selective payroll processing and reporting. System allows definition of specific 'periods of salary' for processing and other time-office related information as shifts, holidays, 'off', and leave structure of employees.
- Definition of employee departments, categories, grades, designations, salary structure, and method of calculation. Salary structure covers for heads of earning, deduction, and cost to company (CTC). Also definition of 'employee master' holding personnel and payroll related information of all employees.
- Specification of perks, benefits, and reimbursements that are paid against voucher with facility to impose 'limits' and reporting of 'balance'.
- Time office – in and out entry that also can have swap card interface. In case of swap card, data can be directly picked up to Oracle database.
- Generation of shift schedule considering weekly rotational duties and variable weekly off.
- Facility for on line application for leave, leave accounting, recording of outstation duties and temporary duties on 'gate pass'. There can be adjustments and corrections in the date related to leave, time, and overtime.
- Calculation of salary and wages. The calculation can be made for a specific category or a specific location and facility of salary transfer to bank of employee. System facilitates storing of salary history and reporting on that.
- Accounting of loans and advances and deductions against them. The loans may be by company itself or availed from financial institutions. There is a seamless integration with finance module for loan and advance deduction.
- Calculation of arrears, bonus, gratuity, annual payments, retirement, termination etc. The arrears are also calculated for leaves sanctioned at a later date.
- Calculation and reporting related to provident fund, insurance, and taxes. The process covers for PF, FPF, ESIC, PT, IT and also generates all the standard formats as prescribed by respective departments for easy submission. The income-tax related procedure covers calculation of provisional and final income-tax liability, recording of investments, deduction of TDS, 'scheduling' of deduction', and generations of reports for filing of IT returns – also including printing of FORM 16 for employees.
- Generation of monthly salary JV, bank vouchers, and loan payment vouchers.
- Calculation of cost to company (CTC), and estimation of payroll budgets.
- Generation and printing of standard letters to employees. This covers letters like appointment, joining, confirmation and so on.

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Flow Diagram - Payroll



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MIS and Dashboards

MIS and dashboards give month-wise performance with tabular and graphic representation with facility to drill down and see detail data as well.

MIS parameters and reports

- Order Booking
- Sale
- Purchase
- ITR
- Material receipts
- Manufacturing expenses
- Salaries and wages
- Administrative overheads
- Item-wise sale
- Customer-wise purchase
- Item-wise purchase of A class items
- Supplier-wise business
- Top outstanding – customers
- Top outstanding – suppliers
- Operating efficiency
- OEE
- Utilization
- Downtime
- Machine breakdown
- Rejection
- COPQ
- Product performance and contribution
- Customer performance and contribution

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Module Overview – Administration

1. Information of company, divisions, and locations

Software allows multi-company and multi-division setup. Further, there can be multiple locations like manufacturing plants, marketing offices, warehouses, and inventory stores within a plant. Accordingly, related options allow setup of necessary information.

2. Setting up of 'periods' for business transactions

This allows setting up 'periods' for various business transactions as date ranges. It is thus possible to compartment transactions belonging to individual periods. Access can be controlled for transactions period-wise.

3. Modules, menu master, and menu control

The menu master contains 'module wise' information of menu options that are available to users. Lot of information is related to every menu option that decides access and behavior of the option.

4. Setup of different transactions, their types, and their segregation

Document setup allows setting up of various business transactions, their types, control of serial numbering, and their relationships.

5. User management and access control

It allows creation of users, their association with functional roles, and control of their group level and individual access to various system options. It also gives facility to the administrator for assigning new password to a user.

6. Configuration of systems parameters

The parameter setup screen allows definition of certain important parameters that control behavior of the system while executing transactions. There is also report available on the information.

7. Database and data dictionary information – Extended Data Dictionary (EDD)

This is a facility giving details of data dictionary. It gives purpose, meaning, validation, and technical information of all tables and columns. The information is used for on-line help to users. It is also useful for writing queries on the database using data mining tool.

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Module Overview - Utilities

1. Thought of the day

The utility allows setting up of a 'Thought of the Day' message, and to schedule it for everyone to see immediately after login.

3. Session information and session control

The utility allows administrator to view and terminate user sessions. This is useful to control error-prone or resource consuming sessions.

4. Workflow management

The utility allows definition of workflow and alerts that is followed by the transactions while in execution. There is provision to setup tasks and auto-schedule them for completion. It is very effective way of proactive execution.

5. Custom letters

The utility allows administrator to define standard letter formats that have standard text to which selected data from database is added.

6. Audit trail

Audit trail records every change to existing records, and also prompts user to specify reason as why the data was changed. It is a powerful tool to ensure security and accountability to the business transactions.

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Web Interfaces

The software is web-enabled. The application runs on 'application server' of Oracle. With appropriate infrastructure to the server, users can log in over Internet from anywhere in the world. The logging in procedure ensures for authorization and security checks.

Below is a typical list of user communities and what they can transact over Internet.

A general visitor or 'guest'

A guest is able to see company profile, current news, employment opportunities and information of general interest. In addition he can register through registration form, give feedback, send queries, and get answers from the company staff.

Potential customer

Registered users classified as potential customers can see list of existing customers, product literature, standard terms, pricing, and stock positions. He / she can fill-up inquiries, get quotations, and view status of inquiries.

Customer

A customer can see and specify everything allowed to the potential customers and view documents or reports like quotations, sales order confirmation, pending orders, ledger, bill-wise outstanding, delivery schedule, and dispatch details. Customer can book new orders, amend orders, and specify delivery schedule.

Potential supplier

A potential supplier can see items related literature, current requirements of the company and current stock position. He / she can log their quotations against enquiry of the company, view status of quotation, and also specify details of goods and services offered.

Suppliers

Suppliers can see and specify everything allowed to the potential suppliers and view documents or reports (purchase order, delivery schedule, delivery challan, goods inward note, goods received note - after inspection, ledger, bill-wise outstanding as on date, vendor rating related info.) as per the company books. He / she can log confirmation to PO and delivery schedule and also enter details of supply with facility to the company to pre-authenticate the dispatch.

Employees, Branch Staff and Sales Persons

Employees can view all the general information available to all registered users and guests. Branch staff or Sales Persons can view information of all customers handled by the branch / sales persons and common information like sales targets.

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