



## Title: Hospitality Enterprise Resource Planning (ERP) System - Comprehensive Specifications

---

### 1. Overview

#### Purpose:

This document details the functional and technical specifications for a comprehensive Enterprise Resource Planning (ERP) system designed for multi-faceted hospitality operations, including restaurants, clubs, hotels (with bars, restaurants, conference facilities, spas, and other amenities). The ERP aims to streamline processes, improve operational visibility, enhance guest experience, and maximize profitability.

#### Scope:

The system will integrate core functional modules—Front Desk Operations, Food & Beverage (F&B) Management, Housekeeping, Facilities & Events Management, Finance & Accounting, HR & Payroll, Supply Chain & Inventory, Sales & Marketing, Customer Relationship Management (CRM), and Reporting & Analytics—into a unified platform accessible across devices, ensuring data consistency and a single source of truth.

---

### 2. Key Objectives & Benefits

- **Improved Operational Efficiency:** Reduce manual processes, automate routine tasks, and eliminate data silos.
  - **Real-time Data & Analytics:** Gain immediate visibility into occupancy, sales, inventory levels, staffing needs, and guest satisfaction metrics.
  - **Enhanced Guest Experience:** Empower staff with rapid check-in/out, personalized offers, seamless billing, and integrated loyalty programs.
  - **Regulatory Compliance:** Ensure data security, adhere to health & safety standards, tax regulations, and labor laws.
  - **Scalability & Customization:** Provide modular functionalities to fit single-site or multi-property operations with the flexibility for future expansions and customizations.
- 

### 3. System Architecture & Technology Stack

#### Architecture:

- **Tiered Architecture:**
  - **Presentation Layer:** Web-based and mobile-responsive user interface accessible via browsers and native mobile apps (iOS/Android).
  - **Application Layer:** RESTful API-based microservices handling business logic and processes.



- **Data Layer:** Centralized relational database (e.g., PostgreSQL or MS SQL) with optional NoSQL components for scalability.
  - **Integration Framework:**
    - **APIs & Webhooks:** For connecting with payment gateways, OTAs, POS systems, accounting software, identity management platforms, and IoT devices.
    - **Middleware:** Message queues (e.g., RabbitMQ, Kafka) for asynchronous communication.
  - **Deployment Options:**
    - On-Premise or Cloud-based (AWS, Azure, GCP)
    - Containerized Microservices (Docker, Kubernetes)
  - **Security & Compliance:**
    - Role-based Access Control (RBAC) and Multi-Factor Authentication (MFA)
    - Data encryption in transit (TLS/HTTPS) and at rest (AES-256)
    - Compliance with GDPR, PCI-DSS, and local hospitality industry regulations
- 

## 4. Modules & Functionalities

### 4.1 Front Desk & Reservations Management

- **Room Inventory Management:**
  - Real-time availability calendar and dynamic pricing rules
  - Integration with channel managers, GDS/OTAs
- **Guest Reservation Workflow:**
  - Direct booking via website or call center
  - Automated confirmation emails/SMS
  - Pre-arrival check-ins and digital keys (if supported)
- **Check-in/Check-out Operations:**
  - Guest ID scanning and quick profile retrieval
  - Room assignment and keycard encoding
  - Express check-out and integrated billing
- **Guest Profiles & History:**
  - Centralized guest database



- Preference tracking (room type, dietary restrictions)
- Loyalty program integration and point redemption

#### **4.2 Food & Beverage (F&B) Management**

- **Point of Sale (POS):**
  - Table management, split billing, custom order modifiers
  - Seamless integration with kitchen display systems (KDS)
- **Menu Engineering:**
  - Centralized recipe management with cost calculation
  - Dynamic menu pricing based on cost and demand
  - Nutritional info and allergen warnings
- **Inventory & Procurement Integration:**
  - Real-time stock deduction on orders
  - Automatic purchase orders for low-stock items
- **Kitchen Operations:**
  - Order queueing, prep time tracking
  - Chef dashboards and order prioritization
  - Communication between waitstaff and kitchen

#### **4.3 Housekeeping & Maintenance**

- **Room Management Dashboard:**
  - Real-time occupancy and cleaning schedules
  - Mobile updates by housekeeping staff
- **Task Assignment & Tracking:**
  - Automatic assignment post check-outs
  - Preventive maintenance scheduling
- **Inventory Tracking (Amenities & Linen):**
  - Automated amenity replenishment alerts
  - Linen usage, laundry cycles, condition reports

#### **4.4 Facilities, Spa & Events Management**

- **Facilities Scheduling & Booking:**



- Conference rooms, banquet halls, spa services
- CRM integration for personalized packages
- **Event Management:**
  - Event proposals, contracts, BEOs (Banquet Event Orders)
  - Resource allocation (AV, décor, staff)
  - Post-event reporting (attendees, revenue)
- **Spa & Wellness Integration:**
  - Appointment scheduling & therapist assignments
  - Treatment menu & pricing
  - Spa product inventory and retail integration

#### 4.5 Finance & Accounting

- **Accounts Receivable & Payable:**
  - Invoices, payment reminders, vendor management
  - Purchase orders and credit terms tracking
- **General Ledger & Chart of Accounts:**
  - Full financial reporting & analytics
  - Budgeting and forecasting tools
- **Payment Gateway Integration:**
  - Support for credit card, mobile wallets, etc.
  - Tokenization for payment data security
- **Tax Compliance & Auditing:**
  - Automated tax calculations (VAT, GST, tourism tax)
  - Audit trails and financial statements export

#### 4.6 Human Resources & Payroll

- **Employee Management:**
  - Recruitment, onboarding, documentation storage
  - Performance evaluations, training, certifications
- **Time & Attendance:**
  - Biometric/RFID attendance tracking



- Automatic shift scheduling, overtime, leave management

- **Payroll Integration:**

- Automated payroll generation, payslip distribution
- Compliance with local labor laws and tax withholdings

#### 4.7 Supply Chain & Inventory Management

- **Centralized Procurement:**

- Vendor database, contracts, RFQs
- Compare supplier terms, lead times, prices

- **Stock Management:**

- Real-time inventory for F&B, housekeeping, spa products
- ABC classification, reorder points, cycle counting

- **Warehouse Management:**

- Multiple storage locations support
- Batch/lot tracking, FIFO/FEFO
- Barcode/RFID integration

#### 4.8 Sales & Marketing

- **Sales Pipeline Management:**

- Corporate/group sales, RFPs, proposals
- Lead scoring, follow-ups, contract management

- **Marketing Campaigns:**

- Email marketing (newsletters, promos)
- Social media, loyalty program integration
- Track ROI and conversion rates

- **Rate Management & Revenue Optimization:**

- Yield management for dynamic pricing
- Package creation (F&B, spa, events)

#### 4.9 Customer Relationship Management (CRM)

- **360° Guest View:**

- Consolidated profiles, preferences, feedback



- Loyalty tiers, reward points, personalized offers
- **Feedback & Reputation Management:**
  - Post-stay surveys, review aggregation
  - Sentiment analysis, quick response capability
- **Segmented Marketing:**
  - Dynamic segmentation (demographics, stay history)
  - Targeted campaigns for repeats, corporates, events

#### 4.10 Reporting & Analytics

- **Business Intelligence (BI) Dashboards:**
    - Occupancy, REVPAR, ADR, KPI tracking in real-time
    - Sales performance, cost analysis, margins
  - **Custom Reports & Exports:**
    - Flexible report builder with filters and drill-downs
    - Export to Excel, PDF, CSV, BI tools (Power BI, Tableau)
  - **Predictive Analytics & Forecasting:**
    - Demand forecasting (rooms, F&B, staffing)
    - Predictive maintenance suggestions
- 

#### 5. User Experience & Interface Design

- **Responsive Web & Mobile App:**
    - Intuitive, role-based dashboards
    - Contextual help, tooltips, guided workflows
    - Mobile-friendly for on-floor staff (housekeeping, waiters, maintenance)
  - **User Roles & Permissions:**
    - Configurable user roles (Front Desk, Restaurant Manager, etc.)
    - Granular access to modules, transactions, reports
- 

#### 6. Integration & Interoperability

- **External Systems & Third-Party Services:**



- Payment Gateways (Stripe, PayPal)
  - Channel Managers, GDS, OTA integration
  - Identity & Access Management (Azure AD, Okta)
  - **Data Import/Export:**
    - Bulk import of guest records, inventory items, financial data
    - Scheduled exports to external analysis tools/data warehouses
- 

## 7. Performance & Scalability

- **Load & Stress Handling:**
    - Handle peak check-in/out times, simultaneous bookings, high-volume F&B orders
  - **Scalability:**
    - Horizontal scaling of servers, load balancing
    - Caching frequently accessed data
- 

## 8. Maintenance & Support

- **System Updates & Upgrades:**
    - Regular patching, minimal downtime
    - Automated backups and restore points
  - **Helpdesk & Support:**
    - 24/7 support availability
    - Multi-language documentation and training
  - **Training & Onboarding:**
    - User training sessions, video tutorials, certified courses
    - Sandbox environment for testing
- 

## 9. Compliance & Legal

- **Data Protection & Privacy:**
  - GDPR-compliant data handling, guest consent management
  - Secure storage and controlled PII access



- **Local & International Standards:**
    - Compliance with hospitality regulations, health & safety, tax laws
  - **Audit & Logging:**
    - Comprehensive audit logs (user actions, financial transactions)
    - Electronic record retention policies
- 

## 10. Project Management & Implementation

- **Phased Implementation Approach:**
    - Pilot launch for core modules (Front Desk, POS, Housekeeping)
    - Gradual rollout of advanced modules (CRM, BI, Revenue Management)
  - **Change Management & Adoption:**
    - Stakeholder communication plans
    - Feedback loops and continuous improvement
  - **Testing & Quality Assurance:**
    - Unit, integration, user acceptance testing
    - Performance, security, regression tests pre-go-live
- 

## 11. Conclusion

This specifications sheet outlines a robust, scalable, and integrated ERP solution tailored for complex hospitality environments. By unifying key operational functions—front desk, F&B, housekeeping, facilities, finance, HR, supply chain, marketing, CRM, and analytics—the ERP ensures a seamless operational workflow, informed decision-making, and an elevated guest experience. The proposed system supports flexible deployment, integrates easily with industry-standard platforms, and adheres to modern security and compliance standards, positioning the organization for sustained growth and competitiveness in the hospitality market.