**1.**

**Business Requirement Document (BRD)**

Project Name – ICE CREAM and MILK PRODUCTS Manufacturing Management System

Prepared for – ABC

Prepared By- Rashmi

Date - 04-01-2025

Introduction

This document outlines the requirements and development plan for building software to manage inventory and ensure the quickest delivery of ice cream and milk products across the company's manufacturing plants and warehouses.

**Business Objectives:**

* Efficient inventory management across manufacturing plants and warehouses.
* Optimize delivery routes and reduce delivery time.
* Real-time monitoring and tracking of stock levels and logistics.
* Improve customer satisfaction through timely deliveries.

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* Efficient inventory management across manufacturing plants and warehouses.
* Optimize delivery routes and reduce delivery time.
* Real-time monitoring and tracking of stock levels and logistics.
* Improve customer satisfaction through timely deliveries.
* Minimize operational costs through route and stock optimization.
* Ensure compliance with food safety and quality standards.

**In-Scope:**

* Real-time inventory tracking and management across all manufacturing units and warehouses.
* Automated inventory restocking alerts based on predefined thresholds.
* Delivery route optimization using GPS and real-time traffic data.
* Live delivery tracking system accessible to customers and administrators.
* Customer notification system for order status updates via email and SMS.
* Role-based access control ensuring secure system interactions.
* System performance monitoring with regular reporting dashboards.
* Data security through encryption protocols and regular backups.
* Generation of customizable reports for inventory and logistics.
* Integration with ERP systems for seamless workflow management.

**5. Out of Scope:**

* Procurement and installation of hardware or IoT devices.
* Management and operations of third-party logistics (3PL) providers.
* Integration with external systems not specified in project requirements.
* Mobile application development (unless specifically requested).
* Customer grievance and complaint management portal.
* In-depth financial auditing or accounting functionalities.
* Employee performance management tools.

**Assumptions:**

1. All required data (e.g., inventory levels, warehouse details) will be provided by the client.
2. Adequate IT infrastructure (e.g., servers, networks) will be in place.
3. The client will ensure stakeholder availability for requirement validation and approvals.
4. Users will undergo training sessions to ensure smooth adoption.
5. Third-party service providers (e.g., GPS, payment gateways) will offer consistent services.
6. Internet connectivity will remain stable across all warehouses and delivery points.
7. Regulatory requirements and compliance details will be clearly communicated.

**Constraints:**

1. Budget and resource limitations must be adhered to.
2. Project deadlines must be strictly followed.
3. The system must integrate seamlessly with existing ERP and third-party tools.
4. Data privacy and security standards must comply with regulatory laws.
5. Any significant changes in requirements post-approval may impact timelines and costs.
6. Hardware dependencies must be managed externally by the client.
7. Real-time system performance is dependent on stable internet and hardware support.

**Risks:**

1. **Data Security Breaches:** Unauthorized access or hacking could compromise sensitive data.
	* *Mitigation:* Implement robust encryption protocols and regular security audits.
2. **System Downtime:** Server failures or technical glitches might interrupt operations.
	* *Mitigation:* Implement redundancy and failover systems.
3. **Integration Issues:** Challenges in integrating the system with existing ERP or GPS tools.
	* *Mitigation:* Perform thorough compatibility testing.
4. **User Adoption Resistance:** Staff may resist transitioning to a new system.
	* *Mitigation:* Conduct comprehensive user training sessions.
5. **Inventory Mismatches:** Discrepancies between physical stock and system records.
	* *Mitigation:* Schedule regular physical audits and reconcile data.
6. **Delivery Delays:** External factors such as traffic, weather, or unforeseen disruptions.
	* *Mitigation:* Implement dynamic route adjustments and contingency plans.
7. **Scalability Challenges:** Increased data load as the business grows.
	* *Mitigation:* Use scalable architecture and cloud-based solutions.
8. **Project Delays:** Unforeseen delays in development or deployment phases.
	* *Mitigation:* Regular project monitoring and milestone tracking.

**Business Process Overview**:

The software will enable seamless inventory and delivery management across multiple manufacturing plants and warehouses. Orders placed by customers will be checked against inventory levels, and delivery routes will be dynamically optimized using GPS and real-time traffic data. Warehouse managers will oversee stock updates and manage alerts for low inventory levels. Delivery agents will receive optimized routes and status updates will be automatically shared with customers. Performance dashboards and analytics will provide actionable insights to stakeholders for continuous improvement.

Business Requirement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr. No. | Business Requirement | Functionality | Description  | Priority |
| BR-01 | Real-time Inventory Tracking | Inventory Management System | Track inventory levels in real-time across all warehouses and manufacturing plants. | High |
| BR-02 | Automated Restocking Alerts | Inventory Alerts | Trigger notifications when stock reaches predefined thresholds. | High |
| BR-03 | Multi-Warehouse View | Inventory Dashboard | Display all warehouse stock levels on a consolidated view. | Medium |
| BR-04 | Dynamic Route Optimization | Delivery Optimization Engine | Optimize delivery routes using GPS, live traffic, and weather data. | High |
| BR-05 | Live Order Status Updates | Customer Order Tracking | Provide customers with real-time order status updates via email/SMS. | High |
| BR-06 | Delivery Tracking System | GPS-based Delivery Tracking | Track live location of deliveries for customers and admin users. | High |
| BR-07 | Actionable Analytics and Reporting | Data Analytics Dashboard | Generate visual dashboards for stock levels, order status, delivery time, and overall performance. | Medium |
| BR-08 | User Role Management | Role-Based Access Control | Manage user roles and permissions for Admin, Warehouse Managers, Delivery Agents, and Customers. | High |
| BR-09 | System Alerts for Delays and Anomalies | Alert System | Automated alerts for delayed deliveries or system errors. | Medium |
| BR-10 | Performance Metrics Reporting | Performance Reporting | Generate reports for management review of key metrics, including fulfillment time and order accuracy. | Medium |
| BR-11 | Data Security | Encryption and Role-Based Access | Ensure all sensitive data is encrypted and accessible only to authorized users. | High |
| BR-12 | Customer Notifications | Notification System | Automated customer notifications for order confirmations and estimated delivery times. | High |
| BR-13 | Stock Transfer Management | Stock Transfer Module | Manage stock transfers between warehouses efficiently. | Medium |
| BR-14 | Compliance with Regulatory Standards | Compliance Engine | Ensure that the system adheres to food safety and industry standards. | High |
| BR-15 | Disaster Recovery | Backup and Disaster Recovery System | Implement daily data backups and a disaster recovery plan for business continuity. | Medium |
| BR-16 | Seamless ERP Integration | Integration with Existing ERP Systems | Facilitate data synchronization with the client's existing ERP solutions. | High |
| BR-17 | Order Processing Verification | Order Management System | Prevent processing of orders when inventory is insufficient. | High |
| BR-18 | Delivery Feedback Collection | Feedback and Rating System | Allow customers to provide feedback and ratings after delivery completion. | Low |

**Resource Plan: ICE CREAM and MILK PRODUCTS Manufacturing Management System**

This section outlines the human resources required for the successful development, deployment, and maintenance of the Ice Cream and Milk Products Manufacturing Management System. Each role is critical to achieving the project goals of inventory management and optimized delivery.

|  |  |  |
| --- | --- | --- |
| Role | Number of Resources | Responsibilities |
| Project Manager | 1 | - Oversee project planning, execution, and delivery. |
| - Manage stakeholder communication and project timelines. |
| - Mitigate risks and ensure adherence to budget and scope. |
| Business Analyst | 1 | - Gather and document business requirements. |
| - Bridge communication between technical and business teams. |
| - Conduct process analysis and suggest improvements. |
| Developers | 4 | - Design, code, and implement inventory management and delivery optimization modules. |
| - Ensure integration with ERP, GPS, and third-party systems. |
| - Write scalable, secure, and maintainable code. |
| QA Engineers | 2 | - Develop and execute test plans and cases for functional and non-functional requirements. |
| - Identify and report system defects and work with developers on resolution. |
| - Conduct performance, load, and security testing. |
| UI/UX Designer | 1 | - Create intuitive user interfaces for web and mobile platforms. |
| - Design responsive and user-friendly layouts for warehouse managers, delivery agents, and customers. |
| Support Engineers | 1 | - Provide technical support post-deployment. |
| - Address end-user issues and system maintenance requests. |
| System Administrator | 1 | - Manage server infrastructure and ensure 99.9% uptime. |
| - Oversee system backups, disaster recovery, and security measures. |
| Data Analyst | 1 | - Collect, analyze, and report on system data to provide insights on inventory, delivery, and system performance. |
| - Develop performance dashboards for stakeholders. |
| Integration Specialist | 1 | - Ensure seamless integration with third-party services (e.g., GPS, payment gateways, and ERP systems). |
| - Troubleshoot and resolve integration issues. |
| Trainers | 1 | - Conduct user training sessions for warehouse managers, delivery agents, and admin users. |
| - Develop user manuals and training materials. |

2. Process Flow Diagram:



**Assignment 2**

**1.**

**Subject:** Introduction as Your Business Analyst for Ice Cream & Milk Product Inventory and Delivery Management Project

Dear ABC,

I hope this message finds you well. It is with great enthusiasm that I introduce myself as your dedicated Business Analyst for the upcoming project aimed at optimizing your inventory management and delivery operations for ice cream and milk products.

With several years of experience managing and delivering business solutions across industries, I am committed to ensuring a seamless collaboration throughout this project. My primary focus will be on understanding your business processes, identifying core challenges, and working closely with your team to deliver a solution tailored to your unique operational needs.

**Objectives We Will Work on**

1. **Efficient Inventory Management:** Implementing real-time tracking, low-stock alerts, and multi-warehouse views to minimize stockouts and overstock situations.
2. **Enhanced Delivery Optimization:** Utilizing dynamic routing, real-time GPS tracking, and automated customer notifications to ensure timely deliveries.
3. **Data-Driven Insights:** Providing actionable insights and custom reports through advanced data analytics and performance dashboards.

I am confident that through collaboration, clear communication, and leveraging the right technologies, we will achieve these goals efficiently.

To begin this process, I would like to schedule a business discovery session to gain a deeper understanding of your business model, processes, and expectations. During this session, we will discuss all project requirements, key pain points, and success criteria to establish a roadmap that aligns with your vision.

Thank you for entrusting me with this critical role. I look forward to working closely with you and your team to achieve operational excellence and create lasting value for your business.

Please feel free to reach out with any initial thoughts or questions. I will be in touch shortly to coordinate the next steps.

Warm regards,

Rashmi

OR

**Subject:** **Introduction as Your Business Analyst for Online Store Process**

Dear AMUL team,

I hope this email finds you well. My name is Rashmi, and I am pleased to introduce myself as the Business Analyst assigned to work with you and your team on understanding and optimizing the Online Store process.

My role will be to collaborate closely with you to gather business requirements, analyse key processes, and ensure that our approach aligns with your objectives. I will be your primary point of contact for all business-related discussions, ensuring that we build a streamlined and efficient workflow for your online store.

To get started, I would love to schedule an initial discussion at your convenience to better understand your business model, current challenges, and expectations from this project. Please let me know a suitable time that works for you.

Looking forward to working together and driving this initiative forward.

Best regards,
Rashmi
Business Analyst

2. BRD – Online Store Process

**Introduction**

**Purpose**

The purpose of this document is to define the business requirements for the development of an online store that will allow customers to browse products, add them to their cart, and complete purchases through a secure checkout process. This document outlines the scope, objectives, functional and non-functional requirements, and key deliverables of the project.

**Scope**

The online store will include features such as product catalog management, shopping cart functionality, payment processing, order tracking, and customer account management. The store will be accessible via desktop and mobile devices.

**Business Objectives**

* Provide a user-friendly, intuitive, and responsive online shopping experience.
* Ensure secure and seamless payment processing.
* Improve customer engagement and satisfaction through personalized recommendations and user accounts.
* Optimize backend operations for efficient inventory and order management.
* Enable data-driven decision-making through analytics and reporting.

**Project Scope**

**In-Scope**

The following functionalities and features are included in the scope of this project:

* **User Registration & Login** – Customers can create accounts, log in, and manage profiles.
* **Product catalog Management** – Admins can add, update, and remove products, and customers can browse/search products.
* **Shopping Cart** – Customers can add, remove, and update items before checkout.
* **Secure Checkout & Payment Integration** – Support for multiple payment methods (Credit/Debit Card, PayPal, etc.).
* **Order Management** – Order tracking, history, and notifications.
* **Wishlist** – Customers can save products for future purchases.
* **Discount Codes & Promotions** – Support for promo codes and discounts.
* **Customer Reviews & Ratings** – Customers can submit and view reviews.
* **Inventory Management** – Admins can track stock levels and receive alerts.
* **Customer Support** – Live chat, contact form, and FAQs.
* **Security & Compliance** – Implementation of SSL encryption, GDPR compliance, and fraud prevention.
* **Analytics & Reporting** – Data-driven reports on sales, customer behavior, and trends.
* **Mobile Responsiveness** – Optimization for mobile devices.
* **Advanced Search & Filters** – Enhancing product discovery.
* **Guest Checkout** – Allowing purchases without account creation.
* **Email & SMS Notifications** – Order confirmations, promotions, and updates.
* **Returns & Refunds Management** – Customers can initiate return requests and track refunds.
* **Admin Dashboard** – Centralized management for orders, users, and analytics.

**Out of Scope**

The following functionalities and features are excluded from the initial scope of this project:

* **Custom Mobile App Development** – The project is limited to a responsive web application, and a native mobile app is not included.
* **Multi-Vendor Marketplace** – The store will only support a single-vendor model in the initial phase.
* **Integration with Third-Party Warehouses** – Automated inventory updates from external suppliers are not included.
* **Blockchain-Based Transactions** – Cryptocurrency payments are not part of this phase.
* **Augmented Reality (AR) Features** – Virtual try-on or 3D product visualization is not planned.
* **Physical Store Integration** – The project will not integrate in-store purchases with the online system.
* **Multi-Language Support** – The initial version will be available in English only.
* **Advanced AI-Powered Recommendations** – Basic product recommendations will be available, but AI-driven personalization is excluded.

**Assumptions & Constraints**

**Assumptions**

* The system will be cloud-based and require hosting services.
* Third-party payment gateway integration will follow industry standards.
* Customer data privacy and compliance with GDPR/CCPA regulations.
* Users will have stable internet access while using the platform.
* All transactions will be processed in real-time.
* Initial deployment will support a single-language interface (English only).
* The platform will be optimized for desktop and mobile responsiveness but will not include a native mobile app in the first phase.
* Customers will use commonly available web browsers (Chrome, Firefox, Safari, Edge) to access the store.
* Shipping and fulfilment processes will be handled by an external logistics provider.
* Promotional discounts and coupons will be manually managed by the admin team.
* System downtime for maintenance will be scheduled in advance.
* Product categories and inventory data will be manually maintained by the store administrators.
* Customer support will be provided through email and live chat but not via phone initially.
* Users will create accounts using email-based registration; social media login integration is planned for future updates.

**Constraints**

* The system must comply with relevant e-commerce laws and regulations.
* Budget constraints may limit the inclusion of advanced AI-based recommendation engines.
* The initial launch will only support a limited number of product categories.
* The project timeline must be adhered to, restricting scope expansion during the development phase.
* Integration with third-party services (e.g., payment gateways, logistics) will depend on their API availability and limitations.
* The online store must handle peak traffic loads during promotions and seasonal sales.

**Business Rules**

* Users must register with a valid email address to create an account.
* Orders cannot be processed without a valid payment method.
* Discounts and promotional codes must adhere to predefined expiration dates and usage limits.
* Inventory updates will be reflected in real-time to avoid overselling.
* Refunds will be processed only for returned items in accordance with the return policy.
* Customer reviews will be moderated before publication to ensure quality and compliance.
* Payment transactions must be encrypted and comply with PCI-DSS standards.
* Orders cannot be cancelled once they are shipped.
* Only authorized administrators can update product listings and inventory.
* Shipping costs will be dynamically calculated based on destination and product weight.
* Customers can only apply one discount code per transaction.
* System must log all user activities for audit purposes.
* Guest checkout users must provide a valid email for order tracking and receipts.
* The online store will not process orders from restricted regions as per company policies.

**Business Requirements with Functionality, Description, and Priority**

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Functionality** | **Description** | **Priority** |
| BR1 | User Registration & Login | Customers can create accounts, log in, and manage profiles. | High |
| BR2 | Product Catalog Management | Admins can add, update, and remove products. Customers can browse and search products. | High |
| BR3 | Shopping Cart | Customers can add, remove, and update items in their cart before checkout. | High |
| BR4 | Checkout & Payment | Secure payment processing with multiple options (Credit/Debit Card, PayPal, etc.). | High |
| BR5 | Order Management | Users can track order status, view order history, and receive notifications. | High |
| BR6 | Wishlist | Users can save products for future purchases. | Medium |
| BR7 | Discount Codes & Promotions | Customers can apply discounts and promotional codes. | Medium |
| BR8 | Customer Reviews & Ratings | Users can submit and view product reviews. | Medium |
| BR9 | Inventory Management | Admins can track stock levels and receive alerts for low inventory. | High |
| BR10 | Customer Support | Live chat, contact form, and FAQ sections for assistance. | Medium |
| BR11 | Security & Compliance | Implement SSL encryption, GDPR compliance, and fraud prevention. | High |
| BR12 | Analytics & Reporting | Generate reports on sales, user behavior, and trends. | High |
| BR13 | Mobile Responsiveness | Ensure the website is optimized for mobile devices. | High |
| BR14 | Search & Filters | Advanced search and filters for easy product discovery. | High |
| BR15 | Guest Checkout | Allow users to purchase without creating an account. | Medium |
| BR16 | Email & SMS Notifications | Order confirmations, promotions, and updates via email/SMS. | Medium |
| BR17 | Returns & Refunds | Customers can initiate return requests and track refunds. | Medium |
| BR18 | Multi-Currency Support | Support different currencies for international customers. | Low |
| BR19 | Subscription & Loyalty Programs | Reward programs and subscriptions for recurring purchases. | Low |
| BR20 | Admin Dashboard | Centralized management for orders, users, and analytics. | High |

**Non-Functional Requirements**

* **Performance:** The system should support up to 10,000 concurrent users.
* **Security:** Implement SSL encryption, secure authentication, and compliance with GDPR/CCPA.
* **Scalability:** The system should be able to handle increased traffic and product listings.
* **Availability:** Ensure 99.9% uptime with scheduled maintenance windows.
* **Usability:** The UI/UX should be intuitive and accessible across all devices.
* **Maintainability:** The system should be modular and easy to update with minimal downtime.
* **Compatibility:** The store must work on all major web browsers and mobile devices.
* **Backup & Recovery:** Daily backups with a rollback mechanism in case of system failures.
* **Logging & Monitoring:** Real-time error tracking and system performance monitoring.

**Development Plan & Resource Plan**

**Development Plan**

* **Phase 1: Requirements & Planning** (Weeks 1-4)
	+ Requirement gathering, stakeholder meetings, and finalizing specifications.
* **Phase 2: Development** (Weeks 5-12)
	+ Backend and frontend development.
	+ API integration (payment gateway, shipping, notifications).
* **Phase 3: Testing** (Weeks 13-15)
	+ Unit testing, integration testing, and user acceptance testing (UAT).
* **Phase 4: Deployment & Maintenance** (Weeks 16+)
	+ Deployment to production, bug fixes, and ongoing enhancements.

**Resource Plan**

|  |  |  |
| --- | --- | --- |
| Role | Responsibilities | Count |
| Project Manager | Oversee project execution | 1 |
| Business Analyst | Requirement gathering, documentation | 1 |
| Developers | Backend and frontend development | 3 |
| QA Engineers | Testing and bug tracking | 2 |
| Designers | Wireframing | 1 |
| DevOps Engineer | Deployment and infrastructure | 1 |

**SRS –**

**Introduction**

**Purpose**

The purpose of this document is to define the functional, non-functional, and technical requirements for the development of an Online Store. This system will enable users to browse, search, and purchase products online securely and efficiently.

**Scope**

The Online Store will provide a user-friendly platform for customers to explore products, place orders, and make secure payments. The system will also allow administrators to manage products, track orders, and oversee customer interactions.

**Definitions, Acronyms, and Abbreviations**

* **User**: A customer browsing or purchasing items.
* **Admin**: A system user managing products and orders.
* **Cart**: A virtual storage for selected products before checkout.
* **Payment Gateway**: A third-party service handling secure transaction.

**Overall Description**

**Product Perspective**

The Online Store is a web-based application that integrates with payment gateways, inventory systems, and customer management modules.

**Product Functions**

* User Registration & Authentication
* Product Search & Filtering
* Shopping Cart Management
* Order Placement & Payment Processing
* Order Tracking & History
* Admin Dashboard for Product & Order Management

**User Characteristics**

* Customers: Users with basic web navigation skills.
* Administrators: Users managing inventory and orders with technical proficiency.

**Constraints**

* Must support multiple browsers.
* Ensure secure transactions using encryption.
* Handle concurrent user access efficiently.

**Assumptions and Dependencies**

* Requires a stable internet connection.
* Relies on third-party payment gateway services.

**Specific Requirements**

**Functional Requirements**

**1. User Registration & Login**

* Users must register using an email and password.
* Users can log in and reset passwords if necessary.

**2. Product catalog Management**

* Users can view product details, images, and prices.
* Admins can add, update, and remove products.

**3. Shopping Cart**

* Users can add/remove products from the cart.
* Cart must retain items until checkout.

**4. Order Processing**

* Users can place orders after reviewing the cart.
* System processes payments securely.
* Users receive order confirmation via email.

**5. Order Tracking**

* Users can view the status of their orders.
* Admins can update order statuses.

**Non-Functional Requirements**

* **Performance**: The system should handle 1000+ concurrent users.
* **Security**: Must comply with PCI-DSS standards for payment security.
* **Usability**: The UI should be intuitive and accessible.
* **Availability**: 99.9% uptime expected.

**External Interface Requirements**

* **User Interface**: Responsive design for mobile and desktop.
* **Hardware Interface**: Runs on web servers with minimum 8GB RAM.
* **Software Interface**: Integrates with MySQL database and external APIs.

ERD



**User Story of Shopping from Ecommerce**

**Browsing and Product Discovery**:

* As a new visitor, I want to see a clear and visually appealing homepage with featured products, so I can easily discover items I might like.
* As a returning customer, I want to access my recently viewed products on the homepage for quick re-access.
* As a user, I want to be able to easily filter and sort products by category, brand, price, size, and color to find what I need quickly.
* As a user, I want to see detailed product descriptions, high-quality images, and customer reviews before making a purchase decision.
* As a user, I want to be able to use a search bar with auto-complete suggestions to find specific products easily.

**Adding to Cart and Checkout:**

* As a user, I want to add items to my cart with a single click and view a running total of my order.
* As a user, I want to be able to update quantities in my cart before proceeding to checkout.
* As a guest, I want to be able to checkout without creating an account if I choose to.
* As a registered user, I want to be able to access my saved shipping addresses and payment details during checkout.
* As a user, I want to see clear shipping cost calculations based on my location and order total.

**Payment and Order Confirmation:**

* As a user, I want to be able to securely pay for my order using a variety of payment methods (credit card, PayPal, etc.).
* As a user, I want to receive an immediate order confirmation email with details about my purchase.
* As a user, I want to be able to track the status of my order from the moment it is placed until delivery.
* As a user, I want to be able to easily access past order history and details.

**Account Management:**

* As a user, I want to create a personal account to save shipping addresses and payment information for future orders.
* As a user, I want to be able to update my personal information (email, phone number, etc.) in my account settings.
* As a user, I want to subscribe to email newsletters to receive updates on promotions and new products.
* As a user, I want to manage my wishlist to save items for later purchase.

**Customer Support:**

* As a user, I want to easily access a live chat feature to get immediate assistance with questions or concerns.
* As a user, I want to be able to submit a support ticket and receive a timely response.
* As a user, I want to find comprehensive FAQs and product information on the website.

**Promotions**

* As a user, I want to see prominent banners and notifications about current promotions and sales on the website.
* As a user, I want to be able to apply coupon codes at checkout.
* As a user, I want to receive personalized product recommendations based on my browsing history.

**Mobile Experience:**

* As a user, I want to access the online store seamlessly on my mobile device with a user-friendly layout.
* As a user, I want to be able to easily browse, add items to cart, and checkout on my mobile phone.
* As a user, I want to be able to return or exchange items easily if needed.
* As a user, I want to be able to leave reviews and ratings on products to help other customers.
* As a store owner, I want to be able to manage product inventory levels and update pricing easily.
* As a store owner, I want to be able to generate reports on sales and customer behaviour.