EMF - Design Assignment-3

EC22B1011 - SONU

EC22B1014 – ADVIK

EC22B1021 – NIKITA N A

EC22B1063 – P SAMARESH

Problem Statement:

- Standing in long queues at shops, malls, or markets is time-consuming, leading to a negative shopping experience.
- Customers looking to buy just one or two items often have to wait behind others with full carts, increasing frustration.
- Long queues can lead to customer dissatisfaction, with many choosing to leave and shop online or at smaller stores to avoid the inconvenience.

Proposed Solution:

A smart shopping cart that automatically scans and records products as they are added, speeding up the checkout process and eliminating the need for long queues.

Exercise 1.1

SMART GROCERY CART IN THE ANSOFF MATRIX:

Market Penetration:

- **Positioning:** The smart grocery cart is positioned to target existing grocery store customers and enhance their shopping experience by streamlining the checkout process and eliminating the need to wait in line.
- **Justification:** This strategy focuses on increasing usage and adoption within the grocery store environment, an existing market, without requiring the exploration of new customer bases or markets. By making the shopping process faster and more convenient, the cart encourages higher usage, potentially boosting customer satisfaction and loyalty. This approach is cost-effective, allowing for quick adoption and market presence while maximizing value for current grocery store customers.

The Market Penetration strategy is the best fit for the smart grocery cart, as it leverages the existing grocery store market and focuses on improving the shopping experience for current customers. This approach allows for efficient, focused growth by increasing adoption and visibility in the grocery sector.

Exercise 1.2

PRICING STRATEGY FOR THE SMART GROCERY CART:

Market Penetration Pricing:

1. Plan: Set a low introductory price to encourage rapid adoption across grocery stores and maximize initial market share.
2. Goal: Prioritize adoption and visibility, creating a customer base that benefits from queue-free shopping.
3. Long-term Impact: With widespread use, we can consider premium feature add-ons or service fees for enhanced capabilities (e.g., personalized suggestions).

Two Factors Influencing Pricing Decision:

1. **Competitive Landscape:**
   - Justification: In a market where stores seek innovative customer experiences, competitive pricing ensures that our cart stands out as an affordable, high-value investment. By pricing lower initially, we create an entry barrier for competitors and encourage loyalty among early adopters.
2. **Customer Willingness to Pay (WTP):**
   - Justification: Understanding grocery chains' WTP for efficiency and customer satisfaction guides our pricing. A lower entry price aligns with grocery stores' goals to enhance customer experience affordably, while a higher price could deter adoption, delaying market traction.

EXERCISE 1 . 3 :

Identify the top three metrics your team would track for marketing performance.
Explain how would you track these metrics.

Marketing Performance Metrics for Smart Cart Service :

For our Smart Cart service, the top three marketing performance metrics we would track are:

- Customer Acquisition Cost
- Customer Lifetime Value
- Conversion Rate.

These metrics offer essential insights into the effectiveness of our marketing strategies, helping us assess return on investment, customer retention, and overall impact on business growth.

Below, each metric is explained along with how we would track them.

1. Customer Acquisition Cost:

Description: Customer Acquisition Cost measures the cost of acquiring a new customer through our marketing efforts. Tracking Customer Acquisition Cost helps us understand the efficiency of our marketing spending and whether we are gaining customers at a sustainable rate. A lower Customer Acquisition Cost indicates more efficient marketing.

Formula:

$$\text{Customer Acquisition Cost} = \frac{\text{Total Marketing Expenses}}{\text{Number of New Customers Acquired}}$$

Tracking Method:

To calculate Customer Acquisition Cost, we would gather data on total marketing expenditures and the number of new customers acquired within a specific period. This data would come from our marketing and sales records, advertising platform analytics, and customer relationship management systems. Specifically, we would:

Record total marketing spend:

Track all advertising costs, content creation expenses, promotional costs, and any other marketing-related spending.

Track new customer sign-ups:

Use our customer relationship management system and customer database to identify the number of new users onboarded in the same period.

Calculate and analyse Customer Acquisition Cost monthly:

By dividing total marketing spend by new customer acquisitions, we can calculate our Customer Acquisition Cost monthly and identify trends over time. If Customer Acquisition Cost rises, we would assess advertising performance, adjust our marketing channels, or optimize our content to lower acquisition costs.

2. Customer Lifetime Value:

Description: Customer Lifetime Value is the estimated revenue generated by a customer over the entire duration of their relationship with the Smart Cart service. Customer Lifetime Value helps us determine how much we can invest in acquiring new customers and whether our service retains customers for extended periods.

Formula:

$$\text{Customer Lifetime Value} = \text{Average Purchase Value} \times \text{Purchase Frequency} \times \text{Customer Lifespan}$$

Tracking Method:

To track Customer Lifetime Value, we would analyze purchase data and customer behavior metrics, such as how often customers use the Smart Cart, average transaction amounts, and retention rates. Our process includes:

Collect transaction data:

Use analytics from our Smart Cart app and Point of Sale systems to calculate the average value of each transaction.

Determine purchase frequency:

Track how often customers make purchases using the Smart Cart on a monthly or quarterly basis.

Estimate customer lifespan:

Measure the average duration customers continue using the service. For new startups, an initial estimate would rely on industry averages or similar services.

Calculate Customer Lifetime Value and monitor quarterly:

By multiplying these factors, we calculate Customer Lifetime Value and track it quarterly, providing insights into customer retention, potential revenue, and the effectiveness of loyalty initiatives.

3. Conversion Rate:

Description: Conversion Rate measures the percentage of people who take a desired action after interacting with our marketing campaigns. This action could include signing up for the service, downloading the app, or starting a free trial. Conversion Rate is essential for evaluating how well our marketing campaigns turn prospects into users.

formula:

$$\text{Conversion Rate} = \frac{\text{Total Conversions}}{\text{Total Visitors or Leads}} \times 100$$

Tracking Method:

We would track conversion rates for each marketing channel (such as social media advertisements, email campaigns, or search engine marketing) to assess which are most effective. To do this, we would:

- **Define conversion goals:**

For each marketing campaign, we specify a clear action goal (e.g., app downloads or sign-ups) and set up tracking in tools like Google Analytics.

- **Monitor visitor or lead data:**

Use website and app analytics to capture visitor numbers from each channel, ensuring we accurately attribute each conversion.

- **Calculate conversion rates for each channel:**

By dividing total conversions by the number of visitors for each campaign, we get a channel-specific conversion rate.

- **Track and adjust monthly:**

Monthly tracking helps us quickly identify underperforming channels or campaigns, allowing us to reallocate budget or optimize messaging for better results

Exercise 2.1

PRODUCT BUILD/DEVELOPMENT STRATEGY FOR SMART GROCERY CART:

Minimum Viable Product (MVP) Approach

- Strategy: The primary strategy for developing the smart grocery cart is to start with a Minimum Viable Product (MVP). This approach focuses on building a version of the product that includes only core features, such as item scanning and queue elimination, which provide immediate value to users.

Reasons for Selecting MVP Approach:

1. Early User Feedback: Allows us to test the product in real grocery store environments and gather valuable insights from customers and staff.
2. Reduced Initial Investment: Focuses on core features only, minimizing upfront costs and development risks.
3. Faster Time-to-Market: Enables a quicker launch by focusing on essential functionalities, allowing the product to reach users sooner.
4. Incremental Improvement: Provides the flexibility to add or modify features based on user feedback, ensuring the final product aligns closely with market needs.
5. Increased Adoption Potential: By tailoring the product based on actual user feedback, the MVP approach improves the likelihood of acceptance and satisfaction among end users.

EXERCISE 2 .2: List the key challenges/risks in the development and your mitigation strategy /plan to overcome them.

1. Technical Complexity in Item Scanning

- **Challenge**: Ensuring accurate and fast item scanning is critical, as errors could frustrate users and slow down the checkout process.
- **Mitigation Strategy**: Use high-quality sensors and advanced computer vision algorithms for accurate item detection and scanning. Conduct extensive testing with diverse products to optimize performance and minimize errors.

2. Battery Life and Power Management

- **Challenge:** Maintaining sufficient battery life for the cart's continuous operation, given the power demands of sensors and processing equipment.
- **Mitigation Strategy**: Choose energy-efficient components and design power-saving modes for idle periods. Establish easy access to charging stations or explore wireless charging options to keep carts operational throughout the day.

3. User Experience and Ease of Use

- **Challenge**: New technology might be intimidating or confusing for some users, potentially impacting adoption.
- **Mitigation Strategy**: Develop a user-friendly interface with clear instructions and visual cues. During the initial rollout, provide in-store assistance to guide users on operating the smart cart smoothly.

4. Data Security and Privacy Concerns

- **Challenge**: Users may worry about their personal data and shopping habits being collected and misused.
- **Mitigation Strategy:** Implement strong data encryption and strictly follow data privacy regulations. Be transparent about data practices to reassure users that their information is secure and used responsibly.

5. System Reliability and Bug Resolution

- **Challenge:** Technical issues or glitches in the cart's system could lead to user frustration and slow down checkout times.
- **Mitigation Strategy:** Conduct thorough testing before deployment and establish a support system for quick issue resolution. Regular software updates and maintenance will also help to keep the system stable and reliable over time.

EXERICISE: 3 PRODUCT PLATFORMS

Metric	Definition	Relevance	Example
Adoption and Market Penetration	Measures the speed and extent to which customers and partners begin to use the platform.	A quick adoption rate signals that the platform is meeting market needs and attracting users. It also reflects the platform's competitive positioning.	Growth in the number of users or active accounts over time post-launch.
Revenue Growth and Profitability	Tracks the increase in financial returns generated by the platform, including both direct and indirect sources of income.	Shows the platform's financial health and how well it generates sustainable business opportunities. A growing revenue stream indicates the platform's successful monetization.	Overall sales, subscription fees, and revenue from third-party services or integrations.
Ecosystem Growth and Partnerships	Assesses the expansion of the platform's ecosystem, which includes third-party integrations, developer contributions, and strategic alliances.	A thriving ecosystem attracts diverse stakeholders, enhancing the platform's functionality and market appeal.	Number of new applications, tools, or integrations developed by external developers or partners.
User Retention, Engagement, and Satisfaction	Tracks how often users engage with the platform and their level of satisfaction over time.	High retention and satisfaction levels are crucial for the platform's long-term success, as they indicate users find value in the platform's offerings.	Metrics like daily active users (DAU), frequency of use, or customer feedback and ratings.

Metric	Definition	Relevance	Example
Scalability and Performance	Evaluates the platform's ability to grow in capacity, user base, and functionality without performance issues.	Scalability ensures that the platform can handle increasing demands, while performance indicates that it can do so efficiently and smoothly.	Load times, the number of simultaneous users or transactions, and the platform's responsiveness as usage scales.
Innovation and Feature Development	Measures the frequency and impact of new features or innovations added to the platform.	Continuous innovation helps the platform stay relevant and competitive in a fast-changing market.	Number of new features, tools, or updates launched within a specific period, and how these impact user experience.
Market Reach and Geographic Expansion	Tracks the platform's expansion into new geographic regions or industry segments.	Geographic and market diversification helps the platform tap into new customer bases, enhancing its global reach.	Growth in international users or entries into new industry verticals.