Designing a Smart Vending Machine for Emerging Markets

PROJECT REPORT

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD
OF THE DEGREE

MASTER OF DESIGN

IN

INTERACTION DESIGN

Submitted by

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CANDIDATE'S DECLARATION

1/We, Ankur Juneja, 2K21/MDID/04 of M.Des. (Interaction Design), hereby declare that the Project Report titled "**Designing a Smart Vending Machine for Emerging Markets**" which is submitted by me/us to the Department of Delhi Technological University, Delhi in partial fulfillment of the requirement for the award of the degree of Master of Design, is original and not copied from any source without proper citation. This work has not previously formed the basis for the award of any Degree, Diploma Associateship, Fellowship or other similar title or recognition

Place: Delhi   (Ankur Juneja)

Date: 27 April 2023

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CERTIFICATE

I hereby certify that the Project Report titled **"Designing a Smart Vending Machine for Emerging Markets"** which is submitted by Ankur Juneja, Department of Design, Delhi Technological University, Delhi in partial fulfillment of the requirement for the award of the degree of Master of Design, is a record of the project work carried out by the student under my supervision. To the best of my knowledge this work has not been submitted in part or full for any Degree or Diploma to this University or elsewhere.

Place: Delhi   (Prof. Partha Prathim Das)

Date: 27 April 2023

ACKNOWLEDGEMENT

Place: Delhi   (Ankur Juneja)

Date: 27 April 2023

Designing a Smart Vending Machine for Emerging Markets

Abstract: The rapid growth of emerging markets has attracted the attention of businesses and designers worldwide. The vending machine industry is no exception, seeking to expand its reach beyond traditional markets. This thesis aims to investigate the factors that influence the design of smart vending machines for up-and-coming markets. Through a case study approach, this research explores the cultural, social, and economic aspects that shape the design of vending machines. The study also examines how designers can leverage technology to create innovative vending machines that cater to the needs of emerging markets.

Chapter 1: Introduction

This chapter aims to elaborate a comprehensive review of the literature on smart vending machines, emerging markets, and the design of products for emerging markets.

Smart vending machines have been gaining popularity worldwide due to their convenience and accessibility, and this trend is expected to continue in the future. In emerging markets, adopting smart vending machines presents unique challenges and opportunities due to cultural and economic factors. Therefore, understanding the literature on these topics is essential to design effective and culturally sensitive smart vending machines for emerging markets.

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Chapter 2: Literature Review

2.1 Smart Vending Machines

Smart vending machines are a type of automated retail technology that incorporates digital displays, cashless payments, and remote monitoring. They are becoming increasingly prevalent worldwide due to their ability to offer 24/7 access to products, convenience, and personalised promotions. In the literature, researchers have emphasised the importance of designing smart vending machines that meet the needs of local users, especially in emerging markets.

Fig.1 - A kid using a smart vending machine with an interactive touch screen

2.2 Emerging Markets

Emerging markets are countries in the process of rapid economic growth and industrialisation. Due to cultural, social, and economic factors, these markets present unique challenges and opportunities for smart vending machine manufacturers and operators. Researchers have noted that understanding local cultures, preferences, and behaviours is essential for designing effective products for emerging markets.

2.3 Design For Emerging Markets:

Designing products for emerging markets requires a deep understanding of local cultures, needs, and behaviors. The literature on design for emerging markets has emphasised the importance of affordability, simplicity, and cultural sensitivity. Frugal innovation, a term for creating high-quality products with limited resources, has also been identified as an essential principle for designing products for emerging markets.

2.4 How do the existing vending machines work?

1. Product Selection: Users typically make their product selection by using a keypad, buttons, or a mechanical lever to choose the desired product. The vending machine may have a visual display or labels indicating the available products and their corresponding codes or buttons for selection.
2. Cash or Payment: Users pay for the selected product using cash or a payment method accepted by the vending machine. This may include inserting coins, inserting bills, or a combination of both. Some vending machines may also accept contactless payment methods, such as credit cards, debit cards, mobile wallets, or QR code scans.
3. Inventory and Dispensing: The vending machine's inventory system checks the availability of the selected product. This may involve sensors or scanners that detect the presence of products in the machine, and a control system that keeps track of the inventory levels. If the selected product is in stock, the dispensing mechanism, which may consist of motorized belts, spirals, or robotic arms, releases the product from its storage location and delivers it to a collection area for the user to retrieve.
4. Change or Receipt Dispensing: If the user paid with cash and is owed change, some non-smart vending machines may have a mechanical change dispenser that provides the correct amount of change in coins. Alternatively, the vending machine may also provide a printed receipt for the purchase, which may include details such as the product selected, the price paid, and any change owed.
5. Maintenance and Service: Conventional vending machines require regular maintenance and service to ensure smooth operation. This may include restocking products, cleaning the vending machine's interior and exterior, repairing or replacing faulty components, and manually updating pricing or product offerings. Vending machine operators or service personnel may visit the machines periodically to perform these tasks, or some machines may have automated systems that notify the operator when maintenance is needed.

2.5 Role Of Technology In Designing Smart Vending Machines:

Technology plays a crucial role in designing smart vending machines for emerging markets. In the literature, researchers have emphasised the importance of incorporating technology that is appropriate for the local context. For example, smart vending machines that operate offline in countries with limited internet access may be more effective. The literature has also highlighted the potential of IoT-enabled smart vending machines in providing real-time data on inventory levels and consumer preferences.

2.6 Working In vending machine industry

The vending machine industry has become an integral part of modern society, providing convenient access to a wide variety of products in various locations. However, behind the scenes, the human factors involved in working in the vending machine industry play a significant role in its success. From the perspectives of vending machine operators, maintenance technicians, and consumers, exploring the human factors involved in this industry sheds light on important considerations that impact the overall experience.

2.6.1 Ergonomics: Vending machine operators spend significant time loading products, collecting cash, and maintaining the machines. The ergonomics of these tasks can significantly affect the well-being of operators. Factors such as the height and placement of the vending machines, weight of products, and ease of cash handling can impact the physical health and comfort of operators. Ergonomically designed vending machines and equipment can reduce the risk of musculoskeletal injuries and increase productivity.

2.6.2 Safety: Safety is a critical human factor in the vending machine industry. Operators and maintenance technicians may encounter various hazards, including electrical risks, moving parts, and heavy machinery. Proper training, safety protocols, and protective equipment are essential to minimize risks and ensure the well-being of workers. Additionally, ensuring that vending machines are installed in safe locations, well-lit, and accessible can enhance the safety of consumers who use the machines.

2.6.3 User Experience: The user experience is a crucial human factor in the vending machine industry. Consumers interact with vending machines to purchase products, and their experience can greatly impact their satisfaction and loyalty. Factors such as ease of use, payment options,

product availability, and machine aesthetics all play a role in the user experience. Understanding consumer preferences and behavior can help operators optimize their vending machine offerings and placement to enhance user satisfaction.

2.6.4 Maintenance and Repair: Maintenance technicians play a critical role in the vending machine industry. They are responsible for the installation, repair, and maintenance of vending machines. Factors such as ease of access to machines, availability of spare parts, and tools impact the efficiency and effectiveness of maintenance tasks. Proper training and support for maintenance technicians are crucial to ensure the smooth operation of vending machines and minimize downtime.

2.6.5 Business Management: Human factors also come into play in the business management aspects of the vending machine industry. Operators need to manage inventory, pricing, product selection, and customer service. Effective communication, organizational skills, and decision-making play a key role in the success of vending machine operations. Operators need to understand consumer preferences, market trends, and financial considerations to make informed business decisions.

2.6.6 Work-Life Balance: Working in the vending machine industry can be physically demanding and require long hours. Balancing work and personal life is an important human factor that impacts the well-being of operators and maintenance technicians. Employers should prioritize the well-being of their workers by providing reasonable working hours, breaks, and support systems to maintain a healthy work-life balance.

In conclusion, the human factors involved in working in the vending machine industry are multifaceted and play a crucial role in its overall success. Ergonomics, safety, user experience, maintenance and repair, business management, and work-life balance are all important considerations that impact the well-being of operators, maintenance technicians, and consumers. Understanding and addressing these human factors can lead to improved efficiency, productivity, and customer satisfaction in the vending machine industry.

2.7 International Market

In the international market, vending machines are already well established, with a wide range of products and services being sold through them. The vending machine market is mature and highly competitive in many countries. Additionally, they sell various products, including snacks, beverages, books, magazines, and electronics.

In developed countries such as the US, Japan, and European countries, vending machines are a common sight in public places such as airports, train stations, and shopping malls. They are also widely used in workplaces, educational institutions, and healthcare facilities.

2.8 Market in India

2.8.1 Emerging Market in India:

In India, the vending machine market is still in the early stages of development, but the growth potential is significant. The vending machine market in India is currently focused on selling snacks and beverages. Still, there is a growing demand for vending machines that sell other products, such as personal care items and electronics.

One of the challenges in the Indian market is the lack of infrastructure and distribution networks to support vending machine operations. Additionally, cultural factors may impact the use of vending machines in India. For example, many people in India prefer purchasing freshly prepared food and beverages from street vendors or small shops rather than vending machines.

Despite these challenges, the Indian market presents a significant opportunity for vending machine companies, as the market is largely untapped and proliferating. With the right strategies, vending machine companies can capitalise on this opportunity and establish themselves as key players in the Indian market.

Overall, while the international market for vending machines is already well established, the potential for growth in the Indian market is significant. It presents a unique opportunity for vending machine companies to expand their operations and product offerings.

2.8.2 Vending machine in Japan

With one vending machine (自動販売機, jidōhanbaiki) per approximately 30 people, Japan has one of the world's highest vending machine densities. Machines can be found all over the cities and also in the countryside. Almost none of them are vandalised or non-functional.

Most machines sell non-alcoholic beverages such as soft drinks, juice, energy drinks, tea and coffee for a reasonable 100 to 200 yen. These drink machines usually offer both hot and cold beverages. Vending machines that sell alcoholic beverages and cigarettes are less common. Wide other varieties of vending machines can be found in even smaller numbers, selling goods such as ice cream, rice, disposable cameras, instant noodles and even omikuji, the small fortune-telling slips of paper sold at shrines and temples.

2.9 Rise of Smart Vending Machines

The rise of smart vending machines has been a global phenomenon, with their popularity increasing rapidly in various markets worldwide. These vending machines are a type of automated retail technology that incorporates digital displays, cashless payments, and remote monitoring to offer convenience, accessibility, and personalized promotions to consumers. The adoption of smart vending machines has presented unique challenges and opportunities, particularly in emerging markets.

In developed countries such as the US, Japan, and European countries, vending machines are a common sight in public places such as airports, train stations, and shopping malls, as well as in workplaces, educational institutions, and healthcare facilities. In Japan, for example, with one vending machine per approximately 30 people, the country has one of the highest vending machine densities in the world. These machines predominantly sell non-alcoholic beverages such as soft drinks, juice, energy drinks, tea, and coffee, with some offering hot and cold beverage options, and are known for their reliability and functionality.

However, the potential for growth in emerging markets, such as India, is significant. In India, the vending machine market is still in the early stages of development, with a focus on snacks and beverages, but there is a growing demand for vending machines that sell other products, such as personal care items and electronics. Despite challenges such as lack of infrastructure and distribution networks, as well as cultural factors influencing consumer preferences, the Indian market presents a lucrative opportunity for vending machine companies to expand their operations and product offerings.

One of the key factors driving the rise of smart vending machines is the role of technology in enhancing user experience. These machines leverage technology to create intuitive and engaging interfaces that improve the overall customer experience. User interface (UI) design plays a critical role in shaping the usability, functionality, and aesthetics of smart vending machines.

Design elements such as visual design, typography, color, and iconography are used to create interfaces that are visually appealing, easy to use, and culturally relevant.

Visual design is a crucial aspect of UI design for smart vending machines. It involves the use of graphics, images, and other visual elements to create an attractive and visually appealing interface. Typography, or the choice of fonts and text styles, also plays a significant role in UI design as it affects the legibility and readability of the interface. Careful consideration of color is important to ensure that it is visually pleasing and conveys the right messages, while also being culturally appropriate for the target market. Iconography, or the use of symbols and icons, can also improve the usability of the interface by providing visual cues and making it easier for users to navigate through the options.

In addition to visual elements, the layout and organization of the interface are critical to create an intuitive and engaging user experience. The placement of buttons, menus, and other interactive elements should be logical and easy to understand. Clear and concise labels, instructions, and feedback can also enhance the usability of the interface. Furthermore, localization, or adapting the interface to the local language, culture, and context, is essential for smart vending machines designed for emerging markets. This includes using familiar language, symbols, and icons that resonate with the local users, and considering cultural norms and sensitivities.

Overall, the rise of smart vending machines has presented new opportunities for businesses to cater to the evolving needs and preferences of consumers. Effective UI design, incorporating visual design, typography, color, and iconography, plays a crucial role in enhancing the user experience of smart vending machines. By creating intuitive and engaging interfaces that are culturally relevant and easy to use, businesses can capitalize on the growing demand for smart vending machines in emerging markets and beyond.

Chapter 3: Market Analysis

3.1 Types of vending machines:

Vending machines are versatile and can cater to various needs and industries. Here are some different types of vending machines:

Fig.2 - Types of Vending Machines

3.1.1 Snack Vending Machines:

1. **Ambient Snack Vending Machine**: An ambient snack vending machine does not have any temperature control system and is designed to dispense non-perishable snacks such as chips, candies, and cookies. These machines do not require any refrigeration or heating, and are typically used for snacks that do not require specific temperature control to maintain their freshness or quality. Ambient snack vending machines are often found in locations where quick and convenient access to snacks is desired, such as offices, break rooms, and waiting areas.

   Design considerations for ambient snack vending machines may include the size and layout of the machine, the product dispensing mechanism, the user interface for selecting snacks and making payments, the visibility and accessibility of products, and the branding and aesthetics of the machine to attract customers.

2. **Combo Snack Vending Machine:** A combo snack vending machine is designed to offer a combination of both refrigerated and non-refrigerated snacks and beverages. These machines typically have a refrigeration system to a small extent, allowing for perishable items such as sandwiches, fruits, yogurts, and cold beverages to be kept inside. Combo snack vending machines are commonly found in locations where customers may desire a variety of snacks and beverages, such as offices, schools, hospitals, and gyms.

   Design considerations for combo snack vending machines may include the size and layout of the machine, the temperature control and refrigeration system, the dispensing mechanism for both refrigerated and non-refrigerated items, the user interface for selecting products and making payments, and the branding and aesthetics of the machine to create an appealing and functional vending experience.

3. **Cold Drinks Vending Machine**: A cold drinks vending machine is specifically designed to dispense cold beverages such as sodas, juices, energy drinks, and bottled water. These machines have a refrigeration system to keep the beverages chilled and ready for consumption. Cold drinks vending machines are commonly found in a variety of locations such as offices, schools, convenience stores, and public places like parks and bus stations. Design considerations for cold drinks vending machines may include the size and layout of the machine, the temperature control and refrigeration system, the dispensing mechanism for different sizes and types of beverages, the user interface for selecting beverages and making payments, and the branding and aesthetics of the machine to attract customers.

4. **Hot Drinks and Foods Vending Machine**: A hot drinks and foods vending machine is designed to dispense hot beverages such as coffee, tea, and hot chocolate, as well as hot food items such as soups, noodles, and sandwiches. These machines typically have a heating system to keep the items warm for a certain amount of time until they are dispensed. Hot drinks and foods vending machines are commonly found in locations where customers may desire hot and convenient food and beverage options, such as offices, train stations, airports, and hospitals. Design considerations for hot drinks and foods vending machines may include the size and layout of the machine, the heating system and temperature control, the dispensing mechanism for both hot beverages and foods, the user interface for selecting items and making payments, and the branding and aesthetics of the machine to create an inviting and efficient vending experience.

*The most common types are combo and ambient machines.

1. **Snack and Beverage Vending Machines:** Snack and beverage vending machines are one of the most common types of vending machines. These machines typically offer a wide range of snacks such as chips, chocolates, candies, and cookies, as well as a variety of cold and hot beverages such as sodas, juices, energy drinks, coffee, and tea. They are often found in public places such as airports, train stations, offices, schools, and shopping malls. Design considerations for snack and beverage vending machines may include the size and layout of the machine, the visibility and accessibility of products, the efficiency of the dispensing mechanism, the temperature control for beverages, the user interface for selecting products and making payments, and the branding and aesthetics of the machine to attract customers.

2. **Fresh Food Vending Machines**: Fresh food vending machines are gaining popularity as consumers are increasingly seeking healthier and more convenient food options on-the-go. These machines offer a variety of freshly prepared meals, salads, sandwiches, fruits, and other perishable food items. They are commonly found in locations such as hospitals, universities, corporate campuses, and fitness centers. Design considerations for fresh food vending machines may include the temperature control and refrigeration systems to maintain food freshness, the packaging and labeling of food items, the ease of restocking and replenishing food inventory, the user interface for selecting food options and making payments, and the hygiene and food safety features of the machine.

3. **Specialty Vending Machines:** Specialty vending machines cater to specific niche markets and offer unique products or services. Examples of specialty vending machines include those that dispense products such as cosmetics, personal care items, electronics, books, toys, and even live animals in some cases. These machines are typically found in specialized locations such as airports, hotels, tourist attractions, and niche retail stores. Design considerations for specialty vending machines may vary depending on the type of product or service being offered. Factors such as the size and shape of the products, the packaging and protection of delicate items, the security features to prevent theft or damage, the user interface for selecting products or services, and the branding and aesthetics of the machine may all need to be carefully considered.

4. **Automated Retail Vending Machines:** Automated retail vending machines are a newer trend in the vending machine industry that combines the convenience of online shopping with the instant gratification of in-person purchasing. These machines often offer a wide range of products such as clothing, accessories, electronics, and other consumer goods. They are typically found in high-traffic areas such as shopping malls, airports, and transit stations. Design considerations for automated retail vending machines may include the size and layout of the machine, the display and showcasing of products, the security features to prevent theft, the user interface for browsing and selecting products, the payment and transaction systems, and the branding and aesthetics of the machine to create an engaging and seamless shopping experience.

5. **Reverse Vending Machines:** Reverse vending machines are a unique type of vending machine that accepts used or empty containers such as bottles, cans, or cartridges, and provides incentives or rewards in return. These machines are designed to promote recycling and sustainability by encouraging consumers to properly dispose of their waste and participate in recycling programs. They are commonly found in public places, recycling centers, and grocery stores. Design considerations for reverse vending machines may include the collection and sorting mechanisms for different types of containers, the storage and handling of waste materials, the rewards or incentives system, the user interface for depositing containers and redeeming rewards, and the educational and promotional features to raise awareness about recycling and environmental conservation.
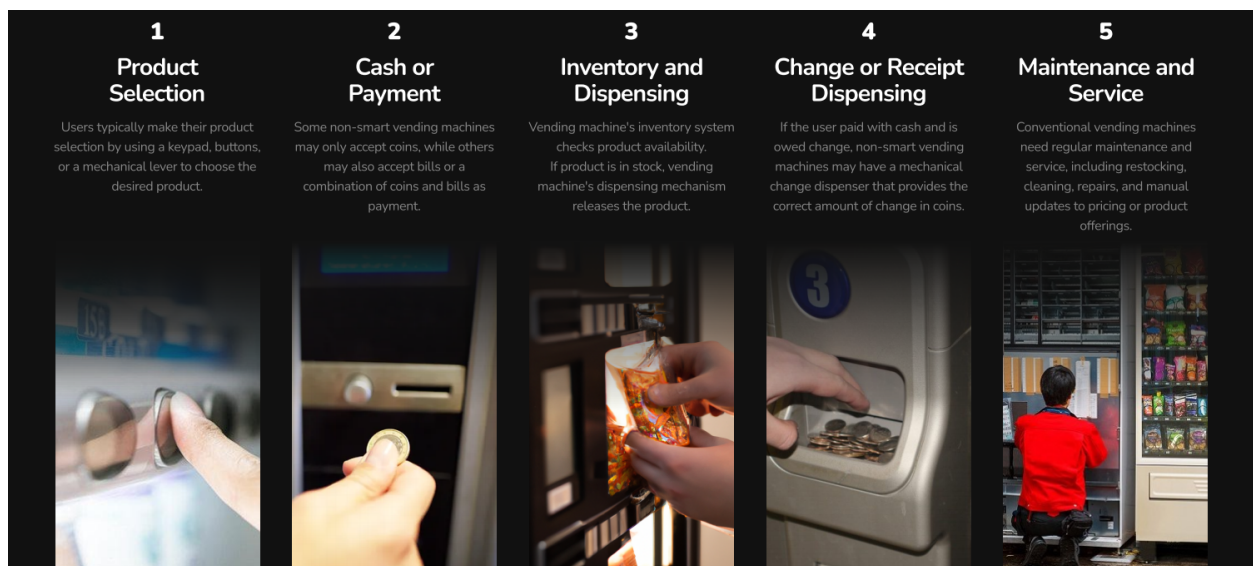
3.2 How do existing vending machines work

Fig.3 - Flow of how a Vending Machine works

Existing vending machines typically work through a series of automated processes that involve the following steps:

1. **Product Selection**: The customer selects a product from the available options displayed on the vending machine's digital display or through physical buttons or a touch screen interface.
2. **Payment**: The customer makes a payment for the selected product using either cash or cashless methods such as credit/debit cards, mobile wallets, or contactless payment options like NFC (Near Field Communication) or QR codes. Some vending machines may also offer loyalty programs or discounts for repeat customers.
3. **Product Dispensing:** Once the payment is processed and confirmed, the vending machine dispenses the selected product. This is usually done through mechanical systems that use motors, gears, and conveyor belts to transport the product from its storage location to the dispensing chute, where it can be collected by the customer.
4. **Inventory Management:** Vending machines are equipped with sensors and systems that monitor inventory levels, sales data, and machine status. This information is used to track and manage inventory, optimize product restocking, and ensure that the vending machine is always stocked with fresh products.
5. **Maintenance and Security**: Vending machines also have security features such as locks, alarms, and surveillance cameras to protect against theft, vandalism, and tampering. Regular maintenance and servicing, including restocking, cleaning, and repairs, are also performed to ensure the smooth operation of the vending machine.
6. **Remote Monitoring:** Many modern vending machines are equipped with remote monitoring capabilities, which allow operators to monitor the status of the machine, track sales data, and manage inventory remotely through a centralized system. This enables operators to make data-driven decisions and optimize the performance of their vending machines.
7. **Energy Management**: Vending machines are designed to be energy-efficient, with features such as LED lighting, low-power modes, and automatic shutdown during periods of inactivity to conserve energy and reduce operating costs.

These are the general steps involved in the operation of traditional vending machines. However, with the advent of smart vending machines, additional features such as digital displays, interactive interfaces, and connectivity to the internet have been incorporated to provide enhanced user experiences and improved operational efficiencies. Smart vending machines may also offer features such as personalized promotions, data analytics, and remote management capabilities, which further enhance the functionality and convenience of the vending machine ecosystem.

3.3 Global Vending Industry

Vending Machines in the United States, European Countries and Japan are very popular. However, the market of each country is very different from others so is the reason for the success of Vending Machines in these countries. In this report analysis of Vending Machines will be done region wise.

3.3.1 United States

In the United States, vending machines have become a ubiquitous part of modern life, with a wide range of options available to cater to diverse consumer preferences. According to statistics, there is approximately one vending machine for every 38 people in the country, showcasing the widespread availability and popularity of this form of automated retail.

Traditionally, vending machines were known for dispensing classic treats such as candy bars, chips, and peanut butter crackers. However, with advancements in technology and changing consumer demands, vending machines have evolved to offer a much wider array of products. Today, consumers can find vending machines that dispense not only snacks and beverages but also fresh fruit, cold sandwiches, and even more elaborate heated meals.

The convenience and accessibility of vending machines have made them a preferred choice for many people on the go. They are commonly found in various locations such as office buildings, schools, hospitals, airports, train stations, malls, and even outdoor public spaces. Vending machines provide a quick and easy way for consumers to satisfy their hunger or cravings without having to rely on traditional brick-and-mortar stores or restaurants, especially during odd hours or in areas where other food options may be limited.

One notable trend in the vending machine industry is the increasing focus on healthier options. As people are becoming more health-conscious and seeking nutritious food choices, vending machines have adapted to offer items such as fresh fruit, salads, yogurt, and other healthier snacks. Some vending machines also provide information about the nutritional content of the products, helping consumers make informed choices.

In addition to food and beverages, vending machines have expanded to offer a wide range of other products and services. For example, there are vending machines that dispense personal care items, electronics, PPE, books, art supplies, and more. These machines cater to specific needs and preferences of consumers, providing convenient access to a variety of products in a self-service format.

Vending machines also reflect the changing landscape of technology and innovation. Many modern vending machines are equipped with digital screens, touch interfaces, cashless payment

options, and even remote monitoring capabilities for inventory management. Some vending machines also use data and analytics to track consumer preferences and adjust their offerings accordingly, creating a personalized and seamless shopping experience.

In conclusion, vending machines have come a long way from simply dispensing candy bars to offering a wide range of products and services to cater to diverse consumer demands. With their convenience, accessibility, and technological advancements, vending machines continue to be a prominent part of the retail landscape in the United States, providing a quick and efficient way for people to satisfy their needs while on the go.

3.3.2 Japan

Japan is a country where jihanki (Vending Machines) are extremely popular. In fact Vending Machines are so popular that they have the highest people to Vending Machine ratio. For every 23 people there is a Vending Machine in Japan. According to official data there are a total of 5.52 million Vending Machines in Japan.

Annual sales from Vending Machines reach nearly 6.95 trillion Yen.

People sell products ranging from packed food, unpacked food, visiting cards, clothes, electronics, condoms and energy drinks etc. Vending Machines in Japan come in all sorts of shapes, sizes.

The major reasons Vending Machines in Japan are so popular are:

1. Japanese believe that installing a Vending machine is cheaper than opening an actual shop because of the high property rate, expensive labor.

2. Lower birth rate, aging population, less and expensive labor has led to increase in popularity of Vending Machines.

3. The crime rate against Vending machines is relatively low, even if the machines are left outside, they are seldom stolen or broken.

4. Since vending machines are now a key part of the country's retail infrastructure, people are

accustomed to not only seeing vending machines, but using them. At this point, it's less that vending

machines are popular, and more that they are interwoven into Japanese society.

5. Almost all Vending Machines in Japan are always filled and in working condition, customers feel good

about using them. This is because of great services which are being provided in Vending Machines.

6. People in Japan love technology and are always looking for new types of Vending Machine instead of being scared of them. These days Japanese Vending Machines are coming up with bigger screen which shows weather and current events, better user interface, cashless payments. Japan has accepted the Vending Machines in their lives. The Vending Machines in Japan these days come in all sort of stickers ranging from company's PR to Marvels stickers. Then, companies are also using these unattended sellers more as publicity stunts and less of an actual spot to buy a particular product. For example, women weren't buying bras from a vending machine, but the lingerie company behind it was pushing it for PR. The development and expansion of vending machines doesn't exist in a vacuum. There's a history of "unmanned sellers" in Japan. They're vending machines minus the machine. Usually, they're in the countryside and they usually sell vegetables. Shoppers are supposed to pick out the food they want at the stall, and then leave cash for whatever they purchase at the unattended food stalls.

In Japan there are Vending Machines even in Buddhist temples, but these machines are really simple, so that they don't stand out and distract from the setting. These exist in case you need a drink and not necessarily to sell you something to drink.

The way Japan has embraced Vending Machines in their culture is what makes Japanese Vending Machines unique places where Vending Machines can be found in Japan: Vending Machines are literally everywhere in Japan. Some common places where Vending Machines can be found in Japan are:

1. **Streets and Blocks**: Vending machines are a ubiquitous sight on Japanese streets and blocks, offering a wide range of products such as beverages, snacks, cigarettes, toiletries, and even hot meals. They are often lined up in rows and can be found in urban areas, residential neighborhoods, and rural locations alike.
2. **Convenience Stores**: Vending machines are commonly found in front of convenience stores in Japan. They provide an additional convenience for customers to purchase items quickly and easily, especially when the stores are closed or the lines are long inside the store.

3. **Train Stations**: Japanese train stations are known for having multiple vending machines offering various types of beverages and snacks. This allows commuters and travelers to grab a quick refreshment while waiting for their train.

4. **Parks and Public Spaces**: Vending machines can be found in parks, public squares, and other outdoor spaces in Japan, providing convenient access to drinks and snacks for people on the go.

5. **Business Areas**: Vending machines are often found in business districts and commercial areas in Japan, catering to the needs of office workers, shoppers, and tourists who may be looking for a quick and convenient snack or beverage.

6. **Residential Areas**: Vending machines can also be found in residential areas in Japan, providing easy access to beverages and snacks for local residents.

7. **Tourist Attractions**: Vending machines are often installed at tourist attractions such as temples, shrines, and popular sightseeing spots in Japan, providing refreshments for visitors.

8. **Sports Facilities**: Vending machines are commonly found at sports facilities such as stadiums, arenas, and sports complexes in Japan, providing beverages and snacks for sports enthusiasts and spectators.

9. **Schools and Universities**: Vending machines are also commonly found in schools and universities in Japan, providing students and staff with convenient options for beverages, snacks, and other items.

3.4 Vending Industry In India

3.4.1 India Vs Other Countries

In India, compared to countries like the United States and Japan the Vending Machine market is yet to take off with a total of nearly 12,000 Vending Machines (as of 2017) across the country in comparison to the United States which has more than 70 lakh machines and Japan which has 1 machine for every 23 people. Indian Vending Machine Market is mostly focussing on snacks and packaged food products and Beverages.

We at Wendor believe that while these products are one of the most sellable products in Vending Machines, yet there are still a lot of products which can be sold out of them like Wipes, Electronics, Tissues, Pads and personal care items etc. In order to figure out if there is a requirement which can be bridged we are creating this report which will also help us analyse the requirements of the customers and help us design the machine accordingly.

The entire document contains market research, problems, commodities that can be kept in the machine keeping in mind Indian users and Indian locations where Vending Machines can be installed.

3.4.2 Overview of the Vending Industry in India

Vending Machines in India are on a rise. According to a report, the Vending Machine will be a $23 billion market by the year 2023 with highest percentage growth coming from Asia Pacific region. As of now Indian Vending Machine Market is only targeting FMCG and food products and Vending machines are usually seen at public places like metro stations or airports, corporate offices or corporate offices which is not the case in Western countries. Outside India Vending Machines can be found in colleges, closed door societies, public markets, petrol pumps, gyms, cafes etc.

As of now there are nearly 12,000 Vending Machines in India. The Indian Vending Machine market has nearly 7 manufacturers and more than 20 Vending Machine operators. Vending Machine manufacturers sell these machines to Vending Machine operators who provide services like installation, maintenance, refilling, operations etc. on the rental model to the final customer.

Apart from distributors there are FMCG brands and food distributors coming up who want to sell their products using Vending Machines. These brands and Vending Machine operators brand these machines on the sides.

Most of the Vending Machines in the Indian Market are operated on cash. Which is a major problem, cash handling is a huge logistics since a person is employed to collect cash from all the machines in the vicinity.

Security of cash, security of individuals carrying the cash and banks not accepting the notes of smaller denomination is also a serious problem. In addition these machines do not take large denomination notes or give back change.

Most Vending Machine operators and distributors get no data in terms of sale or live inventory, forcing them to refill the machine after regular intervals without any information about the products and their availability inside the machine thus leading to unoptimised refilling cycle and high transportation cost, lack of data usage, lack of sales trends, lack of refill history. In addition Indian Market is yet to open up to Vending Machines. Most Indians have not yet used the Vending Machines because of the unavailability, another reason people avoid using Vending Machines is due to fear of complacay or not being able to use it leading to fear of embarrassment. Also machines in India do not look user friendly because of the kind of material used in the machine giving it the robotic feel. Making it not so user friendly.
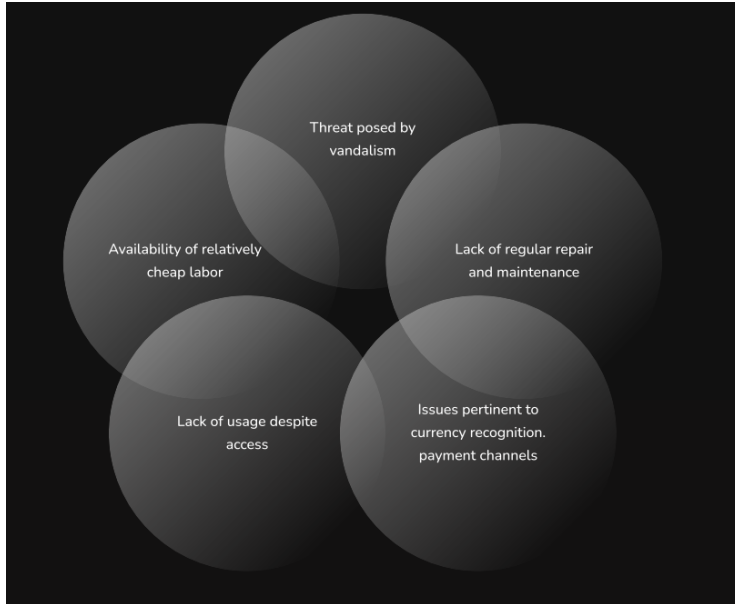
Fig.4 - Problems related to Vending Machines

3.4.3 Main Problems in the Indian Market:

- Availability of relatively cheap labor that fuels the proliferation and operations of Stores and Canteens. These serve as indirect competition
- Lack of usage despite access to automated machines owing to absence of technical knowhow, trust and other psycho-social variables
- Issues pertinent to currency recognition. payment channels
- Threat posed by vandalism and inconsiderate usage
- Lack of regular repair and maintenance and replenishment of these machines can render them unfit for operation; thereby, undermining the entire Endeavour

3.4.4 Social, Cultural relevance in India :

In terms of cost to the consumer, VMs can be a lot better. Some reasons which can convince potential businesses to explore VMs (Vending Machines):

1. Time taken is lesser for a VM. A shopkeeper needs time to fetch, then the anarchy in how customers shout out what they want quickly makes it worse as more customers arrive. That's the

reason why shopping malls do better, because they can manage more consumers. A VM can manage more customers faster than a shop.

2. VMs are 24/7. Even a human who really wants a job still needs to sleep.

3. VMs occupy less space. So you can place them on sidewalks and many places where setting up a full shop will be very costly or not feasible.

4. VMs are cheaper than a shop. Less space, no humans needed to run, 24/7 and more reasons. Thus

more VMs can be set up than shops, in many more areas normally not accessible by shops. This can increase last mile connectivity substantially.

5. VMs can reduce the cost of goods, by making it more of a logistics operation. Things which are in demand can be restocked easier. By removing a lot of middlemen who have a lot of margin, customers will benefit enormously.

6. VMs can create better jobs. Manufacturing VMs can pay more than running a small shop. Employment in a better paying industry. By increasing consumer consumption, more money can be circulated, improving the economy

3.4.5 Current Product related problems:

Few reasons due to which Vending Machines in India is unpopular is:

1. Multivend

2. Cash Handling: Most Vending Machines in India are still cash dependent. Cash handling is a major issue in our country where notes have been changing so much. At times these machines don't accept higher denomination notes. Even if they do. Note won't go in if they are a little torn, old, bent. Change of the notes is another major problem.

3. Safety and cash collection: An individual goes around collecting cash on Vending Machine at the end of the day. Now the safety of this person, cash is compromised.

4. Unoptimised refilling cycle: All the Vending Machine companies have no idea when to refill the machine because they can't see live inventory inside the machine. So they go and fill the machine every 24 hours.

5. Lack of sales data: There is no sales data or trends being used by any of the Vending Machine companies. Making it a really boring experience for the refiller, also this makes the decision making really difficult for the refiller, what to refill and what not.

3.5. Users/Stakeholder Breakdown

1. **Vending Machine Buyers:** This includes individuals who are interested in purchasing vending machines for starting their own business and generating passive income. They have concerns about the lack of knowledge about the vending machine business, cost considerations, reliability and performance concerns, and lack of awareness and market acceptance in the Indian market.

2. **Vending Machine Manufacturers:** Manufacturers of vending machines are stakeholders in this research as they design, produce, and market vending machines. They play a crucial role in providing solutions that cater to the needs and concerns of potential buyers.

3. **Vending Machine Operators:** These are individuals or companies that operate vending machines on behalf of the buyers. They are responsible for the day-to-day operations of the vending machines, including maintenance, restocking, and revenue collection.

4. **Customers/End Users:** The customers who use the vending machines to purchase products are also stakeholders in this research. Their preferences, behaviors, and acceptance of vending machines in the Indian market are important factors that could influence the decision of potential buyers.

5. **Business Consultants/Experts:** Business consultants or experts who provide advice and guidance on starting a vending machine business can also be stakeholders in this research. Their expertise and insights can help potential buyers make informed decisions about purchasing and operating a vending machine.

6. **Government/Regulatory Bodies:** Government agencies and regulatory bodies play a role in shaping the vending machine industry through regulations, permits, and guidelines. Understanding the regulatory landscape and compliance requirements is important for potential buyers to operate their vending machine business legally and efficiently.

7. **Suppliers:** Suppliers of products that are stocked in vending machines, such as snacks, beverages, and other items, are also stakeholders in this research. The availability, quality, and cost of products from suppliers can impact the profitability and success of the vending machine business.

8. **Competitors:** Competitors in the vending machine industry, including other vending machine operators and businesses offering similar products or services, can also be

stakeholders in this research. Understanding the competitive landscape and market dynamics can help potential buyers make strategic decisions and differentiate their vending machine business.

9. **Financial Institutions:** Financial institutions, such as banks or lending agencies, can be stakeholders in this research as they may provide financing options for purchasing vending machines. Understanding the financing options, interest rates, and repayment terms offered by financial institutions can impact the financial planning for the vending machine business.

10. **Local Communities:** The local communities where the vending machines are planned to be operated can also be stakeholders in this research. Understanding the social, cultural, and economic dynamics of the local communities can help tailor the vending machine offerings and marketing strategies to better serve the community's needs and preferences.

3.6. Business

1. **Affiliated sales**: This segment includes businesses that are affiliated with the food brand and sell their products through their channels. These could be retailers, wholesalers, or other partners who have a direct affiliation with the food brand and sell their products to end consumers or other businesses.

2. **Vending machine distributors and operators:** This segment includes businesses that are involved in the distribution and operation of vending machines. Vending machines are a popular way of selling food and snacks in various locations such as offices, schools, hospitals, and public places. Targeting vending machine distributors and operators can be a lucrative market for the food brand to supply their products for sale through these machines.

3. **Food distributors:** This segment includes businesses that are engaged in the distribution of food products to various channels such as grocery stores, restaurants, hotels, and catering services. Food distributors act as intermediaries between food producers and end consumers, and targeting them can provide the food brand with wider distribution and reach in the market.

4. **Network:** This segment includes businesses that are part of a larger network or group, such as franchise chains, buying groups, or consortiums. These networks often have multiple outlets or locations, and targeting them can provide the food brand with an opportunity to supply their products to multiple locations through a single partnership.

5. **Hyperlocal e-commerce:** This segment includes businesses that operate in the hyperlocal e-commerce space, which involves delivering products and services within a specific local area. This can include online grocery platforms, food delivery services, or

online marketplaces that focus on a specific locality. Targeting hyperlocal e-commerce businesses can allow the food brand to tap into the growing trend of online food shopping and delivery.

6. **Food brands:** This segment includes businesses that are in the same industry as the food brand, but not direct competitors. These could be complementary food brands that offer related or complementary products, and targeting them can create opportunities for cross-promotion, co-branding, or other collaborative marketing efforts to expand the reach and visibility of the food brand.

3.7. The potential business ideas for vending machine operators:

1. **Healthy Snack Vending Machines**: With the growing trend towards health-conscious eating, a vending machine that offers a wide selection of healthy snacks from popular food brands like Haldiram, Sattviko, Patanjali, and more could be a hit in various locations such as corporate offices, gyms, hospitals, and college campuses.

2. **Fresh Juice Vending Machines**: Fresh juice is another popular option for health-conscious consumers. A vending machine that offers a variety of freshly squeezed juices from different brands like Raw, Juro, My Greens, and more could be a great fit for malls, parks, and other high-traffic areas.

3. **Electronics Vending Machines**: With the increasing reliance on mobile devices and other electronics, a vending machine that offers chargers, USB cables, pen drives, card readers, and other electronic accessories could be a convenient option for travelers, commuters, and busy professionals in places like airports, train stations, and office complexes.

4. **Personal Care and Hygiene Vending Machines**: Vending machines that offer personal care and hygiene products such as sanitary napkins, wet tissues, sunscreens, moisturizers, deodorants, and more could be popular in locations such as malls, hospitals, colleges, and office complexes.

5. **First Aid and Emergency Supplies Vending Machines**: Vending machines that offer first aid supplies such as masks, sanitizers, bandages, raincoats, umbrellas, temporary contact lenses, and medicines could be a valuable resource in high-traffic areas like airports, train stations, and bus stations, as well as at events, sports stadiums, and other public places.

6. **Apparel and Accessories Vending Machines:** Vending machines that offer clothing items, accessories, and other fashion products like socks, ties, belts, sunglasses, and more could be popular in locations such as malls, airports, and train stations, where travelers and shoppers may need quick and convenient access to such items.

7. **Beverage Vending Machines**: Apart from fresh juices, vending machines that offer other types of beverages such as detox drinks, caffeinated and energy drinks, and smoothies could be a hit in various locations such as gyms, offices, colleges, and malls.

8. **Pet Supplies Vending Machines:** Vending machines that offer pet supplies such as pet food, treats, toys, and accessories could be a convenient option for pet owners in places like parks, pet-friendly cafes, and pet care centers.

9. **Adventure Gear Vending Machines:** Vending machines that offer adventure gear such as hiking gear, camping gear, and other outdoor accessories could be popular in locations such as adventure parks, national parks, and other outdoor recreational areas.

10. **Online Brand Offline Presence Vending Machines:** Vending machines that offer products from online brands that want to establish an offline presence could be a unique and innovative way for these brands to reach customers in physical locations. For example, beauty and cosmetics brands like Nykaa could set up vending machines in malls, airports, and other high-traffic areas to offer their products to customers on the go.

3.8 Vending machine manufacturers

Vending machine manufacturers can be a key target segment for the food brand. These businesses are responsible for designing, producing, and distributing vending machines, which are widely used for selling food and snacks in various locations such as offices, schools, hospitals, airports, and public places. By partnering with vending machine manufacturers, the food brand can gain access to a wide distribution network and increase their visibility and sales.

There are several reasons why vending machine manufacturers can be an attractive target segment for the food brand:

1. **Direct access to vending machines**: By partnering with vending machine manufacturers, the food brand can gain direct access to vending machines, which are specifically designed for selling food and snacks. This can provide a dedicated and prominent space for the food brand's products, increasing their visibility and potential sales.

2. **Wide distribution network:** Vending machine manufacturers typically have a wide distribution network, as they supply vending machines to various locations across different industries. This can provide the food brand with an opportunity to reach a larger audience and expand their market presence.

3. **Targeted audience:** Vending machines are often strategically placed in locations where there is a high demand for food and snacks, such as offices, schools, and hospitals. This means that the food brand can target a specific audience that is likely to be interested in their products, resulting in more relevant and targeted marketing efforts.

4. **Convenience and accessibility:** Vending machines provide a convenient and accessible way for consumers to purchase food and snacks on-the-go. By partnering with vending machine manufacturers, the food brand can tap into the growing demand for convenience and accessibility in the food industry, and offer their products to consumers in a convenient and hassle-free manner.

5. **Innovation opportunities:** Vending machine manufacturers are constantly innovating to meet the changing demands of the market, including incorporating new technologies such as cashless payment options, touchless interfaces, and smart vending solutions. Partnering with vending machine manufacturers can provide the food brand with opportunities to collaborate on innovative solutions, such as integrating their products with cutting-edge vending machine technologies, to enhance the consumer experience and drive sales.

6. **Long-term partnerships:** Vending machine manufacturers often build long-term relationships with their clients, as vending machines typically require ongoing maintenance, replenishment, and servicing. This can result in a mutually beneficial partnership between the food brand and the vending machine manufacturer, with opportunities for repeat business and ongoing collaboration.

3.9. Vending Machine Importers

Vending machine importers can be another potential target segment for the food brand. These businesses specialize in importing vending machines from different countries or regions and distributing them to various markets. By partnering with vending machine importers, the food brand can expand its reach to new geographies and tap into international markets, increasing its global presence and sales potential.

Here are some reasons why vending machine importers can be an attractive target segment for the food brand:

3.9.1. Access to international markets: Vending machine importers have expertise in importing and distributing vending machines from different countries or regions. By partnering with them, the food brand can gain access to international markets where they may not have a direct presence. This can enable the food brand to expand its reach and tap into new customer bases, potentially resulting in increased sales and market share.

3.9.2 Distribution network and market knowledge: Vending machine importers typically have an established distribution network and market knowledge in the countries or regions they operate in. This can provide valuable insights into local consumer preferences, demand trends, and distribution channels, which can help the food brand tailor its products and marketing strategies to suit the local market. Leveraging the

expertise of vending machine importers can be beneficial in navigating foreign markets and maximizing sales opportunities.

3.9.3 Customization opportunities: Vending machine importers often work closely with vending machine manufacturers to customize machines according to local market requirements, such as language options, payment systems, and product configurations. This can provide the food brand with an opportunity to collaborate with vending machine importers to customize vending machines to dispense their products in a way that resonates with local consumers, increasing the likelihood of successful sales.

3.9.4 Cultural understanding: Vending machine importers are familiar with the local culture and consumer preferences in the markets they operate in. This can help the food brand ensure that their products are culturally relevant and appealing to consumers in different regions, which can be critical for success in international markets. Partnering with vending machine importers can provide valuable insights into local tastes, dietary preferences, and packaging requirements, allowing the food brand to adapt its products and marketing strategies accordingly.

3.9.5 Regulatory compliance: Vending machine importers are knowledgeable about local regulations and compliance requirements related to importing and distributing vending machines, including safety standards, certifications, and import/export regulations. This can be beneficial for the food brand, as it can help ensure that their products are in compliance with local regulations, avoiding any potential legal or logistical challenges.

3.9.6 Efficient logistics and supply chain management: Vending machine importers have expertise in managing the logistics and supply chain for importing vending machines, including shipping, customs clearance, and warehousing. This can streamline the process of getting the food brand's products to market, ensuring efficient and timely delivery to the vending machine operators or distributors.

As a vending machine importer, you have a wide range of potential customers who can benefit from having vending machines in their locations. Based on the data provided, here are some potential customer segments that you can target:

1. **New Vending Businesses:**
   - Cloud kitchens: With the rise of cloud kitchens, which are commercial kitchens that prepare food exclusively for delivery, having a vending machine can provide an additional revenue stream and convenience for customers.

- Today's special and Acai Place: These are examples of food outlets that can benefit from having a vending machine to offer quick and convenient food options to their customers.

2. **Retail/Distributor of FMCG or other products:**
    - Neha (Healthskool): This could be a distributor of health and wellness products that can use vending machines to sell their products in gyms, offices, or other locations.

3. **Individuals who quit their jobs and returned from abroad:**
    - Alankrit: Individuals who have returned from abroad and are looking to start their own business can consider setting up vending machines as a low-cost and low-risk business opportunity.

4. **College students:**
    - Riya (BBA) and Shubham (MBA): Vending machines can be placed in college campuses to cater to the needs of students for quick snacks, beverages, and other items.

5. **Retail real estate owners:**
    - Malls and market complexes: Vending machines can be placed in malls and market complexes, and leased out to different vendors or used as advertisement space to promote new products and distribute samples.

6. **Event companies:**
    - Events in malls and mega-events like Amazon SMBhav and College/Sports Fests: Vending machines can be set up in event venues to provide convenient options for snacks, beverages, and other products to event attendees.

7. **Movie theaters:**
    - Movie theaters like PVR, INOX, and Cinepolis can benefit from having vending machines to offer snacks, beverages, and other items to moviegoers.

8. **Adventure parks and other places of interest:**
    - Adventure Island and other parks or tourist attractions can provide vending machines for visitors to purchase snacks, beverages, and other products.

9. **Petrol pumps:**
    - Petrol pumps can offer vending machines for customers to purchase snacks, beverages, and other products while refueling their vehicles.

10. **Distributors of industrial goods:**
    - Distributors of industrial goods can consider placing vending machines in potential locations such as hospitals, hospitality establishments, malls, offices, and colleges to cater to the needs of the people in those locations.

11. **Stationery/FMCG suppliers to offices:**
    - Vending machines can be placed in office premises to provide stationery and FMCG products to office employees conveniently.

12. Online brands that need offline presence:
- Brands like Nykaa, which are primarily online-based, can consider having vending machines in strategic locations to provide offline presence and convenience to customers.

13. Product brands:
- Food and beverage brands like Haldiram, Sattviko, Patanjali, and others can use vending machines to offer their products to customers in different locations.
- Fitness product brands like protein supplements, shakes, bars, and other fitness-related items can also benefit from vending machines in gyms, fitness centers, and other locations.
- Electronics, cosmetics, first aid, apparel and accessories, travel and sports gear, and other product brands can also utilize vending machines to offer their products to customers in various locations.

14. Residential locations:
- Gated societies, PGs/Co-living spaces like Coho, hotels, and hostels can offer vending machines to cater to the needs of residents, guests, and visitors.

15. Workplaces:

- Corporate offices, BPOs, and coworking spaces can provide vending machines for employees to purchase snacks, beverages, and other products during their work breaks.

- In summary, as a vending machine importer, you have a diverse range of potential customers that can benefit from having vending machines in their locations. These include new vending businesses, retail/distributors of FMCG or other products, individuals starting their own businesses, college students, retail real estate owners, event companies, movie theaters, adventure parks and tourist attractions, petrol pumps, distributors of industrial goods, stationery/FMCG suppliers to offices, online brands that need an offline presence, product brands, residential locations, and workplaces. By targeting these customer segments and showcasing the convenience, revenue-generating potential, and low-cost nature of vending machines, you can effectively expand your business and increase your sales in the vending machine market.

3.10. End User Demographics

Vending machines are widely used across various industries and locations to provide convenient access to products and services. In order to design vending machines that are effective and

user-friendly, it is crucial to understand the demographics of the end users. This research paper aims to explore the key factors related to end user demographics in the context of vending machine design, with a focus on the literate Indian population, age group considerations, and literacy levels.

Literate Indian Population:

The literate Indian population can be considered as the key users of vending machines. These are individuals who are able to read and comprehend instructions and information displayed on the vending machine screens. India has a diverse population with varying levels of literacy, and it is important to consider the literacy levels of the target demographic when designing vending machines. The user interface of the vending machines should be designed in a simple and easily understandable manner, with clear instructions and options that are accessible to individuals with conventional literacy levels. Avoiding complex language or technical jargon can ensure that the vending machines are usable and effective for a wider range of users, including those with limited literacy levels.

Age Group Considerations:

The age group of the target demographic is another important factor to consider in vending machine design. Vending machines should be designed to cater to the needs of individuals who are 16 years of age and above, as they are more likely to have the purchasing power and decision-making ability to use vending machines independently. It is important to ensure that vending machines are not easily accessible to young kids, in order to prevent misuse or accidents. This may involve placing vending machines in locations that are not easily reachable by young children or incorporating safety features such as height restrictions or child-proof locks.

Literacy Levels:

In addition to conventional literacy levels, it is important to consider the literacy levels of the target demographic in vending machine design. This includes individuals who may have limited literacy due to various factors such as language barriers, education levels, or cognitive abilities. Design literacy barriers and ensure that the interface is easily understandable for users with diverse literacy levels. The use of clear and simple graphics, images, and icons can help convey information and instructions effectively, even for users who may not be proficient in reading or writing.

Considering the end user demographics is critical in designing effective and user-friendly vending machines. In the context of the literate Indian population, age group considerations, and literacy levels, the design of vending machines should prioritize simplicity, clarity, and

accessibility. By ensuring that the user interface is designed in a manner that is easily understandable and usable by a wide range of users, including those with limited literacy levels, vending machines can provide convenient and efficient service to the target demographic. Further research and testing can be conducted to gather feedback from users and continuously improve the design of vending machines to meet the needs of the end users. Ultimately, understanding and addressing the end user demographics in vending machine design can contribute to a better user experience and increased adoption of vending machine services.

3.11. User Research Results:

Based on the research conducted, the target market for our vending machines primarily consists of co-working spaces, corporate offices, factories, FMCGs (Fast-Moving Consumer Goods), and distributors. It was observed that most of the Indian market is unaware of vending machine companies and the services they provide, which presents an opportunity for us to highlight our advantages over competitors.

Co-working Spaces:

- Co-working spaces prefer vending machines on a rental basis.
- They want us to handle refilling of the machines.
- Cashless payments are preferred by co-working spaces.
- Short lead time is desired.
- Compact machine size is preferred.
- Machine durability and timely maintenance are key concerns.

Corporate Offices:

- Corporate offices prefer vending machines on a rental basis.
- They want us to handle refilling of the machines.
- Some offices believe that we should earn from the products inside the machine instead of charging them, as they are providing space.
- Cashless payments with debit and credit card options are popular.
- Some offices require both cash and cashless payment options, as mobile phones are not allowed in the office.
- Short lead time is desired.
- Great aesthetics and compact machine size are preferred.
- Machine durability and timely maintenance are key concerns.

Factories:

- Some factories prefer to rent machines, while others prefer to buy them.
- Refilling requirements vary among factories.
- Many factories require both cash and cashless payment options, as some workers prefer cash payments.
- Factories require vending machines more than other locations due to limited availability of food in the vicinity.
- Short lead time is desired.

Food and Juice Brands:

- Food and juice brands currently deliver products to corporate offices and co-working spaces upon request.
- Having vending machines in corporate offices would eliminate the need for frequent deliveries.
- Refilling of already placed machines is preferred.
- Some brands prefer to buy machines, while others prefer to rent them.
- Profit sharing arrangements may be considered.

Distributors:

- We sell vending machines to distributors, who further sell them using their network.
- 100% upfront payment is required from distributors.
- There are limited vending machine distributors in India currently.

The findings from the user research highlight the specific needs and demands of various end user segments in our target market. Co-working spaces, corporate offices, factories, FMCGs, food and juice brands, and distributors have unique requirements that need to be considered in the design and deployment of vending machines. This includes factors such as rental options, refilling services, payment options, lead time, machine size, aesthetics, durability, and maintenance. Understanding and addressing these user preferences will be critical in developing a successful vending machine solution that meets the needs of our target market and sets us apart from the competition. Further research and continuous feedback from end users can help refine the design and features of our vending machines to ensure customer satisfaction and drive adoption in the market.

3.12. Existing Vending Businesses

Description:

Existing vending businesses are individuals or companies that have already established a vending machine business, with the goal of providing 24/7 access to food or other items in public places such as offices, co-working spaces, colleges, and hospitals. They are either individuals with deep pockets or a strong desire to start their own business in a smart way. These businesses typically have not been operating for more than 18 months, making them relatively new to the general market but considered established within the vending industry. They play a significant role in the vending machine chain, as they are the ones who install and manage the machines, while the manufacturers generally do not interact with the end customers.

People within the business:

Depending on the size of the vending business, we may interact with either the owner or the manager. These individuals are typically well-educated and knowledgeable about the vending industry, including its functioning, other players, prices, and products. Larger vending businesses may have experience of 20+ years in the industry, while smaller ones are generally less experienced but still aware. Most of the points of contact (POCs) are decision-makers or key influencers.

Customer Jobs:

Existing vending businesses have several jobs related to managing and maintaining vending machines, including machine installation, inventory management, product restocking, cash collection, and machine maintenance. They are responsible for ensuring that the machines are functional, well-stocked with products, and generating revenue. They also need to manage customer complaints, handle cashless payment systems, and ensure that the machines are compliant with local regulations and requirements.

Pain Points:

Existing vending businesses face several pain points in their operations. One major pain point is the reliability of vending machines, as they require tough engineering and can sometimes experience technical issues that result in downtime or malfunctioning. Many vending businesses have high expectations from their machines, which are not always fulfilled, leading to frustration and loss of revenue. Another pain point is the cost associated with vending machines, both in terms of the initial investment and ongoing expenses such as product restocking and machine maintenance. Some vending businesses also face challenges with labor competency, as the individuals responsible for refilling the machines may not be knowledgeable or efficient,

resulting in empty machines or wastage of fresh food. Additionally, issues with cashless payment systems, such as delayed payments, lack of instant refunds, technical glitches, and the need for customers to install an app to access the machines, can also pose challenges for existing vending businesses. These pain points can result in reduced revenue, increased costs, and customer dissatisfaction.

Channels to Reach:

To reach existing vending businesses, we can utilize various channels such as industry events, trade shows, online forums, and social media platforms. Networking with industry peers, participating in relevant industry events, and leveraging referrals from satisfied customers can also be effective in reaching out to existing vending businesses. In addition, we can use targeted content marketing strategies, such as creating informative blogs, videos, and other content that addresses the pain points and challenges faced by existing vending businesses. Utilizing online platforms such as LinkedIn, Google Business, and Justdial, and reaching out to contacts in respective colleges and offices can also help in identifying and reaching out to potential customers. Providing social proof, such as testimonials and case studies from satisfied customers, can also help establish credibility and trust with existing vending businesses.

Customer Jobs:

1. Provide 24x7 access to food/articles in public places
2. Generate revenue from the sale of products
3. Place machines in strategic locations to target specific customer segments
4. Ensure reliability and efficiency of vending machines
5. Minimize wastage of fresh food products
6. Implement cashless payment systems for seamless transactions

Pain Points:

1. Reliability and performance issues with vending machines
2. High costs associated with vending machines, both in terms of monetary investment and time/effort spent
3. Competency of refilling staff and quality of products
4. Wastage of fresh food products due to expiry dates
5. Challenges with cashless payment systems, such as holding of payments and technical issues with tablets/apps
6. Reduced traffic due to the need for customers to install an app to access the machine

Best Channels to Reach Out to Them - Sales & Marketing:

1. Content marketing: Creating informative and engaging content related to vending machines, targeting existing vending businesses through blogs, articles, and social media posts.
2. Finding leads through existing platforms: Identifying potential customers through online platforms like LinkedIn, industry forums, and business directories.
3. Referrals: Asking for referrals from existing customers or industry contacts to reach out to other vending businesses.
4. Social media posts: Posting targeted content on social media platforms, specifically addressing pain points and challenges faced by existing vending businesses.
5. Personalized proposals and meetings: Sending customized proposals to potential customers and arranging meetings to discuss their specific requirements and address their pain points.
6. Providing social proof: Sharing testimonials, case studies, and success stories of existing vending businesses that have partnered with your brand to establish credibility and trust.

Understanding the customer profiles of different segments of the vending machine industry, such as big brands, new vending businesses, canteen owners, and existing vending businesses, is crucial for effective sales and marketing strategies. Identifying the jobs, pain points, customer gains, and questions that each segment may have, and utilizing appropriate channels to reach out to them, can significantly improve the chances of success in the vending machine market. By addressing their pain points, providing customized solutions, and establishing credibility through social proof, your brand can position itself as a trusted partner for vending businesses, leading to increased sales, customer loyalty, and long-term success in the industry.

Chapter 4: About Wendor

4.1 Introduction to Wendor

Wendor is a leading supplier of smart vending machines that operates in India and overseas, including Dubai. The company is known for its innovative vending machines that are equipped with smart selection solutions and a cloud-based database. Additionally, Wendor has an e-commerce website where customers can purchase vending machines for their businesses.

Wendor's vending machines are designed to provide a seamless and convenient experience for customers. They are equipped with advanced technologies such as artificial intelligence, machine learning, and IoT sensors, which enable them to offer a wide range of products and services. The company's vending machines can dispense food, beverages, and other products, and can also be used for ticketing, cash withdrawal, and other applications.

4.2 History of Wendor

Wendor was founded in India with a vision to transform the traditional vending machine industry by integrating advanced technology and innovative solutions. The company began by supplying vending machines to small and medium-sized businesses, but soon expanded to serving larger corporations and multinational companies. Over the years, Wendor has gained a reputation for providing reliable and high-quality vending machines and has expanded its presence overseas.

Wendor's success is attributed to its focus on innovation and customer-centricity. The company invests heavily in research and development to stay ahead of the competition and to provide customers with the latest technology solutions. Wendor also prioritizes customer satisfaction and works closely with its clients to understand their needs and requirements.

4.3 Wendor's Smart Vending Machines

Wendor's vending machines are equipped with smart selection solutions that enable customers to make their purchases quickly and easily. The machines have touchscreens that display product information, prices, and nutritional values, allowing customers to make informed decisions. The machines are also equipped with sensors that can detect when products are running low and automatically reorder them from the supplier.

Wendor's vending machines are connected to a cloud-based database that stores data on inventory, sales, and customer behavior. This data can be accessed in real-time, enabling businesses to make informed decisions about inventory management and product offerings. The

database is also used to generate reports and analytics that can help businesses optimize their vending machine operations.

4.4 Wendor's Customizable Solutions

Wendor offers customizable vending machine solutions that can be tailored to meet the unique needs of each business. The company works closely with its clients to understand their requirements and to develop customized solutions that meet their specific needs. Wendor's vending machines can be customized in terms of size, product offerings, and branding.

The company also offers a range of payment options, including cash, credit/debit cards, and mobile payments. Customers can make payments using their smartphones by scanning a QR code on the vending machine or using the RFID cards. This feature makes the vending machines more convenient and accessible to customers who prefer to use mobile payments.

4.5 Wendor's Service and Support

Wendor offers comprehensive service and support to its customers. The company has a team of skilled technicians who provide on-site installation and maintenance services for vending machines. Wendor's technicians are trained to diagnose and resolve technical issues quickly and efficiently, ensuring minimal downtime for businesses.

The company also provides remote monitoring and diagnostics services for its vending machines. This enables Wendor to detect and resolve issues remotely, without the need for on-site visits. Additionally, Wendor provides regular software updates to its vending machines, ensuring that they are always up-to-date with the latest technology solutions.

4.6 Wendor's Sustainability Initiatives

Wendor is committed to sustainability and has implemented several initiatives to reduce its environmental footprint. The company's vending machines are designed to be energyefficient and use minimal electricity.

Chapter 5: Research Methodology

The research methodology section of a study outlines the systematic approach and methods used to collect, analyze, and interpret data for the research project. In this chapter, we describe the research design, data collection methods, data analysis techniques, and ethical considerations employed in our study.

5.1. Research Design:

We will adopt a mixed-methods research design that combines both qualitative and quantitative approaches to gather comprehensive data on customer preferences, pain points, needs, and wants related to smart vending machines, as well as perspectives from machine owners. This design allows us to gather in-depth insights from multiple perspectives and triangulate the findings for a more robust analysis.

5.2. Data Collection Methods:

1. **Surveys**: We will design and distribute surveys to potential customers, machine owners, and other relevant stakeholders to collect quantitative data on their preferences, pain points, needs, and wants related to smart vending machines. The surveys will be designed with closed-ended questions to gather structured data on customer demographics, product preferences, payment methods, and other relevant factors. The surveys will be distributed electronically through various channels such as online platforms, email, and social media.
2. **Interviews**: We will conduct in-depth interviews with selected machine owners, customers, and other relevant stakeholders to gain qualitative insights into their perspectives on smart vending machines, their pain points, and their expectations for improvements. The interviews will be conducted in person or via phone or video calls, and the data obtained will be recorded and transcribed for thematic analysis.
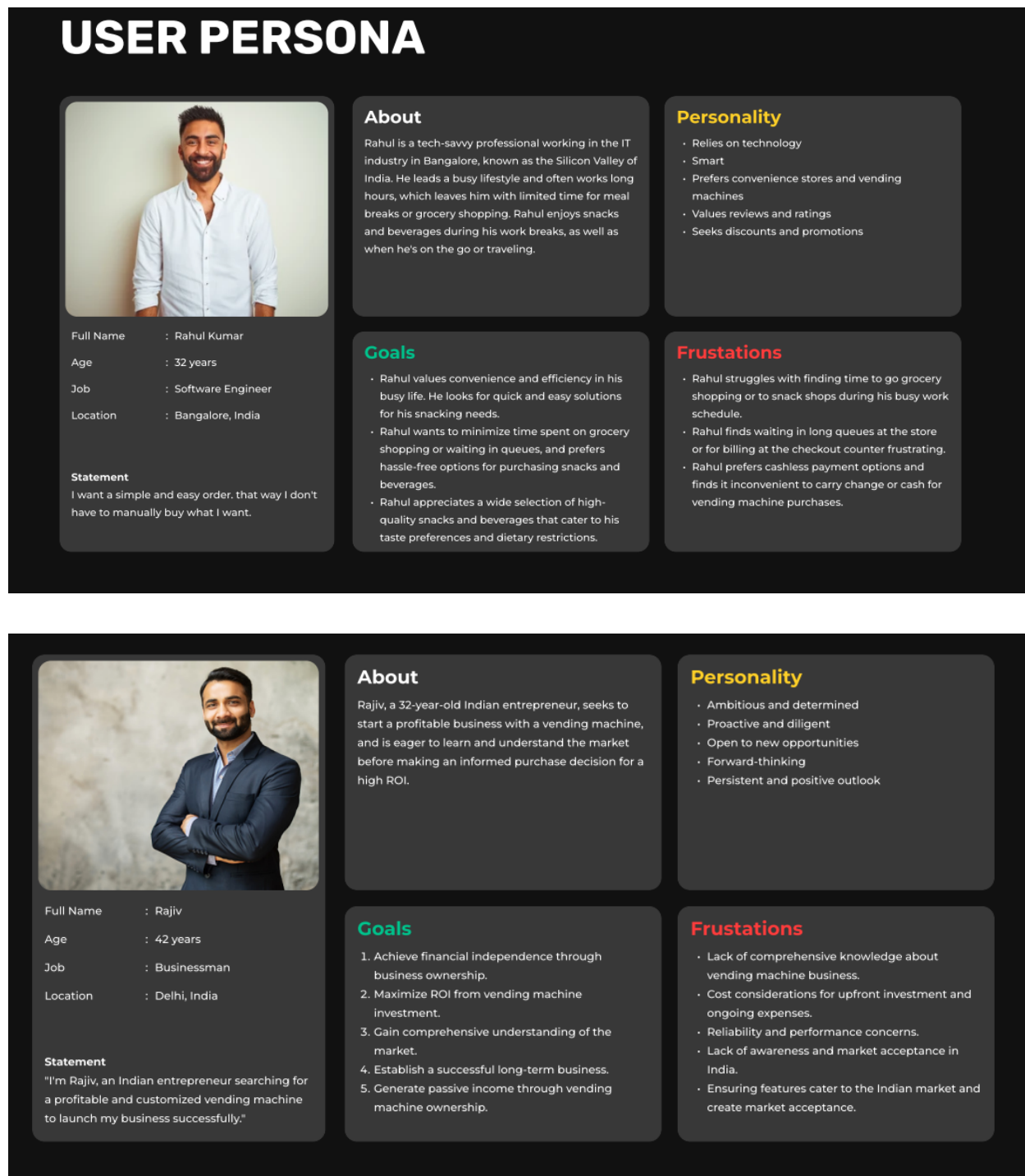
USER PERSONA

About

Rahul is a tech-savvy professional working in the IT industry in Bangalore, known as the Silicon Valley of India. He leads a busy lifestyle and often works long hours, which leaves him with limited time for meal breaks or grocery shopping. Rahul enjoys snacks and beverages during his work breaks, as well as when he's on the go or traveling.

Personality

- Relies on technology
- Smart
- Prefers convenience stores and vending machines
- Values reviews and ratings
- Seeks discounts and promotions

Full Name   : Rahul Kumar
Age   : 32 years
Job   : Software Engineer
Location   : Bangalore, India

Statement
I want a simple and easy order. that way I don't have to manually buy what I want.

Goals

- Rahul values convenience and efficiency in his busy life. He looks for quick and easy solutions for his snacking needs.
- Rahul wants to minimize time spent on grocery shopping or waiting in queues, and prefers hassle-free options for purchasing snacks and beverages.
- Rahul appreciates a wide selection of high-quality snacks and beverages that cater to his taste preferences and dietary restrictions.

Frustations

- Rahul struggles with finding time to go grocery shopping or to snack shops during his busy work schedule.
- Rahul finds waiting in long queues at the store or for billing at the checkout counter frustrating.
- Rahul prefers cashless payment options and finds it inconvenient to carry change or cash for vending machine purchases.

About

Rajiv, a 32-year-old Indian entrepreneur, seeks to start a profitable business with a vending machine, and is eager to learn and understand the market before making an informed purchase decision for a high ROI.

Personality

- Ambitious and determined
- Proactive and diligent
- Open to new opportunities
- Forward-thinking
- Persistent and positive outlook

Full Name   : Rajiv
Age   : 42 years
Job   : Businessman
Location   : Delhi, India

Statement
"I'm Rajiv, an Indian entrepreneur searching for a profitable and customized vending machine to launch my business successfully."

Goals

1. Achieve financial independence through business ownership.
2. Maximize ROI from vending machine investment.
3. Gain comprehensive understanding of the market.
4. Establish a successful long-term business.
5. Generate passive income through vending machine ownership.

Frustations

- Lack of comprehensive knowledge about vending machine business.
- Cost considerations for upfront investment and ongoing expenses.
- Reliability and performance concerns.
- Lack of awareness and market acceptance in India.
- Ensuring features cater to the Indian market and create market acceptance.

Fig.5 - User Personas

5.2.3 Data Analysis Techniques:

1. **Qualitative Data Analysis**: The qualitative data obtained from interviews and open-ended survey questions will be analyzed using thematic analysis. The data will be coded and categorized into themes and sub-themes based on recurring patterns and concepts. This analysis will help identify common themes and patterns in customer preferences, pain points, needs, and wants related to smart vending machines, as well as perspectives from machine owners.

2. **Quantitative Data Analysis**: The quantitative data obtained from closed-ended survey questions will be analyzed using descriptive statistics, such as frequencies, percentages, and averages. The data will be organized, cleaned, and entered into statistical software for analysis. This analysis will provide quantitative insights into customer preferences, pain points, needs, and wants related to smart vending machines, as well as perspectives from machine owners.
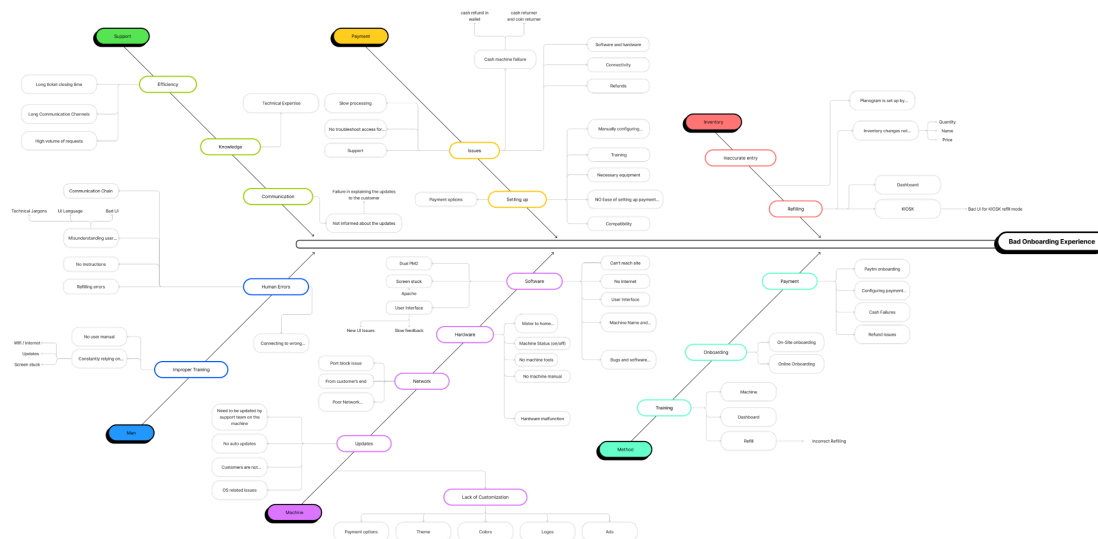
Fig.6 - FishBone Diagram based on research for root cause analysis
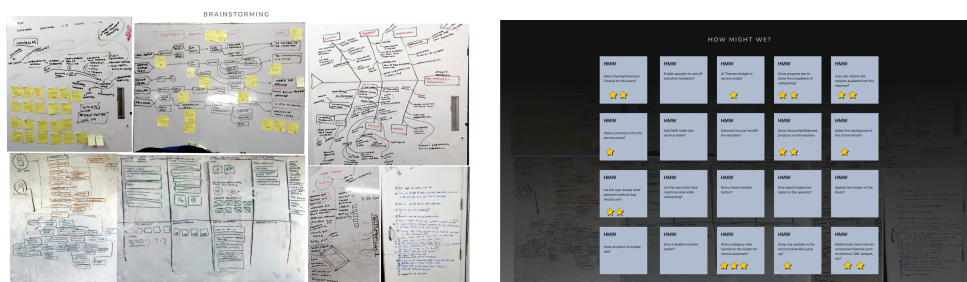
Fig.7 - HMW and Mindmapping
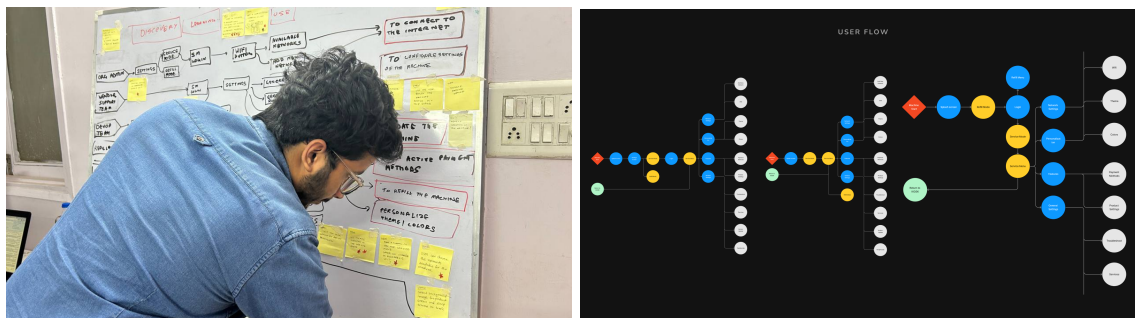
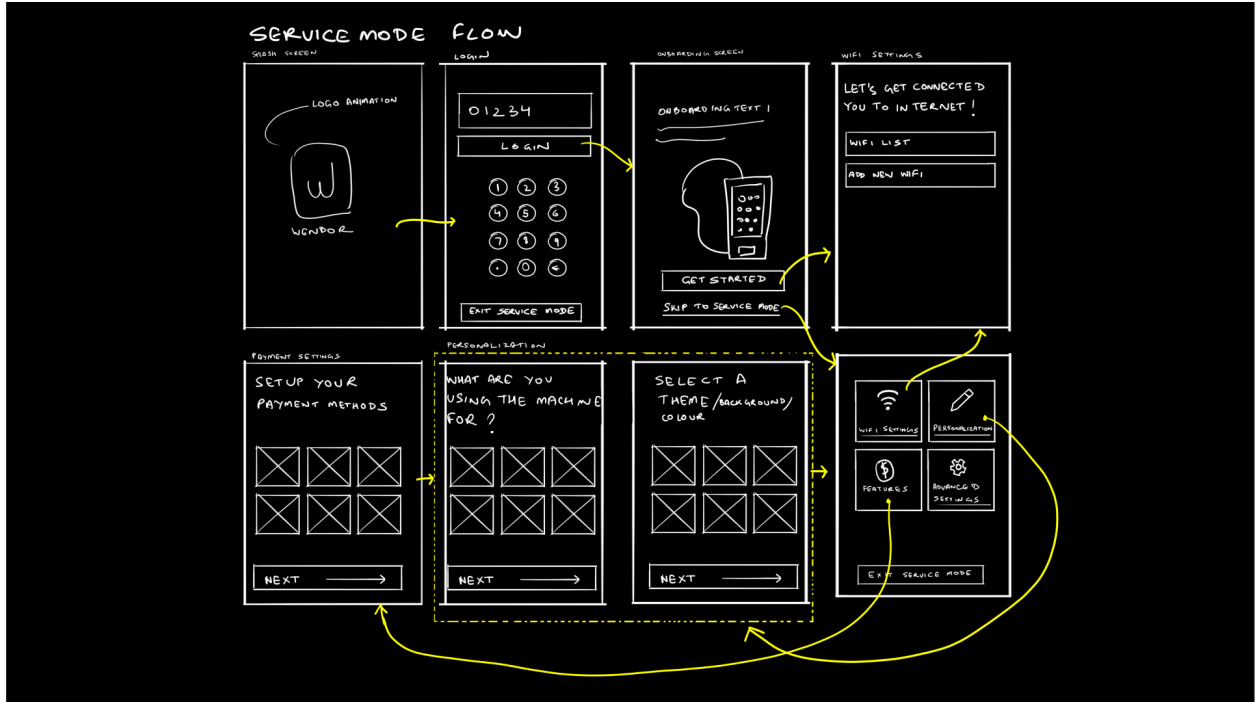Fig.7 - User Journey and User flow
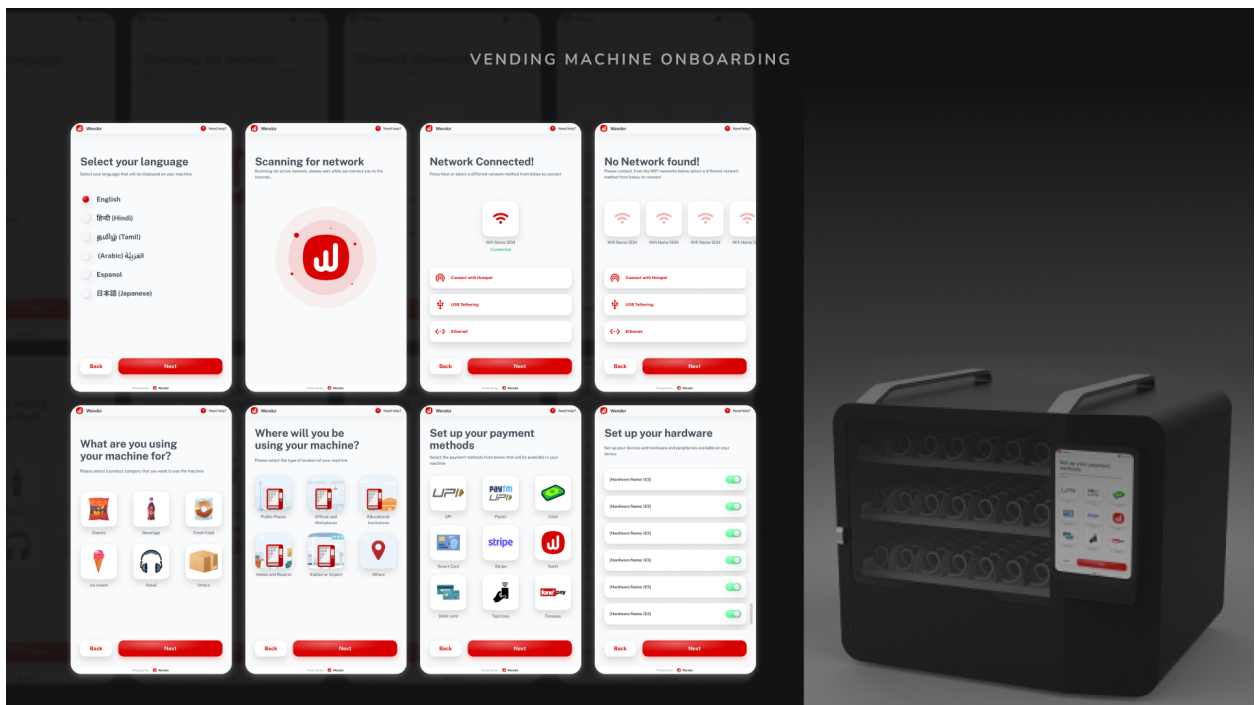

Fig.8 - Solution

Fig.9 - Wireframe

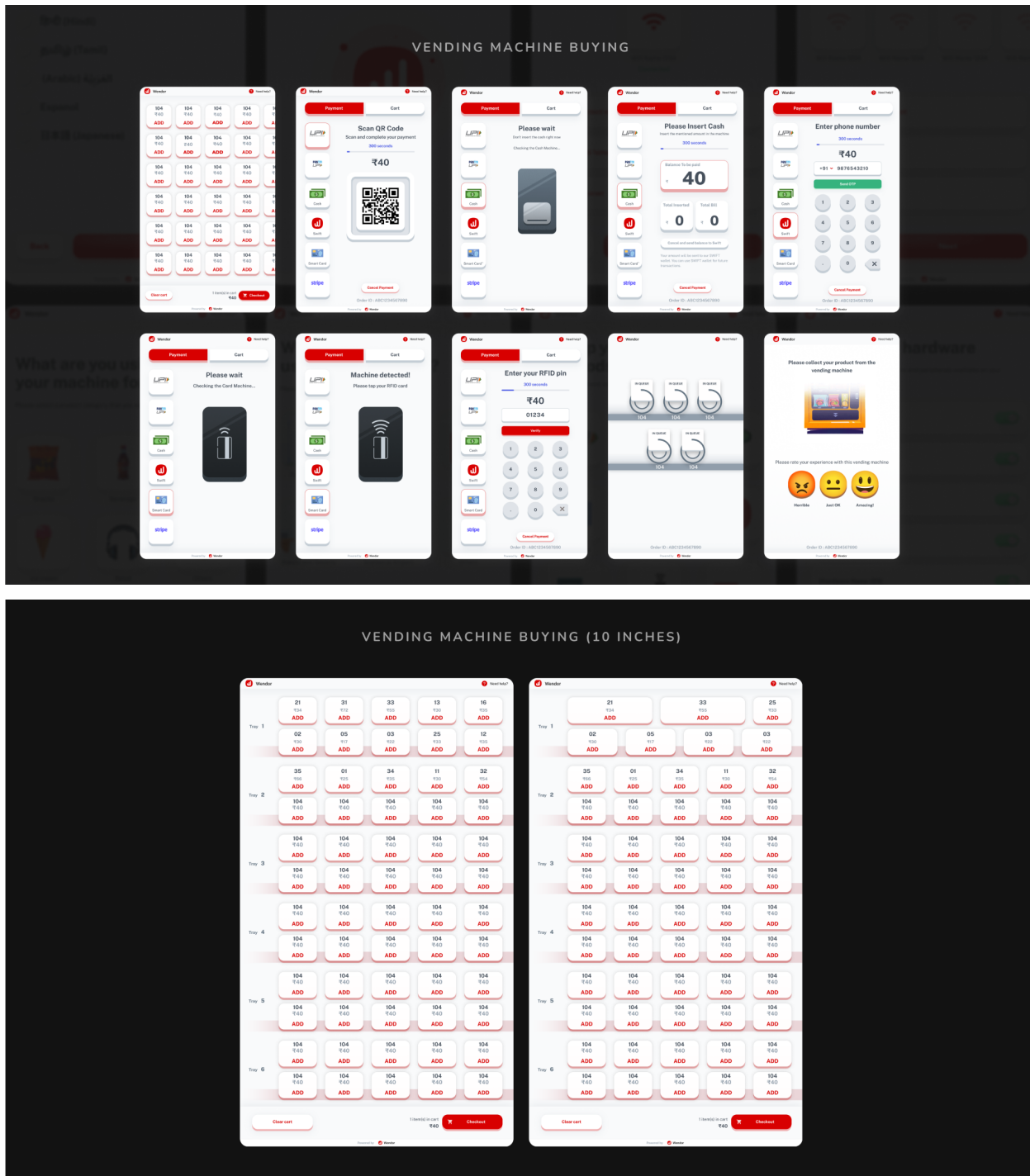Fig.10 - Final Designed screens and its applications

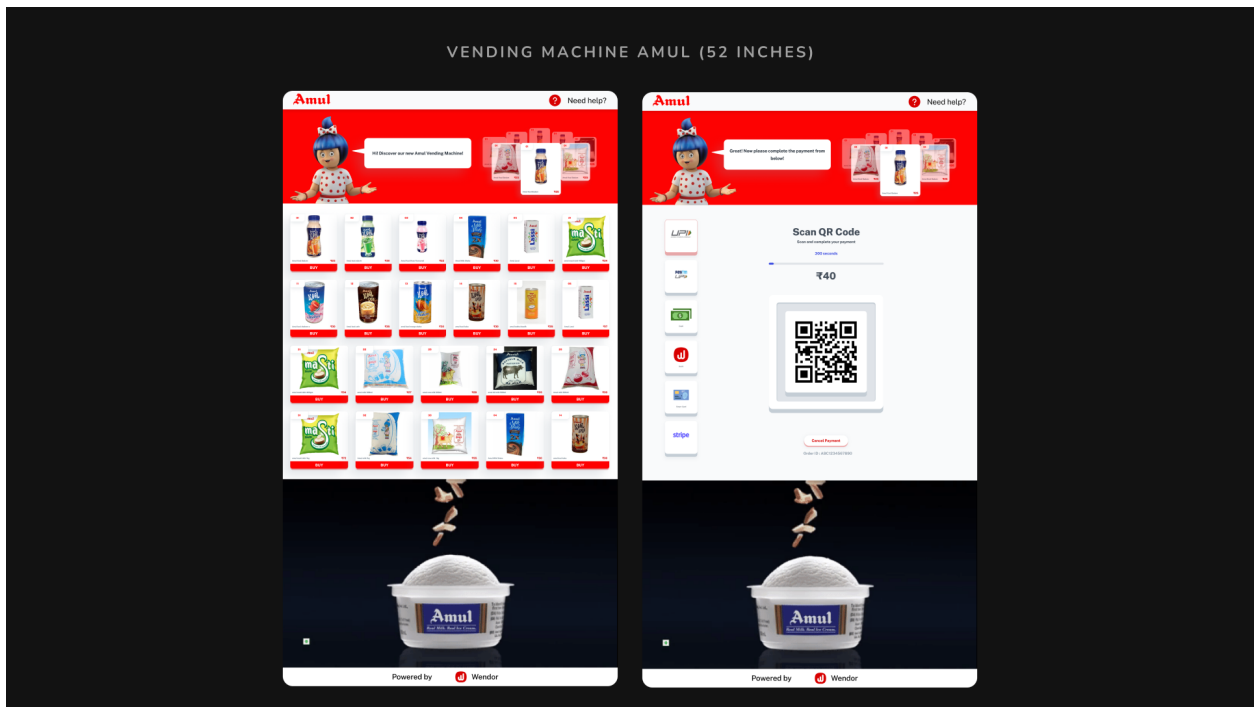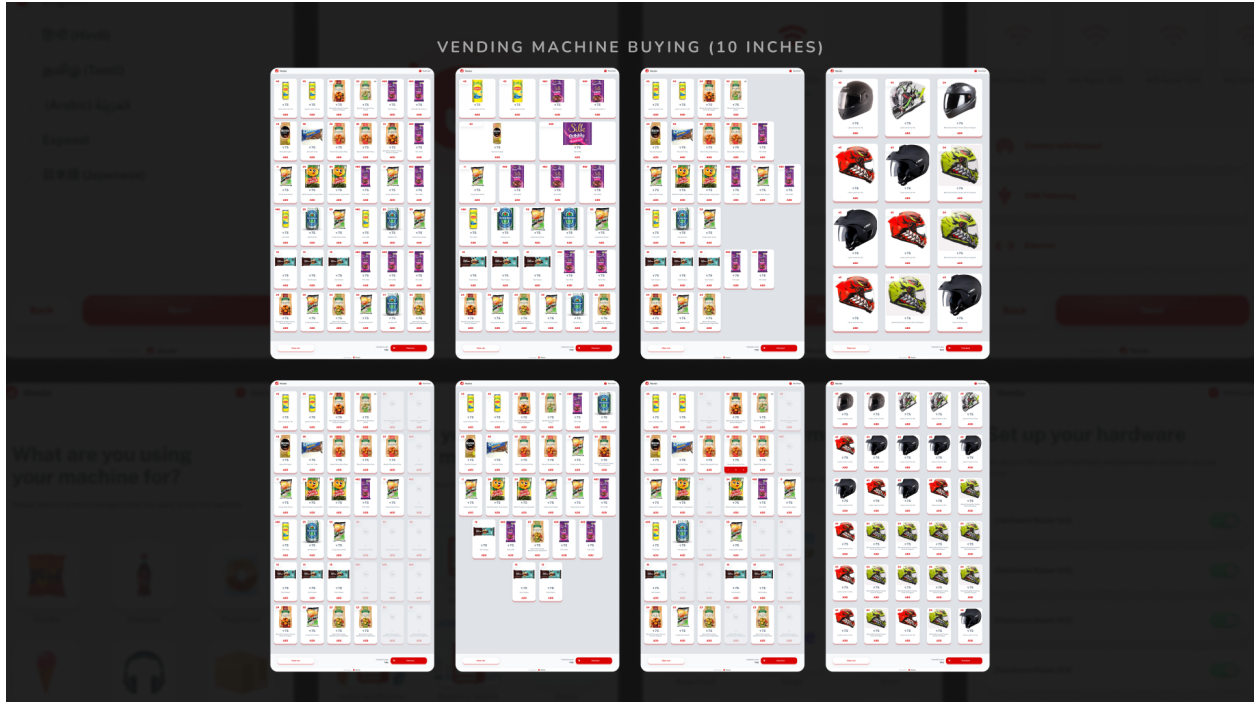Fig.11 - Final Designed screens and its applications

Fig.12 - Final Designed screens and its applications

Fig.13 - UI live on a machine

5.2.4 Competitive Analysis

Competitive analysis is an important component of the research methodology for studying smart vending machines. It involves evaluating and comparing the offerings and performance of key competitors in the market. In this case, we will conduct a competitive analysis of several companies that operate in the smart vending machine industry, including Vengo, Pantry retail, Parlevel Vending, Vendour, kwik24, Instago, and Dalchini.

1. Vengo: Vengo is a well-known provider of smart vending machines that specializes in compact, wall-mounted machines designed for high-traffic locations. They offer a wide range of products, including snacks, beverages, personal care items, and electronics. Their machines are known for their sleek design, user-friendly interface, and advanced technology features such as touchscreens, cashless payments, and data analytics for inventory management.

2. Pantry retail: Pantry retail is a leading player in the smart vending machine industry, offering customized vending solutions for various markets such as workplaces, hotels, airports, and retail stores. They provide a wide selection of products, including snacks, beverages, fresh food, and hygiene essentials. Pantry retail is known for their focus on sustainability, offering eco-friendly packaging and products, as well as their emphasis on

customer experience through their user-friendly interface and personalized recommendations.

3. Parlevel Vending: Parlevel Vending is a prominent provider of smart vending machines that offers comprehensive vending management solutions, including hardware, software, and back-end support. They specialize in technology-driven vending machines with features such as cashless payments, remote monitoring and management, and real-time reporting for inventory and sales data. Parlevel Vending is known for their emphasis on data-driven decision making and optimization of vending operations.

4. Vendour: Vendour is a growing player in the smart vending machine industry, offering a range of vending solutions for different markets such as offices, hospitals, and schools. They provide a variety of products, including snacks, beverages, and healthy options. Vendour is known for their focus on customization, allowing customers to tailor their vending machines to their specific needs and preferences, as well as their commitment to customer service and support.

5. kwik24: kwik24 is a leading provider of smart vending machines in the Indian market, offering a wide range of products, including snacks, beverages, groceries, and essentials. They are known for their innovative approach, offering features such as facial recognition for personalized experiences, mobile app integration for seamless transactions, and remote monitoring for efficient inventory management.

6. Instago: Instago is a prominent player in the smart vending machine industry, offering a variety of vending solutions for different markets such as offices, universities, and public spaces. They provide a wide range of products, including snacks, beverages, fresh food, and electronics. Instago is known for their focus on sustainability, offering eco-friendly packaging and products, as well as their emphasis on customer engagement through their interactive touchscreens and digital signage.

7. Dalchini: Dalchini is a growing provider of smart vending machines in the Indian market, offering vending solutions for various markets such as offices, hotels, and hospitals. They provide a range of products, including snacks, beverages, and fresh food. Dalchini is known for their focus on customization, allowing customers to choose from a wide selection of products and tailor their vending machines to their specific requirements, as well as their commitment to customer service and after-sales support.

In conclusion, the competitive analysis of companies such as Vengo, Pantry retail, Parlevel Vending, Vendour, kwik24, Instago, and Dalchini provides insights into the offerings, strengths, and unique features of key competitors in the smart vending machine industry. This analysis helps identify the competitive landscape, market trends, and areas of opportunity or differentiation.

5.3. Ethical Considerations:

We will ensure that our research adheres to ethical considerations to protect the rights and privacy of the participants. This will include obtaining informed consent from participants before data collection, ensuring the confidentiality and anonymity of their responses, and following relevant ethical guidelines and regulations. We will also acknowledge and properly cite all sources of data used in our study to uphold academic integrity.

Chapter 6: Case Study Analysis

This chapter presents the findings of the case study analysis. It discusses the cultural, social, and economic factors that influence the design of smart vending machines in emerging markets. It also examines the role of technology in designing innovative vending machines that cater to the needs of emerging markets.

Cultural Factors:

Culture plays a significant role in shaping consumer preferences and behaviors in different markets. The case study analysis reveals that cultural factors have a profound impact on the design of smart vending machines in emerging markets. For example, in certain Asian markets, where street food vending is a common cultural practice, smart vending machines are designed to replicate the experience of buying food from a street vendor. These machines are often equipped with interactive touch screens that display images of food items and allow customers to make selections, just like they would in a traditional street food market. This design approach takes into account the cultural preference for interactive and sensory experiences while making a purchase.

Social Factors:

Social factors also influence the design of smart vending machines in emerging markets. The case study analysis identifies that social factors such as community engagement and socialization play a critical role in shaping the design of these machines. For instance, in some African markets, smart vending machines are designed to promote community engagement by providing a space for socializing and gathering. These machines are equipped with seating arrangements, ambient lighting, and interactive displays that encourage customers to spend time around the

machine, interact with each other, and create a sense of community. This design approach caters to the socializing aspect of the local culture and encourages frequent visits to the vending machine, thereby increasing customer engagement.

Economic Factors:

Economic factors also have a significant influence on the design of smart vending machines in emerging markets. The case study analysis reveals that economic factors such as purchasing power, affordability, and accessibility are crucial considerations in designing vending machines for these markets. For example, in markets with low purchasing power, smart vending machines are often designed to offer low-cost products or affordable payment options such as micro-payments. These machines are also designed to accept multiple forms of payment, including cash, mobile wallets, and other digital payment methods, to cater to the diverse economic preferences of the local population. Additionally, in markets with limited infrastructure and accessibility, smart vending machines are designed to be compact, portable, and easily deployable in remote areas to ensure widespread access to the products.

Role of Technology:

The case study analysis underscores the pivotal role of technology in designing innovative vending machines for emerging markets. Technology is leveraged to create smart vending machines that are equipped with advanced features such as remote monitoring, inventory management, and data analytics, which help improve operational efficiency and reduce costs. For example, remote monitoring allows operators to monitor the performance of vending machines in real-time, track inventory levels, and address maintenance issues proactively. This helps ensure that the machines are stocked with fresh products, reducing product spoilage and increasing customer satisfaction. Furthermore, data analytics enables operators to gain insights into customer preferences, purchasing patterns, and market trends, which can be used to optimize product offerings and marketing strategies. Additionally, technology is used to create user-friendly interfaces, such as touch screens and mobile apps, which enhance customer experience and enable seamless transactions.

In conclusion, the case study analysis reveals that the design of smart vending machines in emerging markets is influenced by cultural, social, economic, and technological factors. Understanding these factors and incorporating them into the design process is crucial for creating innovative vending machines that cater to the unique needs and preferences of consumers in these markets. By taking into account cultural and social preferences, addressing economic considerations, and leveraging technology, smart vending machines can be designed to provide a seamless and engaging experience for consumers in emerging markets.

1. **Business Overview:**
   - Who are they: The business is a vending machine operator that provides automated retail solutions.
   - What do they do: They operate vending machines that dispense a variety of products, such as snacks, beverages, and other consumer goods.
   - Where do they exist: The business operates in multiple locations, including office buildings, hospitals, schools, and public spaces in urban areas.
   - How old or new is the business: The business is relatively new, having been established within the last five years.
   - What is their business model: The business operates on a revenue-sharing model with product suppliers, where they earn a percentage of sales made through their vending machines.
   - Who is their end customer: The end customers of this business are consumers who use the vending machines to purchase products.

2. **People within the Business:**
   - Who within the business do we deal with: As a vending machine operator, the business deals with various stakeholders, including suppliers, maintenance providers, and customers.
   - What are their job titles: The business employs staff in different roles, including operations managers, maintenance technicians, and customer service representatives.
   - What kind of backgrounds do they come from: The staff comes from diverse backgrounds, including sales, operations, and customer service, with relevant experience in the vending industry.
   - How literate are they: The staff is generally well-educated and proficient in their roles, with knowledge of business operations and vending machine technologies.
   - How old are they: The age of the staff varies, with a mix of younger and older employees, bringing a diverse range of perspectives and experiences.
   - What are their roles in the business: The roles of the staff include managing vending machine operations, performing maintenance and repairs, handling customer inquiries, and managing inventory and supplies.

3. **Jobs:**
   - What are their goals: The business aims to become a leading player in the vending industry by offering innovative solutions and superior customer service.
   - What do they want to offer to the vending industry: The business aims to offer cutting-edge vending machine technologies, efficient operations, and a wide range of high-quality products to meet the needs of consumers.

- Where do they want to be in the vending space: The business aspires to be a recognized leader in the vending space, with a strong market presence and a reputation for reliability and customer satisfaction.
- What is their mission/vision or their long-term goals as a company: The mission of the business is to revolutionize the vending industry by providing convenient, reliable, and technologically advanced automated retail solutions to consumers.
- What do they want to achieve: The business aims to generate revenue through sales of products from their vending machines and create profitable partnerships with product suppliers.
- How do they want to make money: The business makes money through sales commissions earned on products sold through their vending machines and by optimizing operational costs.
- Where do they want to be in 5-10 years: The business envisions expanding its operations and presence in multiple locations, increasing its market share, and diversifying its product offerings to cater to evolving consumer preferences.
- What are they trying to get done: The business aims to provide convenient and accessible products to consumers through vending machines while optimizing operational efficiency, maintaining customer satisfaction, and maximizing profitability.
- What are their products or services: The business offers a wide range of products, including snacks, beverages, and other consumer goods, through their vending machines.
- What are the tasks they are trying to perform or complete: The business focuses on managing vending machine operations, maintenance and repairs, inventory management, customer service, and building strategic partnerships with product suppliers.
- What else do they want to do

4. Jobs

- Goals: The company aims to offer innovative vending solutions that disrupt the traditional vending industry. They want to be leaders in the vending space by providing cutting-edge technology, convenient and personalized user experiences, and efficient operations. Their mission/vision is to revolutionize the vending industry through technology-driven solutions that enhance customer satisfaction and profitability for vending operators.
- Achievements: They plan to generate revenue through various channels such as product sales, software licensing, and service contracts. They may also explore partnerships with vending machine manufacturers, technology providers, and other stakeholders in the

vending industry. In 5-10 years, they aspire to have a significant market share in the vending industry, expand their product and service offerings, and establish a strong brand presence globally.

- Tasks: They aim to provide vending operators with advanced vending machines, software platforms, and other tools to help them manage their vending businesses efficiently. They may offer products and services such as vending machine hardware, payment systems, inventory management software, data analytics, and customer engagement solutions. They may also provide training, support, and consulting services to help vending operators optimize their operations, increase sales, and improve customer satisfaction.

- Problems to solve: They may focus on addressing the pain points of both end users and vending operators. For end users, their business offering may include providing convenient and personalized vending experiences, offering a wide range of products, ensuring product availability and freshness, and integrating seamless payment options. For vending operators, they may provide solutions for managing inventory, optimizing routes, reducing downtime, improving machine maintenance, and enhancing customer engagement. They may also address challenges related to payment processing, data security, and compliance with industry regulations.

- Needs and wants: They may need to add value to their company's value proposition by offering innovative and reliable vending solutions, providing exceptional customer support, and continually improving their products and services based on customer feedback. They may need reliable suppliers for vending machine hardware, payment systems, and other components, as well as technology partners for software development, data analytics, and other capabilities. They may require robust systems for inventory management, route optimization, and machine monitoring to streamline their operations and maximize profitability. They may also need to invest in research and development to stay ahead of the competition and adapt to changing market trends.

- End-user needs: Their business offering for end users may focus on providing convenient, personalized, and frictionless vending experiences. This may include offering a wide range of high-quality products, ensuring product availability and freshness, offering flexible payment options such as mobile payments and contactless payments, providing real-time product information, and offering personalized promotions and discounts. They may also emphasize safety and hygiene measures, eco-friendly packaging, and sustainability initiatives to meet the evolving needs and preferences of end users.

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ABOUT THE CANDIDATE

ANKUR JUNEJA

Interaction Designer

About me

An Artist, Product Design graduate, currently doing my masters from Department of Design (M.des). I have also been working as a freelance Digital artist for past 2 years.
I love breaking and creating things I learn from Experimenting on things and have a keen interest in UX Design and Research
I Love doing Concept art and Portraits!

I am well-versed with a variety of softwares which are also mentioned on my resume.

Education

DOD Delhi Technological University (Formerly DCE)
M.Des Interaction Design | 2021 - 2023

Amity School of Design
B.Des Product Design | 2017 - 2021

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Work Experience

LEAD UX DESIGNER Jan 2023 - Present
Wendor (Internship)
- Designing the KIOSK screen for over 300+ Smart Vending machines (currently live in India and Dubai)
- Consultations in designing the Vending machines
- Dashboard revamp for Wendor ERP

UX DESIGNER Jun 2022 - Aug 2022
Vendify (Internship)
- Designing and revamping of the ERP portal
- Finding problems in the existing product

UX/UI DESIGNER Feb 2021 - July 2021
Shapecrunch
- Defining the workflows for the users and backend
- Designing of website and web app for Foot customization
- Creating and automated chatbot for the website

FREELANCE DIGITAL ARTIST March 2020 - Present
Digital Artist | Concept Artist
- Worked with 150+ clients abroad to make Digital art and designs based on Clients Brief, having 100+ 5 star reviews
- Created NFT's for sellers on Rearible and Opensea

UX DESIGN Dec 2019 - Jan 2020
Credflow (Internship)
- Designed the overall interface of the app, desktop and web applications.
- Infographics, Banners and social media posts

Skills

- Sketching
- 3D CAD
- Wireframing
- Empathy mapping
- User Survey / Interview
- Mind mapping
- Branding
- Model making
- Photo-manipulation
- Qualitative Analysis
- Quantitative Analysis
- Digital Art
- Concept Art
- Character Design

Technical Skills

- Adobe Photoshop
- UI & UX Design
- 2D Auto CAD
- Grasshopper
- Keyshot
- MS Office
- Adobe Illustrator
- Prototyping
- Rhino 3D
- Solid Works
- Adobe Premier Pro
- Figma