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## Market Research Assignment

Unit coordinator: Dr. Anuradhi Welhenge

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Group: Bentley (UG & PG) 35

Members:

Name: Mohammad Ma'en Abu-Qamar  
Name: Tashi Lhadon  
Name: Nazanin Rahimi  
Name: Amiru Hangili Muhandiramlage  
Name: Dhrubo Troyee

Student ID: 21026744  
Student ID: 22155746  
Student ID: 21510234  
Student ID: 20818694  
Student ID: 22663281

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# **Introduction**

This Market Research and Costing Plan explores the current state of the vending machine industry. The report examines industry trends, key market challenges, and the overall feasibility of operation within this space. It will also provide an analysis of major competitors, their business models, strategies, and consumer behavior patterns. The objective is to gain a comprehensive understanding of the industry landscape to support the successful development and pricing of a new vending machine business.

## **Industry Analysis**

Vending Machine are part of the retail industry, especially the automated and self-service retail sector. They don't replace shops but provide convenience in high-traffic areas like schools, gyms, hospitals, and transport hubs. With retail moving toward automation and cashless systems, smart vending machines fit well into this shift (Grand View Research, 2024).

### **Political**

The Political environment plays a key role in shaping Vending machine operations. Machines selling food and beverages must follow food safety and labelling regulations, ensuring that products meet health standards. In United States, for example, vending operators with more than 20 machines are required to display calories counts under food and drug administration's (FDA) regulations (U.S. Congressional Research Service, 2018). IoT vending machines also need to follow privacy and data protection laws (Shrinath, E. & Jayanthi, S, 2024). In Australia, vending machines are covered by general food safety laws under the NSW Food Act 2003 and the Food Standards Code. Local councils check for things like hygiene, safe storage, and labelling, but requirements are minimal for pre-packaged food (NSW Food Authority, 2023). This makes vending a low-risk and feasible industry for new businesses.

### **Economic**

Vending machines can be attractive because they reduce labor costs by providing automated product sale. However, high upfront costs for advanced machine and ongoing maintenance, and increasing energy cost remain key challenge (Grand View Research, 2024). Research shows that IoT-based vending machine can save money by being faster and more accurate than RFID machines. Experiment results show IoT machine dispense in 17.5 with 90% accuracy, compared to RFID machines at 22.2s with 75% accuracy. (Shrinath, E. & Jayanthi, S, 2024) This reduces failed sales and downtime. A recent study indicates that vending machine became more profitable when operators focused on product quality (such as water purification), flexible payment systems (cash plus smart cards), and strategic placement (ground floor over upper levels) (Stoyanov, 2021).

## **Social**

Customers want healthier snacks and drinks, not only soda and chips (U.S. Congressional Research Service, 2018). They also expect cashless and contactless payments, especially after COVID-19. Nutrition labels help promote healthier choices. (U.S. Congressional Research Service, 2018). Additionally, what a machine sells often depends on its location, for example schools may stock snacks, hospitals provide medicine, and gyms may focus on supplements. Research also shows that customers are highly sensitive to product quality—for instance, purified water in hot beverages increases both sales and customer satisfaction (Stoyanov, 2021). Population growth and urbanization increase demand for quick and convenient retail. Studies show that vending fits this modern lifestyle, as self-service machines are efficient, accessible in busy locations, and meet the needs of people in high-traffic urban areas (Stoyanov, 2021; Shrinath & Jayanthi, 2024).

## **Technological**

IoT vending machine are faster and more reliable (17.5s, 90% accuracy) than RFID ones (22.2s, 75%). (Shrinath, E. & Jayanthi, S, 2024) They also support mobile apps, QR/barcode payments and online monitoring. Although these features may increase cyber-attacks and connectivity issues if not upgraded from old 3G to 4G/5G. (Shrinath, E. & Jayanthi, S, 2024). These advancements make vending both efficient and future-proof.

## **Industry**

This vending market is moving from simple snack machines to smart IoT systems that use app and data for restocking (Shrinath, E. & Jayanthi, S, 2024). Although it could be hard to new business to enter due to high cost and competitions. Additionally, the vending industry is led by large companies (e.g. Coca-Cola, Selecta, Crane Payment Innovations), but most operators are small and medium-sized enterprises (SMEs). These smaller businesses face challenges such as high startup cost and strong competitions, but they still can compete by targeting niche markets and focusing on areas like product quality and flexible payment options and strategic machine placement (Stoyanov, 2021). By following the industry's move toward smarter, more flexible and customer-driven systems, our vending machine idea proves to be both practical and feasible.

# Competitor Analysis

The global vending machine market is experiencing significant growth, with projections indicating an increase from USD 72.10 billion in 2024 to USD 89.27 billion by 2030, reflecting a compound annual growth rate (CAGR) of 3.7% according to [1] and [2]. This expansion is driven by advancements in technology, evolving consumer preferences, and the increasing demand for convenient, automated retail solutions.

In this context, understanding the competitive landscape is crucial for identifying market dynamics and positioning strategies. The following analysis examines key players in the vending machine industry, focusing on their market share, business models, strengths, and weaknesses. By evaluating these competitors, we aim to gain insights into effective operational strategies and potential areas for differentiation in the burgeoning vending machine market.

## Seaga Manufacturing

Seaga Manufacturing is a privately owned company and a leading manufacturer in the vending machine industry. The company specializes in tailoring vending machines to meet specific customer needs. Seaga focuses on developing advanced, intelligent inventory control systems that are reliable, efficient, and innovative.

Their target audience is primarily other businesses aiming to reduce labor costs by automating inventory and product distribution. Seaga offers solutions for a wide range of industries, whether it's dispensing PPE, beverages, confectionery, or managing complex inventory systems [3]. Their business philosophy centers on delivering products that directly align with a client's operational needs, while prioritizing customer satisfaction.

## Market Share

Seaga holds an estimated 9% share of the global vending machine market, with steady growth. A testament to this growth is their 2022 acquisition of AMS (Automated Merchandising Systems), one of their former competitors [6]. While Seaga is a privately owned company and does not release full financial statements, their estimated annual revenue is \$54.6 million [5]. Additionally, their employee base has grown by approximately 15%, indicating ongoing expansion [4].

## Strengths

Seaga Manufacturing's primary strength lies in its consistent focus on innovation and the integration of intelligent systems into its vending machines. Their technology supports dynamic pricing, real-time stock tracking, and automated inventory replenishment, all of which contribute to improved customer convenience and operational efficiency. Additionally, Seaga offers advanced payment solutions, including multi-level payment integration such as EFTPOS, QR codes, and mobile application payments. These features allow for seamless remote machine management through cloud-based systems. The company's commitment to customer satisfaction and its ability to tailor vending solutions to specific industry needs position it as a flexible and

forward-thinking manufacturer. Furthermore, Seaga's recent plans to expand into the industrial and healthcare sectors highlight its adaptability and ambition to capture broader market segments.

## Weaknesses

Despite its technological advantages, Seaga faces challenges that may limit its accessibility to smaller businesses. Its pricing structure requires a significant upfront investment, combined with an ongoing subscription model that covers repairs, parts, and warranty support. This model can be financially restrictive for startups or businesses operating on limited budgets. Moreover, as a privately owned company, Seaga does not publish detailed financial data, which can deter potential investors or partners who seek transparency. This lack of visibility may raise concerns, particularly around the long-term costs associated with repairs, parts replacement, and continuous system development.

## Worldwide vending & refrigeration

Worldwide Vending & Refrigeration is an Australian company established in 2006. They offer a range of pre-configured vending machines with modern features, such as touchscreen displays and cloud integration. The company has developed strong partnerships with well-known fitness chains including Jetts, Anytime Fitness, and Snap Fitness [\[7\]](#). In addition to pre-configured machines, they offer fully customized solutions tailored to client needs [\[9\]](#).

Their business model is B2B (business-to-business), and they operate primarily in Australia, New Zealand, and Thailand. Worldwide Vending is known for its accessible entry point to the vending industry, offering both purchase and rental options, and providing strong after-sale support including a 12-month warranty. They are considered a trusted provider within their region [\[8\]](#).

## Market Share

Worldwide Vending is a privately owned business and does not publicly release its financial reports. However, it is estimated that their annual revenue is under \$5 million [\[10\]](#). Despite this, they maintain a steady customer base and have built long-term relationships with many clients.

## Strengths

Worldwide Vending's strengths include its range of affordable vending machine options and additional support services for new business owners. They provide clear cost breakdowns, estimating that yearly operational costs range between \$400–\$700, while machines are priced from \$2,000–\$4,000 [\[11\]](#). Their offer includes the option for ongoing maintenance by their staff, which lowers the barrier to entry for new operators.

## Weaknesses

One key weakness is the limited transparency of the company's operations and offerings. There is relatively little detailed information available online about their full range of products and internal

operations. Additionally, as they appear to act more as a service provider than a manufacturer, customers may find themselves tied into ongoing support services, resembling a subscription model. This could reduce flexibility for some clients.

## Crane Payment Innovations

Crane Payment Innovations (CPI), formerly known as Crane Merchandising Systems, is a global leader in payment systems and vending technologies [12]. CPI is a subsidiary of Crane NXT, a large publicly traded company. CPI develops advanced hardware and software for automated retail, including bill and coin validators, coin hoppers, dispensers, cash counters, and self-service kiosks.

Their systems are widely used in IoT-enabled vending machines, integrating digital payment technology and smart analytics. CPI holds more than 350 patents and invests approximately 7% of its annual earnings into Research and Development, highlighting a strong focus on innovation and technological advancement [13].

## Market Share

CPI is considered one of the top three companies in the global retail and vending technology space. While the exact global market share is unclear, it is estimated at approximately 12% [15]. As of 2024, CPI's annual revenue is \$1.53 billion (about \$4.7 per person in the US) with a growth rate of 6.9% [14].

## Strengths

CPI's major strength lies in its scale and financial power as a publicly traded company. With significant investment in R&D and an extensive global reach, CPI is a trusted leader in vending machine payment systems. Their ability to innovate and integrate modern technologies (e.g., IoT, mobile payments) makes them highly competitive.

## Weaknesses

A key weakness is that vending technology is not CPI's core business, it is only one part of a larger corporate structure. Additionally, the company has undergone multiple restructuring and rebranding efforts, which may indicate some internal volatility and shifting strategic priorities.

## Coke Vending

Coke Vending is a division of Coca-Cola with over 40 years of experience in beverage vending. They offer a free end-to-end service that includes stocking, maintenance, and 24/7 customer support [16]. Their vending machines support easy mobile payments for consumer convenience. Coke Vending operates on a revenue-sharing business model, where the products sold generate income split between Coca-Cola and the business owner. Coca-Cola covers the upfront installation

and ongoing maintenance costs, making it a hassle-free solution for business owners [16]. The exact revenue share percentage varies and is negotiated based on factors like foot traffic and sales volume.

## Market Share

Coca-Cola reported a 3% revenue increase in its latest financials, reaching \$11.3 billion [17]. This growth includes their beverage sales and Coke Vending as part of their broader strategic pricing and innovation efforts.

## Strengths

The primary strength of Coke Vending is the low operational burden on business owners, who do not have to manage stocking or maintenance costs. This allows them to focus on maintaining a high-traffic environment, which benefits both parties by maximizing sales and revenue.

## Weaknesses

A key weakness is the limited product variety and control for business owners since the machines are dedicated solely to beverages. This restricts customization options and may not suit locations wanting a broader product range.

## Competitor Analysis Tabular Format

Competitor	Established date	Product	Market share (%)	Value to customers	Strengths	Weaknesses
Seaga Manufacturing	1987	Custom vending machines for food, beverages, PPE, inventory	9%	Tailored automation for cost savings and efficiency (B2B)	Advanced technology (smart inventory, dynamic pricing), customizable machines, cloud-based management, multi-industry reach, innovation focus	High upfront costs, ongoing subscription model, limited financial transparency
Worldwide vending & refrigeration	2006	Affordable vending machines for gyms, schools, businesses	<1%	Affordable entry, purchase/rent options, local support (B2B)	Cost-effective machines, flexible payment models, strong local partnerships, low entry barrier, optional maintenance	Limited transparency, small scale, more service provider than manufacturer, potential service lock-in
crane payment innovations	2020 (as CPI)	Payment systems, custom vending machines for all industries	~12%	Reliable, scalable vending and payment tech for large enterprises	Global presence, public company backing, heavy R&D investment, IoT and digital payment integration, over 350 patents	Vending tech does not core focus, internal restructuring history, complex corporate structure
Coke Vending	1929	Beverage vending services	Included in Coca-Cola revenue	Turnkey vending with no upfront cost or maintenance (B2B)	Free machine installation, 24/7 support, mobile payments, revenue sharing model, strong brand recognition	Limited product offerings (beverages only), no customization, dependent on Coca-Cola's product strategy

## Products and/or Services

A creative way of using vending machine is to introduce automated vending machines supplying sanitary and personal hygiene products, which will be strategically placed in female restrooms within universities, workplaces, shopping centers and transportation hubs. This will help narrow the critical gap in the market of the traditional vending machine services that primarily focuses on snacks and beverages. This method of service is to provide accessibility of affordable menstrual hygiene products and emergency personal care items.

Access to menstrual products remains a barrier for many women and girls in Australia. Research by Plan International Australia (2021) highlights that nearly one in four young Australian women (24%) have missed school or work due to lack of access to period products. By placing vending machines in or near restrooms will provide services in discreet and will be also affordable, accessible and immediate. The idea of integration of both cash and cashless payment systems will allow more flexibility, energy-efficient technology will help save energy and cost, and refill alerts for both customer convenience and operational efficiency for the business.

### Product/Service Table

The machine is planned to dispense wide range of products that meet both essential menstrual needs and personal hygiene demands.

Product/Service	Description	Price range
Sanitary pads	Individually wrapped, multiple absorbency levels	\$2 - \$4
Tampons	Standard and super absorbency options	\$2 - \$4
Pantyliners	Discreet, everyday liners for light use	\$1 - \$3
Personal hygiene	Pocket perfumes, deodorants, cleansing wipes	\$4 - \$6
Emergency kits	Bundled pack (pad + tampon + wipe) for emergencies	\$5 - \$8

### Market Position

The sanitary vending machine industry is positioned as a socially responsible and innovative provider within the vending sector. Traditional vending operators (e.g., Coca-Cola Amatil or generic snack providers) do not address menstrual health needs, creating a market gap that this business will fill. Though they focused on basic human needs, the thought of providing vending services in a better way has overlapped. So, to use and provide vending machines in feminine toilets is a way to narrow that gap in business and markets.

Positioning of this product is strengthened by these three main factors:

- 1. Health and Social Equity Trends:** Addressing Period Poverty in Australia. In response to the growing awareness of period poverty in Australia, there is an

increasing call for accessible menstrual products. Campaigns like Share the Dignity's "Dignity Vending Machine" initiative distribute complimentary sanitary products at schools and community facilities, highlighting the necessity of broader accessibility. (Share the Dignity, 2023)

**2. Diversification in the Australian Vending Industry:** According to IBISWorld (2023), the Australian vending machine sector boasts an annual value exceeding AUD \$500 million. Companies are increasingly diversifying their offerings beyond snacks and beverages to encompass personal care and wellness products. This diversification presents an opportunity for differentiation through innovative and high-demand products.

**3. Competitive Advantage:** While supermarkets and pharmacies remain the primary retail sources for sanitary products, they require customers to leave their immediate environment. By contrast, vending machines located inside restrooms deliver unmatched convenience, discretion, and immediacy.

## Benefits to Customers

The primary benefits of sanitary vending machines can be categorized into four dimensions:

1. **Accessibility and Dignity:** Products are available continuously in private restroom spaces, ensuring women's preparedness for unexpected situations. This contributes to well-being and reduces anxiety during emergencies (Plan International Australia, 2021).
2. **Health and Hygiene:** Consistent access to clean, individually wrapped sanitary items promotes menstrual hygiene and prevents adverse health outcomes associated with improvised alternatives (Women's Health Victoria, 2022).
3. **Inclusivity and Gender Equity:** Providing sanitary vending solutions aligns with broader workplace and university initiatives promoting gender equality, inclusivity, and staff/student well-being. This also enhances institutional reputation as socially responsible organizations (Queensland Health, 2021).
4. **Convenience and Modern Payment:** Machines equipped with cashless payment systems (PayWave, Apple Pay, Google Wallet) minimize barriers, particularly as the Australian economy transitions to a cashless environment (Reserve Bank of Australia, 2022).
5. **Social Responsibility and Public Good:** By addressing period poverty—which affects an estimated one in five Australian women who struggle to afford menstrual products (Share the Dignity, 2023)—the business positively contributes to community well-being, enhancing brand trust and customer loyalty.

# Pricing Strategy

## Price model

Value-based pricing is the method we use in our vending machine business. Value-based pricing, which works well in specialized or urgent markets, focuses prices mostly on the customer's calculated or anticipated value rather than production costs [1], [2]. The combination of menstruation and hygiene products in vending machines not only improves public service but also opens new revenue streams. Research indicates that traditional vending services have mostly focused on to snacks and drinks but expanding out into wellness and personal care fulfills client requirements [3]. This business model maintains a balance between client affordability and long-term sustainability [4].

## Pricing Table

Product/service	Forecast total sales (\$)	Forecast costs (\$)	Mark-up (%)	Gross profit (\$) /GP	Gross profit margin (%)
Sanitary pads	\$60,000	\$24,000	150%	\$36,000	60%
Tampons	\$30,000	\$10,200	194.11%	\$19,800	66%
Menstrual cup	\$18,000	\$7,000	157.14%	\$11,000	61.11%
Pantyliners	\$ 28,000	\$8,000	250%	\$20,000	71.42%
Personal hygiene	\$17,000	\$6,000	183.33%	\$11,000	64.70%
Emergency kits	\$30,000	\$12,000	150%	\$18,000	60%
<b>Total</b>	<b>\$213,000</b>	<b>\$67,200</b>	-----	<b>\$115,800</b>	<b>63.871% (AVG)</b>

## Calculation Method

The pricing table was created using the following standard financial formulas [5]-[8].

- **Forecast total sales (\$)** = (Number of units that expect to sell) × (Selling price per unit)
- **Forecast costs (\$)** = (Number of units) × (Cost price such as production cost /wholesale)
- **Gross profit (\$)** /GP = Sales - Cost of goods sold (COGS) = R - COGS
- **Mark-up (%)** = (Gross Profit ÷ Costs) × 100
- **Gross profit margin (%)** = (Gross profit ÷ Sales) x 100

### Example (Sanitary pad):

The following is how sanitary pads are calculated:

- Units Sold: 20,000
  - Selling Price: \$3
- Forecast sales:  $20,000 \times \$3 = \$60,000$
- Cost price: \$1.20
- Forecast costs:  $20,000 \times \$1.20 = \$24,000$
- Gross profit/GP =  $\$60,000 - \$24,000 = \$36,000$
  - Mark-up =  $(36,000 \div 24,000) \times 100 = 150\%$
  - Gross profit margin (%) =  $(36,000 \div 60,000) \times 100 = 60\%$

### **Example (Tampons):**

The following is how Tampons are calculated:

- Units Sold: 10,000
  - Selling Price: \$3
- Forecast sales:  $10,000 \times \$3 = \$30,000$
- Cost price: \$1.02
- Forecast costs:  $10,000 \times \$1.02 = \$10,200$
- Gross profit/GP =  $\$30,000 - \$10,200 = \$19,800$
  - Mark-up =  $(19800 \div 10,200) \times 100 = 194.11\%$
  - Gross profit margin (%) =  $(19800 \div 30,000) \times 100 = 66\%$

### **Justification**

This pricing approach is ethical as well as financially responsible. With the extra benefit of quick access, privacy and 24/7 access in restroom anyone can use sanitary pads and personal hygiene item in an emergency [9],[10]. However, due to the convenience and security of having products available people are willing to pay a more as they get it whenever they needed it most, even while supermarkets and drugstore sell sanitary products at cheaper market rates [10], [11].

According to research, women value immediate access to menstrual products and are prepared to pay extra in an unexpected situation as choices are limited [11]. The approach incorporates customer affordability with corporate sustainability by placing machines in offices, TAFFs, universities, shopping malls, transit hubs, public libraries and sport centres, delivering value for both management and customers [10],[12],[13].

Secondly, the model generates an average gross profit margin of 63.871%, which aligns with established benchmarks in the vending industry. Long-term profitability and sustainability are ensured by these important margins, which enable the company to pay for essential operating costs like restocking, logistics, labour cost, servicing, and any damage repairs [14],[15]. Moreover, it also creates opportunities for future growth and investments [16].

Thirdly, scalability and sustainability are guaranteed by this price model. The concept shows excellent economic sustainability with estimated yearly sales of \$213,000 and a gross profit of \$115,800. Utilizing additional cash flow into more machines allows for development into high-demand areas like businesses, hospitals, universities, and transportation hubs. Vending machine staffing requirements are low, which further improves scalability and makes the model effective for building up across several locations [17].

According to [17], the worldwide sanitary pad market was estimated to be worth USD 20.4 billion in 2024 and is expected to expand at a 4% CAGR from 2025 to 2034. This demonstrates a significant long-term demand, ensuring that pricing is profitable [18].

Overall, it is necessary to recover hardware costs in addition to manufacturing costs. Basic sanitary pad vending machines can cost AUD \$50, while upgraded digital and large-capacity ones can cost over \$1,000 [19]. The starting price is boosted by features like wall-mounted devices, coin acceptors, and touchless dispensing, however, additional installation and maintenance expenses raise expenses even further [20]. Higher margins are justified by including these costs in the pricing model. Therefore, to recover hardware and operating costs and maintain long-term financial viability, it is important to maintain an average gross margin of about 60% [21].

## SWOT Analysis

<b>Strengths</b>	<ul style="list-style-type: none"><li>• The ability to use smart technology to facilitate cashless payments, user preference analysis and updates on real-time product availability</li><li>• 24/7 availability</li><li>• Higher efficiency for small-scale, urgent purchases</li><li>• Low labor costs</li><li>• Can include a wide product range</li></ul>
<b>Weakness</b>	<ul style="list-style-type: none"><li>• High upfront cost</li><li>• Smaller variety and capacity of product compared to larger establishments like grocery shops and supermarkets</li><li>• Need of regular maintenance and updating to ensure optimum function</li></ul>
<b>Opportunities</b>	<ul style="list-style-type: none"><li>• Can cater to the increasing population of consumers who prefer a cashless economy and contactless services.</li><li>• Can focus on areas with high consumer traffic and limited retail options, such as hospitals, offices, universities, fitness centers, transport terminals and airports.</li><li>• Can target niche product ranges based on location and consumer base</li><li>• Potential partnerships with brands for promotion of specific products</li></ul>
<b>Threats</b>	<ul style="list-style-type: none"><li>• Competition from larger retail establishments with a wider range of products and online delivery services</li><li>• Risk of vandalism in public spaces</li><li>• Regulatory barriers that affect the sale of certain products</li></ul>

### Strengths

Integrating smart technology into vending machines can greatly enhance both efficiency and convenience. These systems facilitate cashless transactions and support multi-level payment methods, including mobile applications and QR codes. They enable stock tracking, which can be linked to online platforms to inform consumers regarding real-time product availability. The data collected can provide valuable insight into consumer preferences, which can be used to optimize the supply. In comparison to large retail establishments such as supermarkets or grocery stores, vending machines offer 24/7 availability. They are particularly efficient for small-scale and urgent purchases, typically intended for single or short-term use. Smart technology also allows remote monitoring of the machines and automated or semi-automated inventory replenishment, thus reducing the cost of labour. Furthermore, vending machines can include a wide range of products, including packaged foods and drinks, freshly prepared meals, over-the-counter medical products, personal hygiene and sanitary products, cosmetics, electronics, etc.

## **Weaknesses**

One of the main drawbacks of smart vending machines is the high upfront cost for purchase and installation. It can be a barrier for small business owners. They also require regular maintenance and software updates to ensure optimum performance. Furthermore, compared to traditional retail options such as supermarkets and online stores, they have a significantly smaller variety and capacity of products.

## **Opportunities**

Vending machines are a great option for the increasing population of consumers who prefer a cashless economy and contactless services. They are particularly useful in areas with high consumer traffic and limited retail options, such as hospitals, offices, universities, fitness centres, transport terminals and airports. Furthermore, products can be tailored to niche consumer groups based on location, which creates opportunities for targeted sales as shown in the examples below. This also opens possibilities for partnerships with specific brands based on consumer purchase habits and demand.

- 1. Fitness centres** – healthy snack options, beverages, feminine hygiene products
- 2. Airports and travel terminals** - Ready-to-eat food, beverages, travel-size personal care items, over-the-counter medication, feminine hygiene products
- 3. Universities** - ready-to-eat food, prepackaged snacks, beverages, stationery, feminine hygiene products
- 4. Hospitals** - prepackaged snacks, beverages, sanitary and personal care items

## **Threats**

In terms of possible threats, competition from traditional retail establishments and online delivery services is a significant issue. Due to their larger product range, they can be a more compelling choice for customers, especially when they're making multiple purchases. The vending machines also need to be secured against theft and vandalism if they are in public spaces. In addition, regulations involved in the sale of certain products, such as alcohol and medication, are another consideration.

Integrating smart technology into Vending machines can greatly enhance both efficiency and convenience. These systems facilitate cashless transactions and support multi-level payment methods, including mobile applications and QR codes. They enable stock tracking, which can be linked to online platforms to inform consumers regarding real time product availability. The data collected can provide valuable insight into consumer preferences, which can be used to optimize the supply. In comparison to large retail establishments such as supermarkets or grocery stores, vending machines offer 24/7 availability. They are particularly efficient for small scale and urgent purchases, typically intended for single or short-term use. Smart technology also allows remote monitoring of the machines and automated or semi-automated inventory replenishment, thus reducing cost of labor. Furthermore, vending machines can include a wide range of

products, including packaged foods and drinks, freshly prepared meals, over the counter medical products, personal hygiene and sanitary products, cosmetics, electronics etc.

## References

### Industry analysis

- [1] State of New South Wales, *Guidelines for mobile food vending vehicles*. Sydney, NSW: NSW Food Authority, 2023. [Online]. Available: <https://www.foodauthority.nsw.gov.au>
- [2]<sup>[58]</sup> E. Shrinath and S. Jayanthi, "Design and implementation of smart vending machine using IoT and comparison with RFID based vending machine," *AIP Conf. Proc.*, vol. 2729, no. 1, p. 030004, Feb. 2024, Available: [10.1063/5.0168011](https://doi.org/10.1063/5.0168011).
- [3] U.S. Congressional Research Service, *Nutrition Labelling of Standard Menu Items and Vending Machine Items (Report No. R44272)*. Washington, DC: Library of Congress, 2018. [Online]. Available: <https://www.congress.gov/crs-product/R44272>.

### Competitor analysis

- [1] GRAND VIEW RESEARCH, "Retail Vending Machine Market Size, Share & Trends Analysis Report By Product (Beverage Vending Machines, Snacks Vending Machines, Food Vending Machines), By Location, By Payment Mode, By Region, And Segment Forecasts, 2025 - 2030" grandviewresearch.com Accessed Aug. 26, 2025. [Online.] Available: <https://www.grandviewresearch.com/industry-analysis/global-vending-machine-market>
- [2] D. K. Stoyanov, "Is the whole greater than the sum of its parts? A vending retail study," *International Journal of Retail & Distribution Management*, vol. 51, (3), pp. 327-346, 2023. Available: <https://www.proquest.com/scholarly-journals/is-whole-greater-than-sum-parts-vending-retail/docview/2779382269/se-2>. DOI: <https://doi.org/10.1108/IJRDM-06-2022-0186>
- [3] Seaga Manufacturing "Intelligent Solutions for Smarter Inventory" seaga.com Accessed Aug. 26, 2025. [Online.] Available: <https://seaga.com/>
- [4] Market US News, "Vending Machine Statistics 2025 By Types, Technology, Service" news.market.us Accessed Aug. 26, 2025. [Online.] Available: <https://www.news.market.us/vending-machine-statistics/>
- [5] Growjo, "Seaga Revenue and Competitors" growjo.com Accessed Aug. 26, 2025. [Online.] Available: <https://growjo.com/company/Seaga>
- [6] Seaga Manufacturing, "Past, Present, and Future: The Vending Journey Continues" seaga.com Accessed Aug. 26, 2025. [Online.] Available: <https://seaga.com/past-present-and-future-the-vending-journey-continues>

- [7] Worldwide Vending & Refrigeration, "Australia and New Zealand's Leader in Vending Machine Solutions & Commercial Refrigeration Equipment" [worldwidevending.com.au](http://www.worldwidevending.com.au/)  
Accessed Aug. 26, 2025. [Online.] Available: <https://www.worldwidevending.com.au/>
- [8] Worldwide Vending & Refrigeration, "Combination Vending Machines"  
[worldwidevending.com.au](http://www.worldwidevending.com.au) Accessed Aug. 26, 2025. [Online.] Available:  
<https://www.worldwidevending.com.au/products/combination-vending/>
- [9] Worldwide Vending & Refrigeration, "About Worldwide Vending"  
[worldwidevending.com.au](http://www.worldwidevending.com.au) Accessed Aug. 26, 2025. [Online.] Available:  
<https://www.worldwidevending.com.au/about-us/>
- [10] ZoomInfo, "Worldwide Vending" [zoominfo.com](http://www.zoominfo.com) Accessed Aug. 26, 2025. [Online.] Available: <https://www.zoominfo.com/c/worldwide-vending/346367122>
- [11] Worldwide Vending & Refrigeration, "How Much Does a Vending Machine Cost in Australia: What You Need to Budget For" [worldwidevending.com.au](http://www.worldwidevending.com.au) Accessed Aug. 26, 2025.  
[Online.] Available: <https://www.worldwidevending.com.au/2025/05/02/how-much-does-a-vending-machine-cost-in-australia-what-you-need-to-budget-for/>
- [12] Crane Payment Innovations, "One Global Brand" [cranepi.com](http://www.cranepi.com) Accessed Aug. 26, 2025.  
[Online.] Available: <https://www.cranepi.com/en/about-us/brand-history/>
- [13] Crane Payment Innovations, "We solve more than you think, ask us why" [cranepi.com](http://www.cranepi.com)  
Accessed Aug. 26, 2025. [Online.] Available: <https://www.cranepi.com/en/about-us/why-cpi>
- [14] Companies Market Cap. "Revenue for Crane NXT (CXT)" [companiesmarketcap.com](http://www.companiesmarketcap.com)  
Accessed Aug. 26, 2025. [Online.] Available: <https://www.companiesmarketcap.com/crane-nxt/revenue/>
- [15] Future Market Insights. "Retail Vending Machine Market Share Analysis"  
[futuremarketinsights.com](http://www.futuremarketinsights.com) Accessed Aug. 26, 2025. [Online.] Available:  
<https://www.futuremarketinsights.com/reports/retail-vending-machine-market-share-analysis>
- [16] Coke Vending. "We are Coke Vending" [cocacolaep.com](http://www.cocacolaep.com) Accessed Aug. 26, 2025.  
[Online.] Available: <https://www.cocacolaep.com/au/cokevending/about-us/>
- [17] Sci-Tech Today. "Coca-Cola Statistics By Net Revenue, Advertising Expense,  
Workforce And Facts (2025)" [sci-tech-today.com](http://www.sci-tech-today.com) Accessed Aug. 26, 2025. [Online.] Available:  
<https://www.sci-tech-today.com/stats/coca-cola-statistics-updated/>

## **Products and/or services**

- [1] Share the Dignity, “One in five Australians improvised period products due to cost barriers, survey finds,” *The Guardian Australia*, Aug. 1, 2024. [Online]. Available: <https://www.theguardian.com/australia-news/article/2024/aug/01/one-in-five-australians-improvised-period-products-due-to-cost-barriers-survey-finds>
- [2] Women’s Agenda, “Two-thirds of people who menstruate in Australia struggle to afford period products,” *Women’s Agenda*, Aug. 2024. [Online]. Available: <https://womensagenda.com.au/life/health/heartbreaking-two-thirds-of-people-who-menstruate-in-australia-struggle-to-afford-period-products>
- [3] The Guardian, “Free sanitary product vending machines launched in Melbourne,” *The Guardian Australia*, Nov. 14, 2024. [Online]. Available: <https://www.theguardian.com/australia-news/2024/nov/14/melbourne-free-sanitary-product-vending-machines-launch>
- [4] Wikipedia, “Period Products and Facilities (Access) Act 2023,” *Wikipedia*, 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Period\\_Products\\_and\\_Facilities\\_\(Access\)\\_Act\\_2023](https://en.wikipedia.org/wiki/Period_Products_and_Facilities_(Access)_Act_2023)

## **Pricing strategy**

- [1] M. Helmold, “Value-Based and Cost-Based pricing concepts,” in *Management for professionals* 2022, pp. 75–81. doi: 10.1007/978-3-031-10097-0\_7
- [2] G. Tremblay, A. Poirier, and L. Monfort, “Value-based pricing: a potential solution to difficult pricing discussions and payers’ negotiations,” *Journal of Medical Economics*, vol. 27, no. 1, pp. 344–347, Feb. 2024, doi: 10.1080/13696998.2024.2317119.
- [3] G. M. Reports, D. Patel, and G. M. Reports, “Feminine Hygiene Vending Machine Market Research Report 2033,” *Growth Market Reports*, Aug. 22, 2025. <https://growthmarketreports.com/report/feminine-hygiene-vending-machine-market>
- [4] Vending Machines Australia (VMA, “Vending Machines For Sale in Australia,” *Vendingmachinesaustralia.com.au*, 2025. <https://www.vendingmachinesaustralia.com.au/vending-machines-for-sale-in-australia> (accessed Aug. 29, 2025).
- [5] Business Victoria, “Calculate your breakeven point, margin and markup,” *Business Victoria*, Jul. 04, 2022. <https://business.vic.gov.au/business-information/finance/pricing-for-profit/calculate-your-breakeven-point-margin-and-markup#calculating-your-price-of-goods-to-earn-a-profit>

- [6] M. Brown, “Gross Profit Formula – How is it used?,” *Double Entry Bookkeeping*, Oct. 05, 2023. <https://www.double-entry-bookkeeping.com/gross-margin/gross-profit-formula/>
- [7] M. A. Babagoli *et al.*, “Cost-Effectiveness and Cost-Benefit analyses of providing menstrual cups and sanitary pads to schoolgirls in rural Kenya,” *Women S Health Reports*, vol. 3, no. 1, pp. 773–784, Sep. 2022, doi: 10.1089/whr.2021.0131.
- [8] D. Lavinsky, “Developing your vending machine pricing strategy,” *Vending Mavericks*, Oct. 19, 2023. <https://vendingmavericks.com/grow/vending-machine-pricing-strategy/>
- [9] “Dignity Vending Machine Donation 2022,” *Share the Dignity*.  
<https://www.sharethedignity.org.au/get-involved/dignity-vending-machine-donate>
- [10] Department of Health & Human Services, “*Free pads and tampons. Period.*,” *Better Health Channel*, 2022. [Online]. Available: <https://www.betterhealth.vic.gov.au/free-pads-and-tampons> [Accessed: Aug- 29-2025]
- [11] A. Bloomenthal, “Understand Value-Based Pricing: Key Strategies and benefits,” *Investopedia*, Aug. 08, 2025.  
<https://www.investopedia.com/terms/v/valuebasedpricing.asp>
- [12] A. S. Yunita and I. Pangaribuan, “Vending machine business as a solution to feminine hygiene products necessary,” *IOP Conference Series Materials Science and Engineering*, vol. 662, no. 3, p. 032017, Nov. 2019, doi: 10.1088/1757-899x/662/3/03201.
- [13] “Sanitary Product Vending Machines – GoalServices.”  
<https://www.goalservices.com.au/sanitary-product-vending-machines/>
- [14] Jinjiang Haina Machinery Co., Ltd., “How do I conduct a cost analysis for a sanitary pad manufacturing business \_Haina Machinery Factory,” *Jinjiang Haina Machinery Co. Ltd.*  
[https://www.fjhaina.com/automatic\\_diaper\\_machine\\_blog/1159.html](https://www.fjhaina.com/automatic_diaper_machine_blog/1159.html)
- [15] “How much does a vending machine cost in Australia: What you need to budget for,” *Worldwide Vending*, 02-May-2025. [Online]. Available:  
<https://worldwidevending.com.au/2025/05/02/how-much-does-a-vending-machine-cost-in-australia-what-you-need-to-budget-for/>. [Accessed: 28-Aug-2025].
- [16] “Vending machine profit,” *Fast Vending Machines*, 09-June-2025. [Online]. Available:  
<https://fastvendingmachines.com/2025/06/09/vending-machine-profit-roi-margins-and-factors-affecting-your-earnings-in-usa-canada-europe-south-america/>.  
[Accessed: 28-Aug-2025].
- [17] Australia Vending Machine Market,” *Imarcgroup.com*. [Online]. Available:

<https://www.imarcgroup.com/australia-vending-machine-market>. [Accessed:28-Aug-2025].

[18] G. Wani and M. Faizullabhoi, “Sanitary Pads Market - By Type, By Distribution channel – Global Forecast, 2025 - 2034,” Mar. 2025. [Online]. Available:

<https://www.gminsights.com/industry-analysis/sanitary-pads-market>

[19] Benleigh Vending Machines, “How much do vending machines cost? (Complete guide) – Benleigh Vending Machines,” *Benleigh Vending Machines*, Apr. 21, 2022.

<https://benleighvending.com.au/how-much-do-vending-machines-cost/>

[20] G. Garg, “Sanitary Pad Vending Machine Price List:Buying Guide”, *No.1 Non woven fabric Manufacturer*. 28-Aug.-2024. [Online]. Available:

<https://favouritehub.com/sanitary-pad-vending-machine-price-listbuying-guide/>.

[Accessed: 28-Aug.-2025].

[21] A. Yevankar, “What is a Good Profit Margin for Vending Machines?,” *Fraxotic Vending Machines*, Mar. 01, 2024. <https://fraxotic.com/vending-machine-profit-margins/>

## SWOT analysis

[1] P. Wang and W. Chen, “SWOT Analysis to Explore the Development of Smart Retail Vending Machines in the Countryside,” International Journal of Social Sciences and Public Administration., vol. 4, no. 1 [2024] Available: <https://doi.org/10.62051/ijsspa.v4n1.46>

## Appendices

### Appendix A: Table of Contributions

Task	Mohammad AQ	Tashi L	Nazanin R	Amiru HM	Dhrubo T
Introduction	ALL				
Industry Analysis			ALL		
Competitor Analysis	ALL				
Products and/or services		ALL			
Pricing strategy					ALL
SWOT Analysis				ALL	