

Student name:	Mohammad Belal	Student ID number:	2432635
Programme:	Master of Business Administration		
Module:	Strategic Management		
Module code:	LCMB7003		
Lecturer:	Ghulam Mujtaba		
Assignment Title:	Strategic Evaluation of Starbucks Ready-to-Drink Coffee in the South Korean Beverage Market: A Consultancy Report for Enhancing Sustainable Competitive Advantage	Word count (or equivalent):	5060
Submission Date:	12-08-26		

Contents

Section 1	7
Organisation Context and Strategic Overview	7
Organisation Background.....	7
Mission, Vision, and Value Proposition	8
Business Model.....	8
Industry Overview and Market Position.....	9
External and Internal Strategic Analysis	11
Macro Environment (PESTLE).....	11
Industry Analysis: Porter's Five Forces.....	16
Competitive Rivalry	17
Threat of New Entrants	18
Threat of Substitutes	18
Bargaining Power of Buyers.....	19
Bargaining Power of Suppliers.....	19
Internal Analysis (VRIO)	20
Brand Reputation	20
Digital Ecosystem and Loyalty	21
Dong Suh Foods Distribution Partnership	21
Innovation and Supply Chain	21

SWOT Analysis.....	21
Strength–Opportunity	22
Strength–Threat	22
Weakness–Threat.....	22
Comprehensive Strategic Evaluation.....	23
CSR Strategy	23
Balanced Scorecard	25
Strategic Position Synthesis.....	27
Strategic Choices and Implementation	27
Current Business Strategy	28
Strategic Options: Ansoff Matrix.....	28
Strategic Recommendation	30
Implementation Roadmap	32
Risks and Mitigation	32
Conclusion.....	33
Section 2	34
Reflective Account Using Gibbs' Reflective Cycle	34
Description	34
Feelings	35
Evaluation	35

Analysis.....	35
Action Plan.....	36
References.....	38

List of Tables

Table 1: Key Economic Factors Affecting Starbucks RTD Coffee in South Korea (Author)	13
Table 2: Critical Summary of PESTEL Analysis: Starbucks Ready-to-Drink (RTD) Coffee in South Korea (Author).....	16
Table 3: Summary of Porter's Five Forces Analysis (Author)	20
Table 4: VRIO Analysis of Starbucks Ready-to-Drink (RTD) Coffee in South Korea (Author)	20
Table 5: SWOT Matrix: Starbucks Ready-to-Drink (RTD) Coffee in South Korea (Author)	22
Table 6: Carroll's CSR Pyramid: Starbucks RTD Coffee in South Korea (Author)	25
Table 7: Balanced Scorecard for Starbucks Ready-to-Drink (RTD) Coffee in South Korea (Author).....	25
Table 8: Ansoff Matrix: Strategic Options for Starbucks RTD Coffee in South Korea (Author)	30
Table 9: Implementation Roadmap for Starbucks RTD Coffee Strategy in South Korea (Author)	32

List of Figures

Figure 1: Starbucks Ready-to-Drink Coffee (RTD) (Starbucks, 2026).....	7
Figure 2: Starbucks BMC (Author)	9
Figure 3: South Korea RTD Market Size (Statista, 2026).....	10
Figure 4: Starbucks Competitors in South Korea (Statista, 2026)	10
Figure 5: PESTLE Framework (Senadheera et al., 2026)	11
Figure 6: GDP Growth Rate of South Korea (The World Bank, 2025).....	12
Figure 7: South Korea Coffee Consumption (Statista, 2025)	14
Figure 8: Internet Penetration South Korea (World Bank, 2026)	15
Figure 9: Porter Five Forces (Curran et al., 2025).....	17
Figure 10: Starbucks RTD Competitors (Curran et al., 2025).....	18
Figure 11: Carroll Pyramid (Park et al., 2025)	23
Figure 12: Ansoff Matrix (Moon et al., 2022)	29
Figure 13: Gibbs Cycle (Lin et al., 2024)	34

Section 1

Organisation Context and Strategic Overview

Organisation Background

Starbucks Corporation is the world's largest speciality coffee company with over 40,000 stores in more than 80 countries in 2026. This report does not analyse Starbucks as a whole, but rather its Ready-to-Drink (RTD) coffee segment in South Korea, which consists of Starbucks Frappuccino, Double Shot Espresso, and its bottled cold brew beverages via its long-term licensing agreement with Dong Suh Foods (Starbucks, 2026).



Figure 1: Starbucks Ready-to-Drink Coffee (RTD) (Starbucks, 2026)

South Korea is among the Starbucks' most important foreign markets. With over 2,000 stores, Starbucks Korea is one of the company's biggest businesses abroad, and with

one of the highest coffee consumption rates per person in the world. The country's digital consumer base, premium culture, and convenient store distribution is favourable for sales of RTD coffees (Curran & Chesnut, 2026). Thus, the study of Starbucks' RTD business in South Korea offers a meaningful and market-relevant example of how Starbucks can build its competitive edge in the growing premium beverages market.

Mission, Vision, and Value Proposition

The mission of Starbucks is “to inspire and nurture the human spirit – one person, one cup and one neighbourhood at a time,” a mission that focuses on the experience, quality of the product, and emotional brand value and not price competition, thus supporting a differentiation strategy. This mission helps strengthen Starbucks' high-end brand image, trusted quality of coffee, and convenience in the South Korea market (Starbucks, 2026).

Business Model

The Starbucks' RTD business provides value in a convenient packaged form of the Starbucks' café quality coffee product by the use of the Business Model Canvas. The main target groups are young professionals, students at universities, and consumers who are oriented towards convenience. Products are sold at supermarkets, convenience stores, online stores, and vending machines, making them more accessible to the market than in Starbucks cafés.



Figure 2: Starbucks BMC (Author)

The packaged beverage business generates revenue, and the strategic alliance with Dong Suh Foods brings to Starbucks manufacturing capability, a distribution network across South Korea, and operational efficiency, enhancing market penetration in South Korea (Yoon et al., 2023).

Industry Overview and Market Position

The ready-to-drink coffee market size in South Korea continues to grow, owing to growing demand for premium convenience food items, hectic lifestyles, and growing preference for quality packaged coffee among consumers.

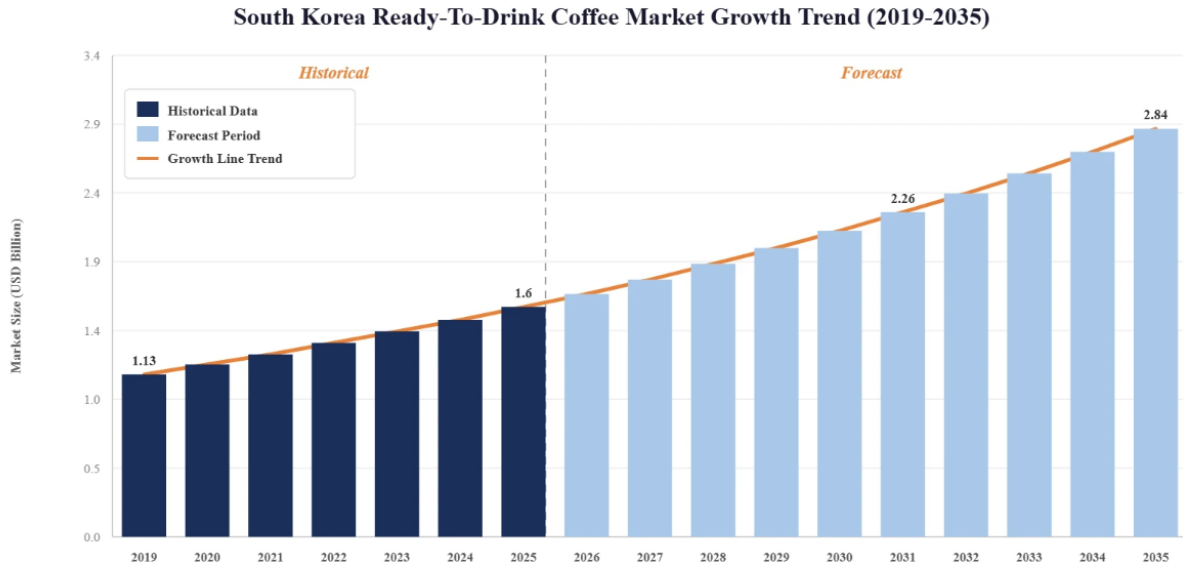


Figure 3: South Korea RTD Market Size (Statista, 2026)

Starbucks is facing tough competition from competing brands both domestically and internationally such as Maxwell House, Georgia Coffee (Coca-Cola), Cantata (Lotte Chilsung), and A Twosome Place RTD products. Starbucks still has the premium market position with strong brand equity, innovation, and consumer trust despite the high competition (Statista, 2026).



Figure 4: Starbucks Competitors in South Korea (Statista, 2026)

South Korea was chosen due to its already established coffee culture, consumer retail system, high purchasing power, and huge potential for long-term growth, which makes it an appropriate market to assess the Starbucks' future strategic development.

External and Internal Strategic Analysis

Macro Environment (PESTLE)

PESTLE Analysis

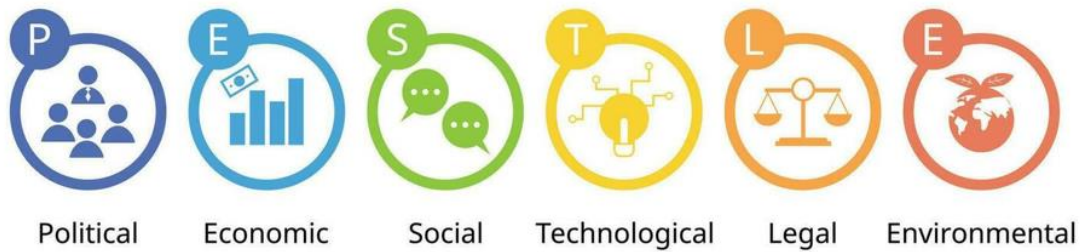


Figure 5: PESTLE Framework (Senadheera et al., 2026)

Political Factors

Starbucks Ready-to-Drink (RTD) Coffee faces favourable conditions from the South Korean government's continued support for food innovation, digital retailing, and sustainable packaging. Starbucks has the incentive to invest in recyclable packaging and environmentally friendly manufacturing due to the government's policies to achieve carbon neutrality by 2050 and the ban on single-use plastics. These policies raise compliance expenses, but also enhance the premium and sustainable brand image of Starbucks (Senadheera et al., 2026).

Economic Factors

South Korea's 1.0% GDP growth and 2.1% inflation in 2025 indicate weaker economic momentum than previously assumed, increasing pressure on discretionary premium purchases (The World Bank, 2025).

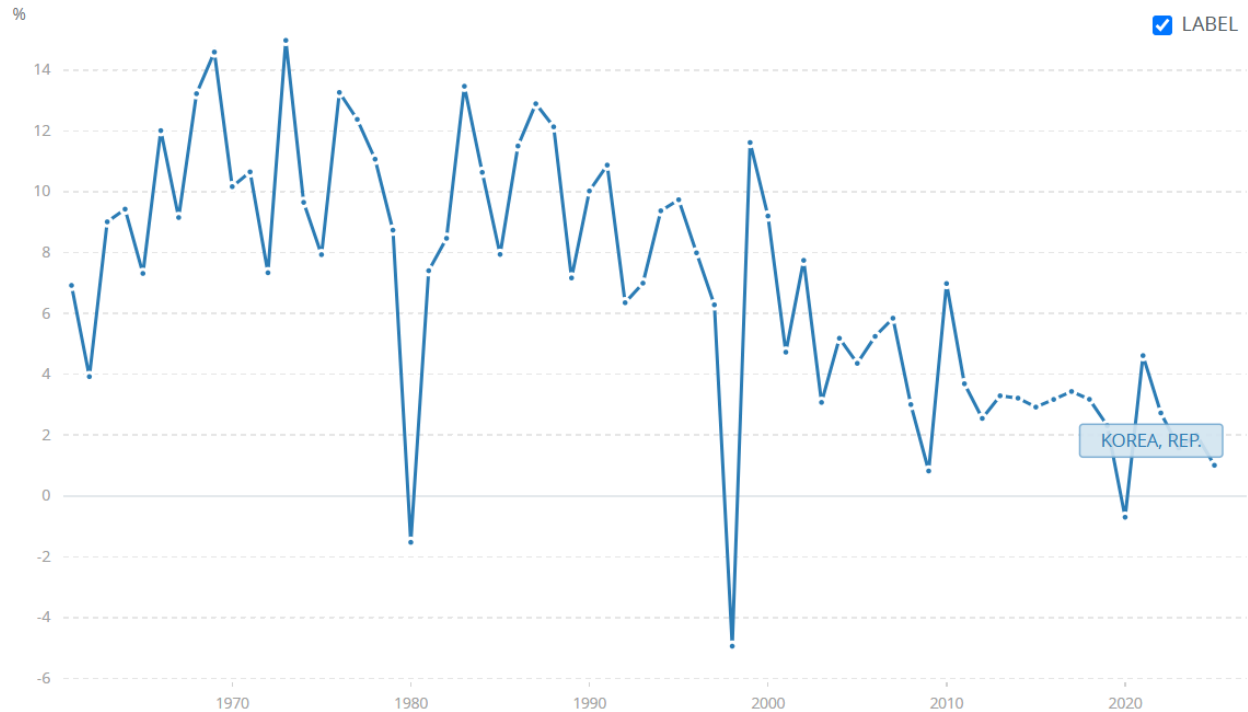


Figure 6: GDP Growth Rate of South Korea (The World Bank, 2025)

More significantly, the price of imported coffee beans is subject to fluctuations in the price of beans in the global market and to fluctuations in the price of the won. Maxwell House RTD prices have been raised by Dongsuh Foods by 4.4% in May 2025 due to the rise in coffee-bean prices and pressure on exchange rates (Choi & Choi, 2026). Starbucks would run the risk of driving up the price difference between its own higher-end products and its cheaper competitors (Cantata and Georgia Coffee), and it would eat into profits if the costs were passed to customers. To maintain its premium image, Starbucks must address its premium branding by sourcing and providing different products at an economical cost instead of raising the price of the product.

Economic Factor	Current Situation	Implication for Starbucks RTD Coffee
GDP Growth	1.0% in 2025	Weaker economic growth may constrain discretionary premium RTD purchases, increasing the need to demonstrate clear value.
Inflation	2.1% in 2025	Raises packaging, logistics and operating costs, creating margin pressure.
Exchange Rate	Won–US dollar volatility	Increases the cost of imported coffee beans and raw materials.
Coffee Bean Prices	Significant global price volatility	Raises procurement costs and limits Starbucks' ability to absorb cost increases.

Table 1: Key Economic Factors Affecting Starbucks RTD Coffee in South Korea (Author)

Social Factors

Starbucks Ready-to-Drink (RTD) Coffee's popularity continues to grow due to South Korea's rich coffee culture and fast-paced urban life. South Korea has one of the highest per capita coffee consumption rates in the world, with an average of over 400 cups per year for adults (Statista, 2025).

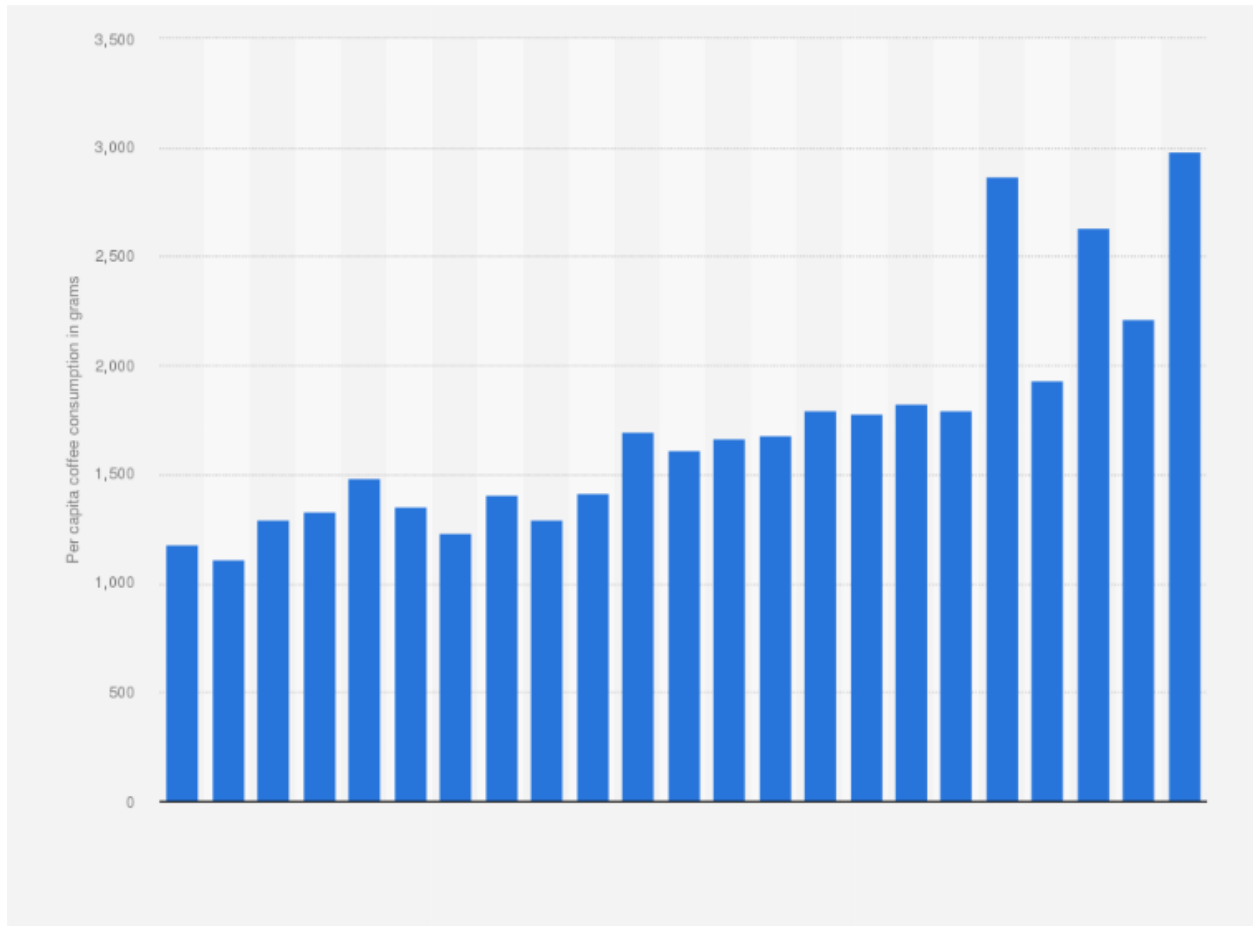


Figure 7: South Korea Coffee Consumption (Statista, 2025)

This is a big chance for the Starbucks to increase the market for RTD coffee beyond its café chain. Meanwhile, a preference for healthier drinks has led Starbucks Korea to launch lower-sugar and plant-based RTD drinks. Failure to respond to these changing preferences would strengthen competitors offering healthier packaged coffee alternatives (Park et al., 2024).

Technological Factors

Starbucks has a great advantage in the RTD market due to South Korea's sophisticated digital infrastructure. Internet penetration is 97% and the smartphone penetration is one of the highest in the world, and consumers have increasingly been buying drinks online via Coupang and SSG.com (World Bank, 2026).

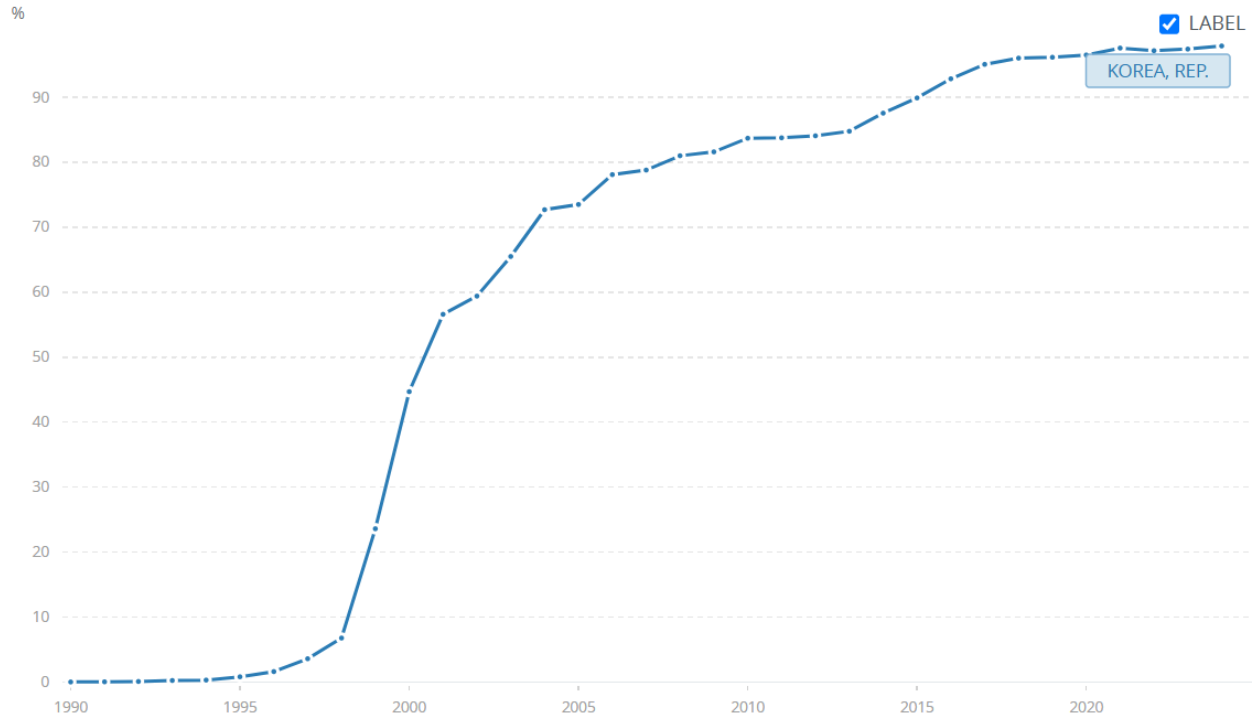


Figure 8: Internet Penetration South Korea (World Bank, 2026)

This provides Starbucks with the chance to combine the use of digital marketing, customer personalisation, and data-driven customer engagement with its RTD products. Moreover, AI-powered demand forecasting and automated supply chain management enhance inventory efficiency and product availability.

Legal Factors

South Korea has one of the most transparent regulatory systems in Asia, with its legislations on food safety and product labelling, and consumer protection being strictly observed. Before launching RTD products into retail channels, they have to meet the regulations of the Ministry of Food and Drug Safety (MFDS) for the disclosure of ingredients, nutritional information and standards of quality. Also, under the Personal Information Protection Act (PIPA) provisions, any customer personal information gathered as part of Starbucks' digital marketing efforts are regulated. These rules will lead to higher compliance and operational expenses, but they will help to boost consumer confidence in Starbucks' high-quality RTD beverages and minimize

reputational risk in the packaged beverage market in South Korea, which is strongly regulated (Sorathiya & Bhatt, 2026).

Environmental Factors

As South Korea aims to become carbon neutral by 2050 and boost circular economy policies, food, and beverage firms are under pressure to cut packaging waste and carbon emissions. This presents opportunities and challenges for Starbucks Ready-to-Drink (RTD) Coffee. Starbucks Korea has been increasing the amount of recyclable packaging and implementing sustainability measures to enhance its high-end brand reputation to customers who value the environment. If Starbucks doesn't meet consumer and regulatory demands, it may end up losing its edge against eco-friendly drink companies (Cho et al., 2025).

Priority	PESTEL Factor	Opportunity / Threat	Strategic Implication for Starbucks RTD Coffee
Opportunity 1	Social	South Korea's exceptionally high coffee consumption and premium coffee culture continue to increase demand for convenient, high-quality RTD beverages.	Starbucks should expand premium and health-oriented RTD products while leveraging its strong brand reputation to increase market share.
Opportunity 2	Technological	Advanced digital infrastructure, widespread smartphone usage and strong e-commerce platforms create opportunities for personalised marketing and wider distribution.	Starbucks should strengthen AI-driven digital marketing, online retail partnerships and data analytics to improve customer engagement and sales performance.
Opportunity 3	Political / Economic	Stable political conditions, high disposable income and continued economic resilience support long-term growth in premium packaged beverages.	Starbucks should continue investing in product innovation and nationwide distribution to capture sustainable growth in the South Korean RTD market.
Threat 1	Economic	Rising inflation, exchange-rate volatility and increasing global coffee bean prices continue to raise production and procurement costs.	Starbucks must improve supply chain efficiency and adopt strategic pricing to protect profitability without weakening its premium market position.
Threat 2	Environmental	Stricter sustainability regulations and increasing consumer expectations for environmentally friendly packaging require continuous investment.	Starbucks should accelerate recyclable packaging innovation and reduce environmental impacts to maintain brand credibility and regulatory compliance.
Threat 3	Legal	Strict food safety, product labelling and personal data protection regulations increase compliance requirements and operational complexity.	Starbucks must maintain rigorous regulatory compliance and quality assurance to protect consumer trust and minimise legal and reputational risks.

Table 2: Critical Summary of PESTEL Analysis: Starbucks Ready-to-Drink (RTD) Coffee in South Korea (Author)

Industry Analysis: Porter's Five Forces



Figure 9: Porter Five Forces (Curran et al., 2025)

Competitive Rivalry

Starbucks faces a high amount of competition with Cantata, Georgia Coffee, and Maxwell House; these companies represent established brands with more of a mass-market appeal. Both benefit from the wide distribution and marketing network of their respective partners, as Lotte Chilsung has wide beverage distribution network and Coca-Cola Korea has the distribution and marketing network. Thus, Starbucks' brand equity is an added value, but it does not automatically mean market leadership (Curran et al., 2025). Lower price means consumers have more options for switching to other brands and reduces Starbucks' room for raising prices for consumers. Therefore, Starbucks must differentiate itself and introduce new products that are unique to compete with other premium brands in the market.



Figure 10: Starbucks RTD Competitors (Curran et al., 2025)

Threat of New Entrants

There is a moderate threat from new entrants. RTD coffee production is relatively easy with contract production, but it takes significant marketing investment and nationwide distribution to create a trusted premium brand like Starbucks, and maintain customer loyalty over the years. Furthermore, with its strategic cooperation with Dong Suh Foods, Starbucks' manufacturing capability, and retail distribution capability in South Korea are enhanced. Starbucks, therefore, needs to be constantly innovating and engaging customers to maintain its market share and long-term profitability (Park & Jang, 2023).

Threat of Substitutes

The risk of substitutes is high due to the fact that Starbucks RTD competes beyond packaged coffee: consumers can try lower-priced coffee, tea, and functional beverages from convenient stores, or freshly brewed coffee from Ediya, Mega MGC Coffee, or Compose Coffee. This makes switching relatively easy and limits Starbucks' pricing power. Additionally, low sugar functional drinks could be preferred by health-conscious consumers over traditional RTD coffee (Jo et al., 2023). Hence, Starbucks should

differentiate based on premium quality, healthier formulations, and convenience, reducing substitution risk rather than relying solely on brand loyalty.

Bargaining Power of Buyers

Buyer power is high, but it operates at two levels. Starbucks has limited ability to increase prices, as there are competing RTD brands from various stores at different prices; CU, GS25, 7-Eleven, and Emart among others. Sometimes retailers like Coupang and big convenience stores also affect profit by their allocation of shelves and promotional fees and visibility (Kwon & Namkung, 2023). This reliance may compromise Starbucks' premium pricing strategy if retailers choose to stock Cantata or Georgia Coffee, which are lower priced. Thus, Starbucks should work on developing its relationship with its retailers, and should leverage differentiated products to minimise consumer price sensitivity.

Bargaining Power of Suppliers

The power of the suppliers is moderate, as Starbucks relies on imported Arabica coffee beans, so the costs of procurement are sensitive to the fluctuations in global commodity prices and exchange rates. Starbucks' global purchasing scale, long-term supplier relationships, and manufacturing partnership with Dong Suh Foods, however, help alleviate supply chain risk and enhance operational efficiency. While rising raw material costs could impact on profit margins, Starbucks has enough leverage to deal with suppliers better than smaller companies (Pascarina et al., 2025).

Porter's Five Force	Intensity	Evidence (Starbucks RTD – South Korea)	Impact on Profitability	Strategic Implication
Competitive Rivalry	High	Cantata, Georgia Coffee, Maxwell House, private-label RTD brands	Reduces margins due to intense competition	Continue premium differentiation and product innovation
Threat of New Entrants	Moderate	New speciality brands entering premium RTD market	Moderate pressure on future market share	Strengthen brand loyalty and innovation
Threat of Substitutes	High	Café coffee, bottled tea, energy drinks, Mega Coffee, <u>Ediya</u> , Compose Coffee	Reduces repeat purchases	Expand healthier and premium RTD product range
Buyer Power	High	Strong retailers (CU, GS25, <u>E-mart</u> , Coupang) and low switching costs	Limits pricing power	Strengthen retailer partnerships and customer value
Supplier Power	Moderate	Imported coffee beans, exchange-rate volatility, Dong Suh Foods partnership	Moderate cost pressure	Improve sourcing efficiency and supply chain resilience

Table 3: Summary of Porter's Five Forces Analysis (Author)

Internal Analysis (VRIO)

Resource/Capability	Valuable	Rare	Inimitable	Organised	Competitive Implication
Brand Reputation	✓	✓	✓	✓	Sustained Competitive Advantage
Digital Ecosystem	✓	X	X	✓	Competitive Parity
Starbucks Rewards Loyalty Programme	✓	✓	X	✓	Temporary Competitive Advantage
Distribution Partnership (Dong Suh Foods)	✓	✓	✓	✓	Sustained Competitive Advantage
Product Innovation	✓	X	X	✓	Competitive Parity
Global Supply Chain	✓	✓	✓	✓	Sustained Competitive Advantage

Table 4: VRIO Analysis of Starbucks Ready-to-Drink (RTD) Coffee in South Korea (Author)

Brand Reputation

Starbucks' brand is valuable and relatively rare, but its advantage in South Korea should not be overstated. It's in a premium position worldwide that helps to achieve higher perceived value than mass-market options, and Cantata and Georgia Coffee both have high domestic RTD recognition and distribution. Ediya Coffee also offers a strong brand recognition to the Korean market (Widarto & Utama, 2025). Therefore, Starbucks'

advantage lies less in brand awareness itself and more in combining premium global equity with RTD positioning (Yang, 2024).

Digital Ecosystem and Loyalty

Starbucks' digital platform and Rewards programme can be useful for personalisation and retention, but aren't unique. Ediya also has mobile ordering, loyalty programs and digital promotions, along with other Korean coffee shops (Etumnu & Volpe, 2024). Therefore, technology does not offer a competitive edge. But including Starbucks' customer information, Rewards application, and personalisation with its high-value brand could generate more value than individual digital solutions.

Dong Suh Foods Distribution Partnership

The Dong Suh Foods partnership is the best thing about Starbucks' organizational talents. It is a hybrid of Starbucks' brand value and a proven manufacturing and distribution network in Korea, which allows RTDs to be widely available in Korean convenience stores, supermarkets, and online stores (Salsabela & Nofianto, 2026). This is especially crucial in the competition with Cantata and Georgia Coffee, who are already well established with strong distribution networks in their countries. So, the history of Starbucks' problem with mass-market reach is lessened. Availability and cost efficiency must be maintained as a partnership between Starbucks and Dong Suh, as a competitor can't easily replicate that same relationship.

Innovation and Supply Chain

Innovation in products or sourcing internationally is still good but less sustainable as Cantata and Georgia Coffee can quickly launch other varieties and types. While the Starbucks global supply chain offers greater uniformity, it can be undermined by commodity and exchange-rate pressures (Setiana et al., 2026). Therefore, these capabilities support differentiation but should complement, rather than replace, Starbucks' stronger brand and distribution advantages.

SWOT Analysis

Strengths (VRIO)		Weaknesses (VRIO)	
- Strong global premium brand with high consumer trust. - Strategic distribution partnership with Dong Suh Foods ensures nationwide retail coverage. - Efficient global supply chain supports consistent product quality and availability.		- Digital ecosystem is no longer rare as competitors have comparable platforms. - Product innovation can be replicated quickly by competitors, reducing differentiation. - Starbucks Rewards provides only a temporary advantage as rival loyalty programmes continue to expand.	
Opportunities (PESTEL)		Threats (Five Forces)	
- Growing demand for premium and healthier RTD coffee driven by South Korea's coffee culture. - Expansion of digital retail and e-commerce through platforms such as Coupang and SSG.com. - Stable political environment supporting long-term investment and premium beverage growth.		- Intense competition from Cantata, Georgia Coffee, Maxwell House and private-label brands. - High availability of substitutes, including café coffee, bottled tea and functional beverages. - Strong bargaining power of retailers and consumers limits Starbucks' pricing flexibility.	

Table 5: SWOT Matrix: Starbucks Ready-to-Drink (RTD) Coffee in South Korea (Author)

Strength–Opportunity

Starbucks can leverage its premium brand equity to grow by addressing the health-conscious customer in South Korea by filling the market with functional and less-sugar RTD drinks. However, this is not enough as there is already a strong competition between Cantata and Georgia Coffee in the packaged coffee market (Lee et al., 2025). Thus, product innovation can have to strengthen Starbucks' premium positioning, not just widen its product lines.

Strength–Threat

Intense rivalry can be mitigated in part by the Dong Suh Foods' distribution relationship, which allows its products to be in reach almost instantaneously, nationwide, via the convenience store and supermarket channel. This is an important ability to have when dealing with a competitor who has a legacy of distributing their product (Ko et al., 2023).

Weakness–Threat

Because digital capabilities are not rare, Starbucks cannot rely on personalisation technology alone against Ediya Coffee and other digitally capable rivals (Ko et al., 2023). Buyer power also restricts premium pricing. Starbucks should therefore use personalisation to differentiate and better retain customers; it is important to note that digitalisation should not be viewed as an additional benefit but rather as a tool that can be combined with unique RTD offerings.

Comprehensive Strategic Evaluation

CSR Strategy

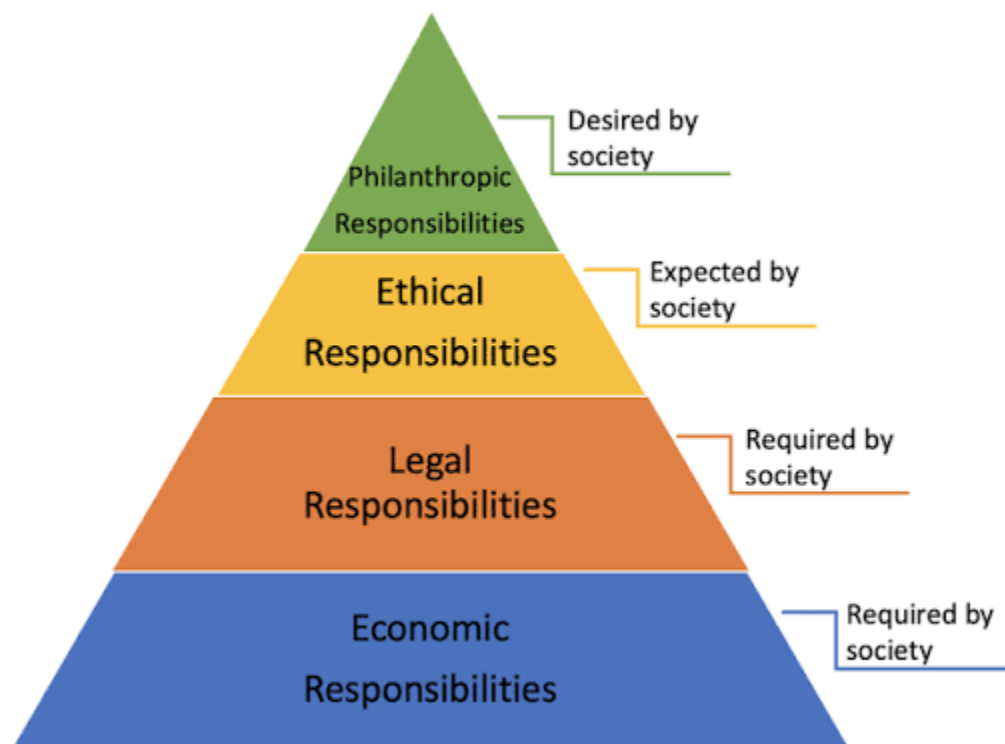


Figure 11: Carroll Pyramid (Park et al., 2025)

Economic Responsibility

Starbucks' primary responsibility is to maintain profitability while delivering high-quality RTD coffee that meets changing consumer preferences in South Korea. The quality of the coffee is also a key factor, as Starbucks faces challenges in maintaining product excellence and offsetting the increasing cost of production due to coffee price

fluctuations and inflation in the country. Starbucks uses brand value, not cost leadership, to be able to charge premium prices, as compared to lower-priced competitors like Cantata (Park et al., 2025).

Legal Responsibility

Strict regulatory regime compliance is crucial for market access in South Korea. The RTD products from Starbucks should meet requirements for disclosure of ingredients, nutritional labelling, and product safety requirements in the Ministry of Food and Drug Safety (MFDS) as well as environmental packaging regulations. Good compliance with the law ensures the consumer's confidence in the product and safeguards the goodwill of the brand from financial consequences or reputation damage (Lee, 2022).

Ethical Responsibility

As the value of sustainability and responsible business practices have risen, so has the importance of ethical responsibility for South Korean consumers. Starbucks' efforts to ethically source its coffee and with the adoption of more sustainable packaging aligns with the expectations and improves their trust in their premium RTD products. While competitors have also launched similar sustainability programs, the fact that Starbucks' efforts have a higher level of credibility throughout the world makes it able to leverage their efforts as a catalyst for building customer loyalty and premium positioning (Ko & Jeon, 2024).

Philanthropic Responsibility

In addition, Starbucks develops social value by engaging in various community and environmental programs in South Korea such as youth development programs and local volunteer programs. These are not activities that will increase RTD sales, but the corporate image will be better and relationships with consumers and local stakeholders will improve. Starbucks' social effort contrasts with other firms which are mainly focused on product promotion, helping to strengthen brand credibility (Ji et al., 2023).

CSR Responsibility	Application to Starbucks RTD Coffee in South Korea	Strategic Evaluation
Economic	Deliver premium RTD coffee while maintaining profitability and responding to changing consumer preferences.	Supports long-term growth through product quality and brand value.
Legal	Comply with South Korea's food safety, labelling, packaging and environmental regulations.	Protects consumer trust and reduces regulatory risk.
Ethical	Source coffee responsibly, reduce environmental impacts and meet increasing consumer expectations for sustainable products.	Strengthens brand reputation beyond legal compliance.
Philanthropic	Support local communities, youth development and environmental programmes in South Korea.	Enhances stakeholder relationships and corporate reputation.

Table 6: Carroll's CSR Pyramid: Starbucks RTD Coffee in South Korea (Author)

Balanced Scorecard

Perspective	Strategic Objective	KPI	SMART Target (2027)	Strategic Initiative
Financial	Increase RTD coffee revenue	Annual RTD sales growth	Achieve 10% annual sales growth	Launch premium health-focused RTD products through convenience stores and supermarkets
	Improve profitability	Operating profit margin	Increase margin by 3%	Optimise procurement and packaging costs through supply chain efficiencies
	Expand digital sales	Online sales contribution	Increase online sales to 25% of RTD revenue	Strengthen partnerships with Coupang and SSG.com
Customer	Improve customer satisfaction	Customer satisfaction score	Achieve 90% satisfaction	Introduce healthier RTD flavours based on consumer feedback
	Increase customer loyalty	Starbucks Rewards RTD participation	Increase participation by 20%	Offer exclusive Rewards promotions for RTD purchases
	Strengthen brand preference	Brand preference survey	Become one of the top three preferred RTD coffee brands	Integrated digital marketing and influencer campaigns
Internal Process	Improve product innovation	New RTD products launched	Launch four new products annually	Establish consumer trend monitoring and faster product development
	Improve product availability	Retail stock availability	Maintain 98% on-shelf availability	Enhance demand forecasting with Dong Suh Foods
	Reduce environmental impact	Recyclable packaging usage	Achieve 100% recyclable packaging	Invest in sustainable packaging materials
Learning & Growth	Strengthen employee capability	Staff training completion	Achieve 100% annual training completion	Digital marketing and sustainability training programmes
	Improve innovation capability	New product ideas implemented	Implement 10 employee-generated ideas annually	Cross-functional innovation workshops
	Enhance digital capability	AI-driven marketing campaigns	Increase AI campaign usage by 30%	Expand customer analytics and personalised marketing

Table 7: Balanced Scorecard for Starbucks Ready-to-Drink (RTD) Coffee in South Korea (Author)

Financial Perspective

The goal of 10% annual sales growth is designed to beat the growth rate in a mature market, but is still realistic with premium product development and broadening digital distribution. This growth is not to be at the cost of profitability, so the 3% margin improvement KPI is used to determine if there are input cost increases that can be covered by procurement and packaging efficiencies. The 25% digital revenue target is justified by the need to reduce dependence on powerful physical retailers and improve direct customer engagement.

Customer Perspective

There is a desired 90% customer satisfaction, which is a challenging standard to satisfy when premium pricing is involved and when value perceptions are not always high, as in the case of the lower priced option, Cantata and Georgia Coffee (Moon et al., 2023). The increased participation in Rewards that is being targeted is more relevant than acquiring new customers, as low switching costs have proved to be a significant threat in the analysis. These KPIs therefore assess whether Starbucks can convert brand equity into stronger retention and repeat purchasing.

Internal Process Perspective

Four new RTD products a year gives a quantified answer to evolving health preferences that does not lead to excessive proliferation of products (Petrova et al., 2024). But products could not be consistently available to create value, so 98% on-shelf availability indicates the effectiveness of the coordination with Dong Suh Foods. The 100% recyclable packaging goal is set to be challenging due to the fact that environmental compliance and sustainability are key factors Starbucks uses to define its premium positioning.

Learning and Growth Perspective

The 100% training-completion KPI guarantees that staff participating in the RTD strategy have the same digital, sustainability and consumer-analysis skills. 10 employee-generated improvements annually measure whether training produces organisational learning rather than simply attendance (Lin et al., 2024). In conclusion,

the 30% increase in AI-driven marketing activity highlights the potential of AI to create more personalised customer interactions, though the true measure of success lies in the conversion and retention results, not just the technology used.

Strategic Position Synthesis

Current Strategic Position

With its high global brand value, wide distribution by Dong Suh Foods, and loyal customer base, Starbucks' competitive position in South Korea's RTD coffee market is strong. The PESTEL analysis suggests that the social and technological factors are favourable, with the increasing demand for high-quality coffee and the rise of e-commerce. But the Five Forces analysis reveals that there is high competition from Cantata, Georgia Coffee, and other domestic brands, and buyers have power and substitute products are also available that is reducing the profitability of the company (Amin & Wijaya, 2024).

Competitive Advantage and Strategic Capability

The VRIO analysis proves that the key competitive strengths of Starbucks are the brand reputation, the distribution network across the nation, and the supply chain in the global market; the strength of CSR increases the trust of the stakeholders by means of responsible sourcing and regulatory compliance (Muharman & Felicia, 2023). The Balanced Scorecard turns these strengths into measurable goals through a focus on product innovation, digital growth, operational efficiency and customer loyalty. However, these capabilities need to be constantly improved to maintain a sustainable competitive advantage as digital platforms and product innovation is increasingly being copied by competitors. Thus, Starbucks is strategically positioned for its future growth in South Korea, as long as it keeps investing in quality health-focused RTD products, digital engagement with customers, and sustainable operations, while keeping its operations efficient in a more competitive market.

Strategic Choices and Implementation

Current Business Strategy

Porter's Generic Strategy: Differentiation

Starbucks follows differentiation strategy in the South Korean RTD coffee market, focusing on quality, brand identity, and customer satisfaction, not just price. Starbucks is positioning its RTD offerings as high-end drinks with world-famous brand, consistent quality, and a reliable sourcing program, unlike the lesser-known coffee brands like Cantata, Georgia Coffee, and convenience-store private label coffees. Continuous flavour innovation and healthier product options are complemented by support from Dong Suh Foods' retail distribution to reinforce this strategy. Starbucks' differentiated positioning is reinforced by the earlier PESTEL and VRIO analysis, which shows that South Korean consumers are becoming more and more willing to pay a premium for premium and health-conscious drinks. But Five Forces analysis also reveals that competitors are rapidly introducing similar high-quality products and digital features, making it harder to differentiate products. Hence, differentiation is the best business strategy for Starbucks, but a firm commitment to product innovation, sustainability leadership, and personalised digital customer engagement will be needed to sustain the competitive advantage (Choi & Choi, 2026).

Strategic Options: Ansoff Matrix

The Ansoff Matrix

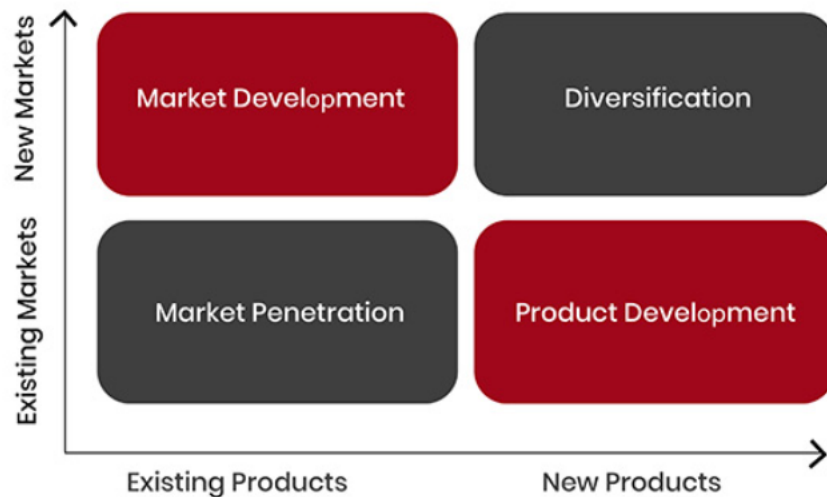


Figure 12: Ansoff Matrix (Moon et al., 2022)

Market Penetration

The safest strategic approach is market penetration since Starbucks is already recognized as a strong brand and has distribution channels across the country through Dong Suh Foods. Increasing promotional campaigns across CU, GS25, Emart and online platforms such as Coupang could improve sales of existing RTD products. But South Korea's RTD coffee market is more of a mature market with some competitors like Cantata and Georgia Coffee who are more likely to compete on pricing and promotions (Moon et al., 2022).

Product Development

Product development is found to be of higher strategic value because it is able to meet the increased demand for healthier and premium beverages in South Korea in the long-term. Product innovation such as functional RTD coffee, low sugar products, and plant-based options would strengthen the Starbucks differentiation and limit substitution from health-focused drinks. This is consistent with the previous PESTEL and VRIO analyses,

which revealed that product innovation and shifting consumer preferences were factors driving competition (Lee et al., 2025).

Digital Personalisation

AI-driven customer analytics and smart marketing strategies, like personalized promotional offers and purchase recommendations, will enhance customer engagement, particularly through Starbucks Rewards. This method can not only raise repeat sales, but also enhance digital marketing effectiveness. But, as a growing number of competitors like Ediya Coffee turn to digital technologies, they have to find other ways to establish a lasting competitive advantage, and they must do so in combination with better products and customer experiences (Moon et al., 2023).

Ansoff Strategy	Description	Benefits	Challenges
Market Penetration	Increase sales of existing RTD products in the South Korean market through stronger promotion and wider retail presence.	Builds market share using existing products and brand equity.	Limited growth due to market maturity and intense competition.
Product Development	Introduce healthier, functional and premium RTD coffee variants for existing customers.	Meets changing consumer preferences and strengthens differentiation.	Requires continuous R&D investment and successful product acceptance.
Digital Personalisation (Market Penetration Enabler)	Use AI and Starbucks Rewards data to deliver personalised promotions and recommendations.	Improves customer loyalty and repeat purchases.	Competitors are investing in similar digital capabilities.

Table 8: Ansoff Matrix: Strategic Options for Starbucks RTD Coffee in South Korea (Author)

Strategic Recommendation

Strategic Rationale

Starbucks needs to create an AI-driven personalised RTD ecosystem along with product innovation and upgrade. This manages the strategic shortcomings already mentioned, instead of digitalisation being a positive opportunity. Low sugar, functional, and plant-based RTD variants need to offer value which is not driven by price, as there is competition from both Cantata and Georgia Coffee. With buyer power being higher, there will be more reasons for people to purchase from Starbucks, and that is where personalised Starbucks Rewards promotions will come in handy. Likewise, Starbucks must find ways to innovate and make products more relevant and convenient; otherwise, it will lose out to other brands such as Ediya Coffee (Moon et al., 2023). Importantly, AI is not uncommon, and it needs to be coupled with Starbucks' brand, customer data, and their differentiated products to build an ability that's harder to replicate.

Competitive Advantage

The strategy is compliant with SAFe.

- It is Suitable as it manages the competition, buyer power, and substitution pressures that have been identified using Five Forces and supports Starbucks' differentiation strategy.
- It is "Acceptable" because it leverages the VRIO strength of the brand reputation and the distribution partnership with Dong Suh Foods, instead of having to establish a new business model.
- It is Feasible, as the Balanced Scorecard already defines goals with regard to product innovation, customer loyalty and AI-based marketing.

Starbucks should not compete directly with Cantata and Georgia Coffee on pricing or mass-market distribution, both of which are very strong. Rather, the Starbucks that incorporates high-quality product innovation and personalized digital engagement will stand out from these brands, and offer more value than Ediya's mostly café-based idea.

This enables a more defensible competitive position to be established, which is achieved by the blending of resources, rather than based on any one capability.

Implementation Roadmap

Phase	Timeline	Key Activities	Responsible Team	Investment Direction	Expected Financial Impact	KPIs	Key Risks & Mitigation	Critical Success Factors
Phase 1: Planning	Months 1–3	Consumer research, AI design, product planning	Marketing, R&D, Digital	Moderate: research and AI infrastructure	Establish capability; no immediate revenue expected	Prototype approved; data integration	Weak insights → market testing	Accurate research
Phase 2: Implementation	Months 4–8	Launch products, AI personalisation, retail rollout	Marketing, Dong Suh Foods, Sales	High: product development and marketing	Incremental RTD revenue; target 10% sales growth	4 products; 20% repeat/Rewards growth	Slow adoption → targeted campaigns	Retail execution
Phase 3: Evaluation	Months 9–12	Optimise campaigns and products	Management, Analytics	Moderate: optimisation	Margin improvement through efficiency; target 3%	90% satisfaction; 98% availability	Competitor response → rapid innovation	Data-driven decisions

Table 9: Implementation Roadmap for Starbucks RTD Coffee Strategy in South Korea (Author)

Resource Allocation, Financial Feasibility and Control

The implementation should be prioritized into investment in AI infrastructure, product development, and targeted marketing, and investment should be released gradually instead of investment in full quantity at once. The exact ROI cannot be calculated, as there are no details of the project-level costs or the RTD revenue generated by Starbucks in South Korea. Rather, management should define the thresholds for the effectiveness of its investments as being 10% annual sales growth and 3% margin gains. The extension of Phase 2 should be pursued only after a successful pilot program proves that there is a significant consumer demand and KPI performance. This progressive process reduces risk and directly connects spending to tangible business results. But there is a need for collaboration between Starbucks, Dong Suh Foods, and retailers, because something could go wrong, resulting in higher expenses but not the necessary increase in sales.

Risks and Mitigation

There are a number of interrelated risks to the proposed strategy. The implementation of technology can also be sub-optimal as consumers may not be interested in AI personalisation, so Starbucks should conduct trial campaigns with the rewards program before increasing investment. There could be competitive imitation from Cantata and Georgia Coffee, which would mean continuous product innovation. Risk exists when incremental RTD sales are not sufficient to cover the cost of AI and the cost of product development, incremental investment, and KPI-based funding can minimize the risk. Test consumer resistance to premium priced healthier products with pilot launches and targeted promotions. Coffee price fluctuations, exchange-rate pressures, and packaging costs finally may limit margins, making supplier diversification, and procurement efficiency necessary. These controls will directly contribute to the financial feasibility of the proposed strategy.

Conclusion

Currently, Starbucks has a solid strategic position in the south Korean Ready-to-Drink (RTD) coffee segment with its high brand image, wide distribution network with Dong Suh Foods, and loyal customers. But with the growth of competition from Cantata, Georgia Coffee, and other local brands, shifting consumer tastes, and growing costs, the company must build its brand beyond brand recognition. Thus, this report suggests the adoption of an AI-powered personalised RTD ecosystem, alongside product innovation, to improve customer engagement, aid in healthier product development and strengthen differentiation. This approach leverages Starbucks current resources and implements the changes identified as a response to the competitive pressures identified via the analysis. With the incorporation of innovation, digital ability, responsible business, and continuous product development, Starbucks will be well-positioned for its premium market leadership and long-term competitive advantage in South Korea's ever-changing RTD coffee arena.

Section 2

Reflective Account Using Gibbs' Reflective Cycle

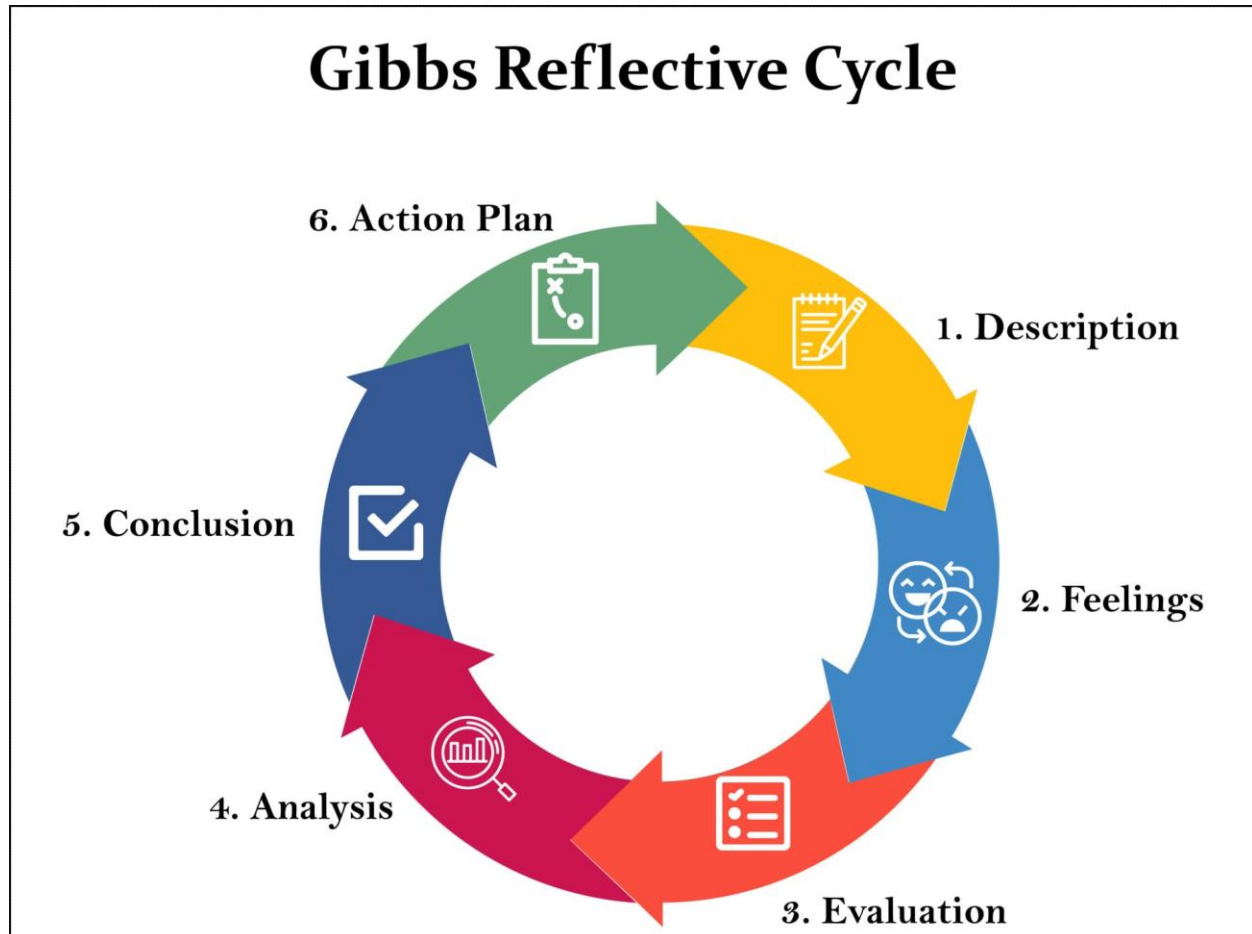


Figure 13: Gibbs Cycle (Lin et al., 2024)

Description

The overall purpose of this consultancy report was to assess the strategic position of Starbucks Ready-to-Drink (RTD) coffee in South Korea and to provide recommendations for the long-term enhancement of its competitive position. The analysis used the PESTEL, Porter's Five Forces, VRIO, SWOT, Carroll's CSR Pyramid, Balanced Scorecard, Porter's Generic Strategies, Ansoff Matrix and SAFe to analyse the internal and external aspects of Starbucks. The last recommendation was an artificial-intelligence based personalised RTD ecosystem along with offering high quality

product innovation, which was aligned with Starbucks' strategic capabilities and shifting consumer preferences in South Korea.

Feelings

When I started this consultancy project, I had an understanding of the strategic frameworks that I've learned in the previous modules, but I didn't feel confident using them as a critical lens to view a real organisation. At first, I struggled to relate theory and models to actual, existing industry evidence, and to refrain from the descriptive writing. As I continue the report, I felt more confident in choosing relevant information and making links between findings in sections of the report. This process helped build my confidence to analyse strategically and make recommendations, not in an academic essay but in a consultancy style.

Evaluation

A major advantage of this project was the exploration of the synergies that exist between various strategic frameworks. The opportunities from the PESTEL analysis were added to the SWOT analysis and then used to support the strategic recommendation. Similarly, the VRIO analysis revealed that Starbucks' high-end brand, their cooperation with Dong Suh Foods in distributing and selling their products, and their global supply chain were the ones that constitute their competitive advantages, and were subsequently transformed into measurable objectives in the Balanced Scorecard. This gave a logical and consistent development of the report.

The biggest hurdle was the scarcity of evidence of Starbucks's RTD coffee business in South Korea in general. Starbucks's packaged coffee products were the subject of a lot of the information available, much of which concentrated on its café business.

Therefore, I had to go through multiple academic and industry resources to find evidence that was relevant to the chosen market. Another challenge was keeping in a critical approach.

Analysis

This project illustrated that in order to be successful, a consultancy effort must be guided by evidence rather than by examining the evidence for each separate framework. However, the Five Forces analysis revealed that the market for RTD coffee in South Korea was less profitable because of the high level of rivalry, buyer power, and several substitutes. Then, using the VRIO analysis, it was found that the most important resources that Starbucks has are premium brand, nationwide distribution system, and its global supply chain. These findings supported the recommendation of the use of an AI-based personalised RTD ecosystem with premium product development over a price-based approach.

An additional benefit of the project was the enhancement of my research and analytical abilities. I understood that I needed to use evidence that was current and specific to the organisation to support the recommendations because general information would diminish the strength of the recommendations. My understanding of how strategic recommendations can be turned into measurable objectives, realistic targets, and practical initiatives has also been enhanced through the development of the Balanced Scorecard. This experience indicated that there is a positive advantage in the consultancy report in terms of clarity of implementation recommendations, not just highlighting organisational issues.

Action Plan

This project identified many opportunities for development within the project. First, I'll collect academic and industry evidence earlier to have more time to assess the quality and relevance of sources. Second, I will enhance interpretation skills of industry reports and market data, to ensure future recommendations are supported with more robust quantitative data. Third, I will develop my consultancy writing skills by being more critical and not only descriptive, and by making the strategic frameworks more connected to each other. Finally, I will improve my professional communication and presentation capabilities in order to be able to present and communicate complex strategic recommendations to managers and other stakeholders. These improvements will

strengthen my future consultancy work and prepare me to analyse more complex business environments with greater confidence and accuracy.

References

- Amin, A.M. and Wijaya, J. (2024). Brand trust, celebrity endorser, and product bundling on purchasing interest and its impact on decisions to purchase starbucks drink at Pekanbaru. *Interconnection: An economic perspective horizon*, 1(4), pp.181–197. doi: <https://10.61230/interconnection.v1i4.69>
- Cho, S., Jeong, Y.-S. and Huh, J.-H. (2025). Is south korea's 2050 Carbon-Neutral scenario sufficient for meeting greenhouse gas emissions reduction goal? *Energy for sustainable development*, 80, p.101447. doi: <https://10.1016/j.esd.2024.101447>
- Choi, S. and Choi, T. (2026). A study on the store opening strategies of Major coffee shop brands in Seoul, korea. *Springer proceedings in Business and economics*, pp.1585–1596. doi: https://10.1007/978-981-95-6415-6_98
- Curran, N.M. and Chesnut, M. (2026). Single origin coffee and dual distinction: Coffee shops in contemporary south korea. *Research handbook on the sociology of consumption*, pp.332–340. doi: <https://10.4337/9781035310517.00044>
- Curran, N.M., Istad, F. and Chesnut, M. (2025). Standing out and fitting in: Korean coffee entrepreneurs' strategies for survival. *Food, culture, & society/Food, culture and society*, pp.1–20. doi: <https://10.1080/15528014.2023.2286725>
- Etumnu, C. and Volpe, R. (2024). *Measuring brand equity on amazon.com: The case of Starbucks*.
- Ji, Y., Lee, W.S. and Moon, J. (2023). Café food safety and its impacts on intention to Reuse and switch cafés during the covid-19 pandemic: The case of Starbucks. *International journal of Environmental research and public health*, 20(3), p.2625. doi: <https://10.3390/ijerph20032625>
- Jo, M., Ochieng, H.K. and Kim, J. (2023). Why are you turning a blind eye to Fair trade coffee?—Focused on the comparison between korea and Africa. *Sustainability*, 14(24), p.17033. doi: <https://10.3390/su142417033>

Ko, J.-H. and Jeon, H.-M. (2024). The impact of Eco-Friendly practices on generation z's green image, brand attachment, brand advocacy, and brand loyalty in Coffee shop. *Sustainability*, 16(8), pp.3126–3126. doi: <https://doi.org/10.3390/su16083126>

Ko, T., Lee, J., Park, D. and Ryu, D. (2023). Supply chain transparency as a signal of Ethical production. *Managerial and decision economics*, 44(3). doi: <https://10.1002/mde.3765>

Kwon, A.-M. and Namkung, Y. (2023). The impact of the perceived values of Social network services (SNSs) on brand attitude and Value-Co-Creation behavior in the coffee industry. *Sustainability*, 14(9), p.5425. doi: <https://10.3390/su14095425>

Lee, H.-J. (2022). A study on the effect of customer habits on revisit intention focusing on franchise coffee shops. *Information*, 13(2), p.86. doi: <https://10.3390/info13020086>

Lee, S., Kang, B. and Yoo, S.H. (2025). Resilient and sustainable restaurant supply chain operations considering Multi-Brand strategies. *Systems*, 13(12), p.1101. doi: <https://10.3390/systems13121101>

Lin, F., Ryu, K., Lee, Y.-K. and Ali, F. (2024). Understanding the importance of café portable cup design and environmental concerns on green on-the-go consumption: A comparative study of gender. *Journal of Travel & tourism marketing*, 41(9), pp.1262–1279. doi: <https://10.1080/10548408.2024.2425101>

Moon, J., Song, M., Lee, W.S. and Shim, J.M. (2022). Structural relationship between food quality, usefulness, ease of use, convenience, brand trust and willingness to pay: The case of Starbucks. *British food journal*, 125(1). doi: <https://10.1108/bfj-07-2021-0772>

Moon, J., Tang, R. and Lee, W.S. (2023). Antecedents and consequences of Starbucks' environmental, social and governance (ESG) implementation. *Journal of Quality assurance in Hospitality & tourism*, 24(5), pp.1–23. doi: <https://10.1080/1528008x.2022.2070818>

Muharman, D. and Felicia, M. (2023). Collaboration of Starbucks and blackpink to Increase purchase intention. *Mimbar*, pp.409–418. doi: <https://10.29313/mimbar.v39i2.3442>

Park, E.H., Jeon, E.B., Roy, P.K., Park, S.-H. and Park, S.Y. (2024). Quality characteristics and antioxidant activity of the korean traditional rice-oat wine “makgeolli” supplemented with green seaweed codium fragile. *Heliyon*, 10(20), p.e39348. doi: <https://10.1016/j.heliyon.2024.e39348>

Park, K. and Jang, S.S. (2023). Do coffee chains have strategic superiority? An examination of the intra-regional and size strategies of coffee chains. *International journal of Hospitality management*, 105, p.103254. doi: <https://10.1016/j.ijhm.2022.103254>

Park, S., Hwang, I.S., Yoon, G., Lim, M., Park, M.K., Oh, J. and Kwak, H.S. (2025). Do you drink coffee, or brand? Brand effect on consumers’ liking and emotional responses to Instant coffee among korean consumers. *Journal of Sensory studies*, 40(1). doi: <https://10.1111/joss.70022>

Pascarina, P.A., Hartanto, L.C., Teguh, M., Elvina, F.A. and Hutasoit, T.O. (2025). Promoting boycotted product: Audience’s reception analysis K-Pop celebrities’ soft promotion for Starbucks. *Mediator: Jurnal komunikasi*, 18(1), pp.103–112. doi: <https://10.29313/mediator.v18i1.3527>

Petrova, A., Karintseva, O., Tarasenko, S. and Wojciech, H. (2024). Business ethical aspects for sustainability: Contemporary analysis and assessment. doi: <https://http://www.prostir.pdaba.dp.ua/index.php/journal/article/view/1479>

Salsabela, I. and Nofianto, W. (2026). Critical literature review: Stability links upstream production operations with global coffee retail supply chain performance. *SSRN Electronic Journal*. doi: <https://10.2139/ssrn.5910542>

Senadheera, S.S., Senanayake, M., Gao, J., Lyu, H., Yuan, X., Hwang, S.Y. and Ok, Y.S. (2026). Scaling biodegradable plastics for a nature-positive future. *NPG asia materials*. doi: <https://10.1038/s41427-026-00656-5>

Setiana, E., Kurniawan, A.P. and Nihayatussaliahah, N. (2026). Service quality on customer loyalty in Global marketing: A qualitative study of Starbucks' global strategy. *Journal of Sharia economics scholar (JoSES)*, 4(1), pp.187–198. doi: <https://10.5281/zenodo.20587535>

Sorathiya, S. and Bhatt, H. (2026). A comprehensive guide to South Korea's food regulation. *Nutraceuticals*, pp.243–270. doi: <https://10.1201/9781003465041-15>

Starbucks (2026). *Starbucks South Korea: About*. [online] www.starbucks.co.kr. Available at: <https://www.starbucks.co.kr/index.do>

Statista (2025). *South Korea: Total coffee consumption 2025* | statista. [online] Statista. Available at: <https://www.statista.com/statistics/314992/south-korea-total-coffee-consumption/?srsltid=afmboopr-fe40aqwegscvpfwbfjgdimtc45h455qpvigmk3zrvl2biro>

Statista (2026). *Ready-to-Drink (RTD) coffee - south Korea | market forecast*. [online] Statista. Available at: <https://www.statista.com/outlook/cmo/non-alcoholic-drinks/ready-to-drink-rtd-coffee-tea/ready-to-drink-rtd-coffee/south-korea?srsltid=afmbooqjko8ubpz8phdgz1dggczhc5wmfdo0efjyf-upbmss3zmcue-l>

The World Bank (2025). *GDP growth (annual %) | data*. [online] Worldbank.org. Available at: <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=KR>

Widarto, S.G. and Utama, I.D. (2025). Analyzing the role of Mobile applications and loyalty programs in Enhancing customer loyalty. *2025 10Th international conference on information and communication technology for the muslim world (ICT4M)*, pp.1–6. doi: <https://10.1109/ict4m68001.2025.11363513>

World Bank (2026). *Individuals using the internet (% of population) - Korea, Rep. | data*. [online] data.worldbank.org. Available at: <https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=KR>

Yang, W. (2024). Starbucks deep brew AI solution effect on Long-Term strategy implementation. *SSRN electronic journal*. doi: <https://10.2139/ssrn.4987473>

Yoon, G., Kwak, H.S., Heo, J. and Lee, Y. (2023). Comparison of conventional and consumer-based sensory profiling methods for ready-to-drink coffee beverages. *Journal of Sensory studies*. doi: <https://10.1111/joss.12839>