1.0 Company Overview

1.1 Company Background

Walgreens Boots Alliance (WBA), the parent company of Boots UK, has been navigating significant strategic and financial challenges in recent years. Despite efforts to streamline operations and invest in digital transformation, WBA has faced declining margins, competitive pressure in both its US and UK markets, and mounting debt. Leading to WBA planning on being acquired by Sycamore Partners, a private equity firm specializing in retail investments. While these challenges are global in scope, this report focuses specifically on Boots UK, a distinct and recognisable high street brand. By narrowing the scope to Boots, the report delivers concrete, actionable solutions grounded in the UK retail and pharmacy context, where data analytics can play a pivotal role in addressing operational inefficiencies, improving customer retention, and strengthening the company's competitive position.

1.2 Business Model Canvas

Boots UK generates revenue primarily through the sale of health and beauty products, prescription medications, and the provision of pharmacy and healthcare services. Its core offerings include retail items (e.g. cosmetics, skincare, wellness), NHS prescription fulfilment, and in-store clinical services such as vaccinations and health checks. These are delivered through a nationwide network of physical stores, the Boots.com e-commerce platform, and partnerships with the NHS and third-party suppliers. Boots' approach toward value establishment can be found in the Appendix

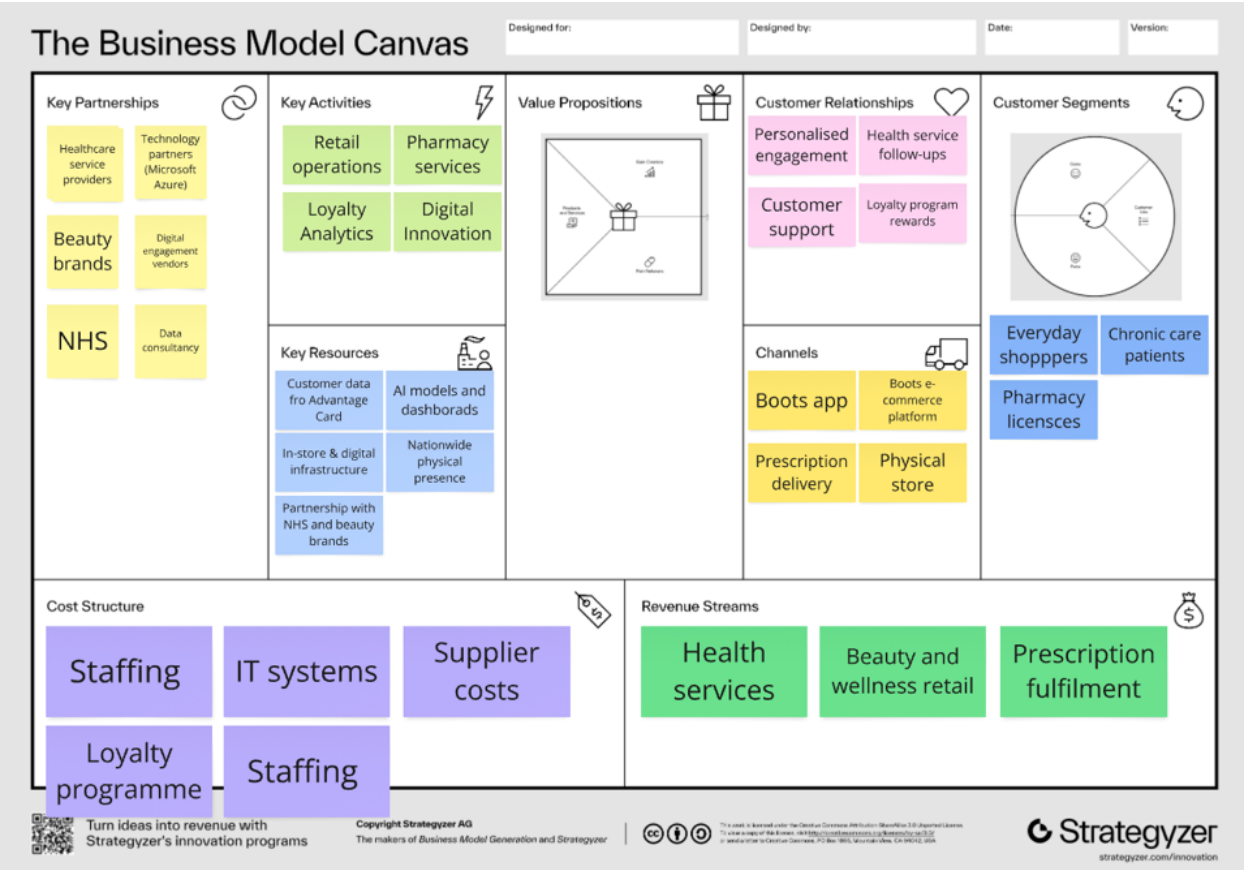

Figure 1.0 Business Model Canvas

2.0 Issues & Challenges

In recent years, Boots UK has lost market share to emerging competitors such as Superdrug, Amazon, and other agile health and beauty retailers. This decline is largely due to rising consumer expectations, operational inefficiencies, and underutilisation of Boots' vast customer and health data. These challenges, along with actionable, data-driven solutions, will be outlined in the following sections.

Issues	Evidence
1 .Operational Inefficiencies in Store and Pharmacy Networks	• Frequent stockouts and overstocking in various store locations (Su et al., 2024) • Pharmacy bottlenecks impacting service delivery • Sentiment analysis (Zhan et al., 2021) found ~ 20% of complaints relate to long wait times • Legacy IT systems and siloed infrastructure hamper coordination, Moon et al., (2011) mentions poor or a loose co-ordination between systems
2. Underutilisation of Loyalty and Health Data for Engagement	• Advantage Card and pharmacy data not fully leveraged for personalisation (Car et al., 2017) • Low app engagement and loyalty programme uptake (Greenwood and Ingram, 2018) • Boots' Advantage Card has 17M active customers, covering 50% of transactions, but data is underutilised

2.1 Operational Inefficiencies in Store and Pharmacy Networks

Problem: Boots' extensive high-street presence with over 2,000 stores (Markey, 2022) has traditionally supported easy access to pharmacy and wellness services. However, the scale of this network now exposes persistent operational inefficiencies. Zhan et al. (2021), carried out a sentiment analysis of negative Boots reviews on social media and found just approximately 20% of complaint were caused by prolonged waiting times. These issues are particularly detrimental for chronic care patients who rely on timely, dependable access to medications. Legacy stock management systems, reactive staffing models, and siloed digital infrastructure contribute to this friction. As consumer expectations shift toward Amazon-like fulfilment speeds (Deloitte, 2022), these inefficiencies threaten both revenue and brand trust.

Solution:

1. **AI-Driven Inventory Optimisation:** Boots should deploy machine learning to forecast demand at the store level using variables such as prescription trends, seasonality, and demographics. These predictive models can automate stock adjustments, reducing both stockouts and surplus. Walgreens and CVS achieved 20–30% reductions in stockouts through similar systems (McKinsey, 2021). Boots can enhance forecasts by incorporating NHS data (e.g., flu jab appointments) and external signals like weather, which influence spikes in product demand.
2. **Workforce Analytics for Smart Staffing:** Pharmacy bottlenecks often result from inflexible staffing. Boots should apply predictive analytics to align workforce levels with expected demand, using inputs such as historical footfall and prescription volume. Walmart's adoption of similar scheduling tools led

to a 17% gain in labour productivity (Accenture, 2023). By dynamically allocating staff, Boots can improve service speed, reduce wait times, and maintain a consistent customer experience across its store network.

3. **Digitisation of Prescription Workflows:** Boots must replace siloed prescription systems with a fully integrated digital platform covering intake, fulfilment, and pickup. Customers would benefit from real-time status updates and app-based notifications, similar to Amazon's PillPack service (Statista, 2023). Connecting this system with NHS infrastructure would streamline authentication, reduce manual errors, and enable faster service delivery. For Boots, this also improves operational visibility, making it easier to track performance and identify pain points in the fulfilment process.

Impact: Operational transformation would deliver significant commercial and experiential value. Faster, more reliable fulfilment would improve patient outcomes and customer satisfaction. Inventory optimisation would reduce capital tied up in unsold stock, while predictive staffing would boost labour productivity. Operational KPIs such as average prescription turnaround time, out-of-stock rate, and per-store labour efficiency can be used to measure success. Ultimately, these improvements would enable scalable service delivery and prepare Boots for increasing competition in omnichannel health retail.

2.2 Underutilisation of Loyalty and Health Data for Engagement

Problem: The COVID-19 pandemic accelerated the shift in consumer behaviour towards digital channels—an area where Boots has historically lagged. While Boots' strength has long been its high-street presence with over 2,000 UK stores, reduced footfall during the pandemic exposed its limited digital capabilities. Unlike competitors, Boots had not positioned e-commerce as a primary revenue driver. Meanwhile, Amazon gained significant ground in health and beauty, leveraging its fulfilment speed, pricing, and convenience. To stay competitive, Boots must accelerate its digital transformation by integrating pharmacy and retail data and enhancing personalisation across online platforms—especially through its Advantage Card programme.

Solution:

1. **Customer Segmentation Models:** Using unsupervised machine learning (e.g., K-means clustering), Boots can segment users based on prescription history, basket composition, browsing behaviour, and in-store activity. These segments allow for differentiated messaging and product targeting across cohorts (e.g., health-focused vs. beauty-oriented users), improving engagement and offer relevance.
2. **Predictive Churn Models:** Classification algorithms like Random Forest or XGBoost can identify at-risk customers based on declining Advantage Card use, reduced purchase frequency, and missed redemptions. This enables Boots to proactively deploy re-engagement campaigns—e.g., time-limited offers or tailored wellness tips—to retain high-value customers before they defect to competitors.

3. **Real-Time Recommendation Engines**: Using tools like Google Recommendations AI, Boots can deliver hyper-personalised product suggestions across its app, website, and email channels. These systems adapt in real-time to user behaviour, mimicking the experience offered by digital leaders like Amazon (Joseph et al., 2025), and increasing relevance and conversion.

Impact: AO would improve key commercial metrics: personalised cross-selling would increase Average Order Value (AOV); churn mitigation would enhance Customer Lifetime Value (CLV); and better-targeted campaigns would drive up Click-Through Rates (CTR). While CTR offers insight into immediate engagement, AOV gauges upselling effectiveness, and CLV captures spend, retention, and frequency. Beyond metrics, Boots would gain a competitive edge by optimising customer equity (Zhou et al)., through a more intelligent digital ecosystem, enabling it to defend its market share against digital marketplaces rivals like Amazon whilst creating value-driven customer relationships.

3.0 Proposed Action Plan

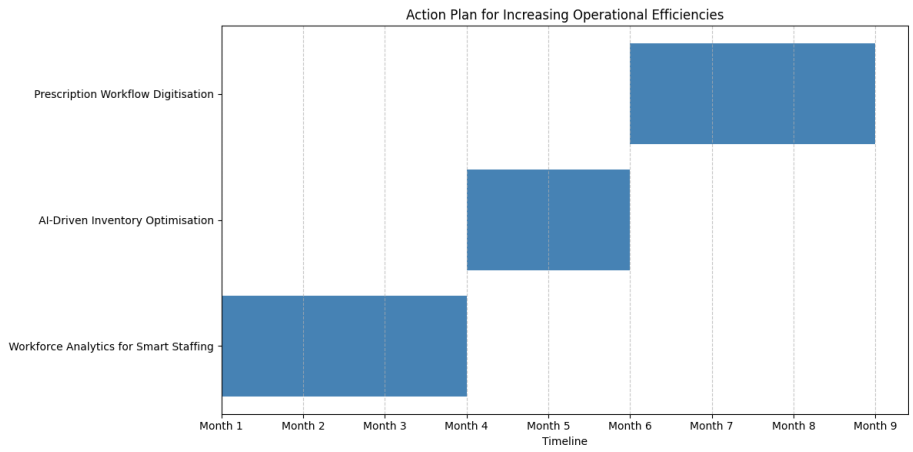

Figure 3.0 Operational Inefficiencies in Store and Pharmacy Networks

Task	Action	Resources
Workforce Analytics for Smart Staffing	Implement predictive staffing models based on footfall and health demand patterns.	Footfall data, prescription volume data, NHS campaign calendar, data science team.
AI-Driven Inventory Optimisation	Develop demand forecasting models and automate local stock ordering systems.	Historical sales data, prescription trends, external signals (weather, NHS data), AI/ML tools.
Prescription Workflow Digitisation	Build a digital prescription lifecycle platform integrated with the Boots app.	Software developers, NHS API access, user experience designers, patient usage data.

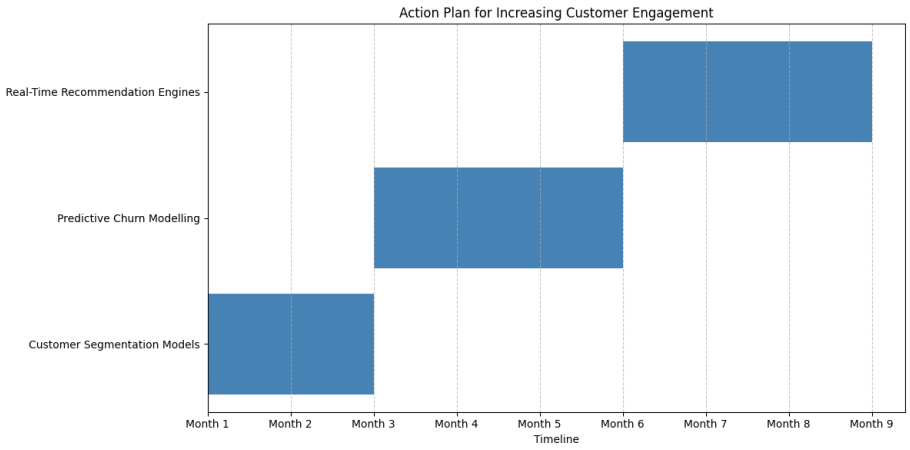

Figure 3.1 Underutilisation of Loyalty and Health Data for Engagement

Task	Action	Resources
Customer Segmentation Models	Use unsupervised learning to cluster customers based on behavioural and transactional data.	Advantage Card data, purchase logs, prescription records, ML engineers.
Predictive Churn Modelling	Train classification models to identify high-risk churn segments and auto-trigger personalised retention campaigns.	Customer engagement data, data science team, marketing automation tools.
Real-time Recommendation Engines	Deploy real-time recommendation systems using AI to personalise user experiences across digital channels.	App and web behavioural data, Google Recommendations AI, cloud infrastructure.

4.0 Conclusion

Boots UK must address two core challenges—inefficiencies in store and pharmacy operations, and underuse of customer and health data—to remain competitive in the digital retail healthcare space. This report outlines a data-driven transformation strategy based on proven analytical methods and industry standards. Operational improvements require AI-driven demand forecasting and adaptive labour scheduling, using inputs like prescription trends, footfall, and external signals (e.g. weather, NHS campaigns). These models should integrate with Boots' EPOS and inventory systems to automate stock replenishment and match staffing to demand, reducing fulfilment delays and inventory imbalances.

To enhance engagement, Boots should deploy machine learning–based segmentation, churn prediction, and recommendation systems within the Advantage Card ecosystem. Tools like Google Recommendations AI and XGBoost can analyse real-time behaviour to deliver personalised offers across digital channels. Performance should be measured using clear KPIs: stock accuracy, labour cost per transaction, AOV, CLV, and churn rate. A phased rollout with pilot testing and model refinement will ensure effective implementation. With rich datasets and a large customer base, Boots is well-positioned to integrate cloud-based analytics into core operations—driving efficiency, improving retention, and sustaining its position in the UK pharmacy-led retail market.

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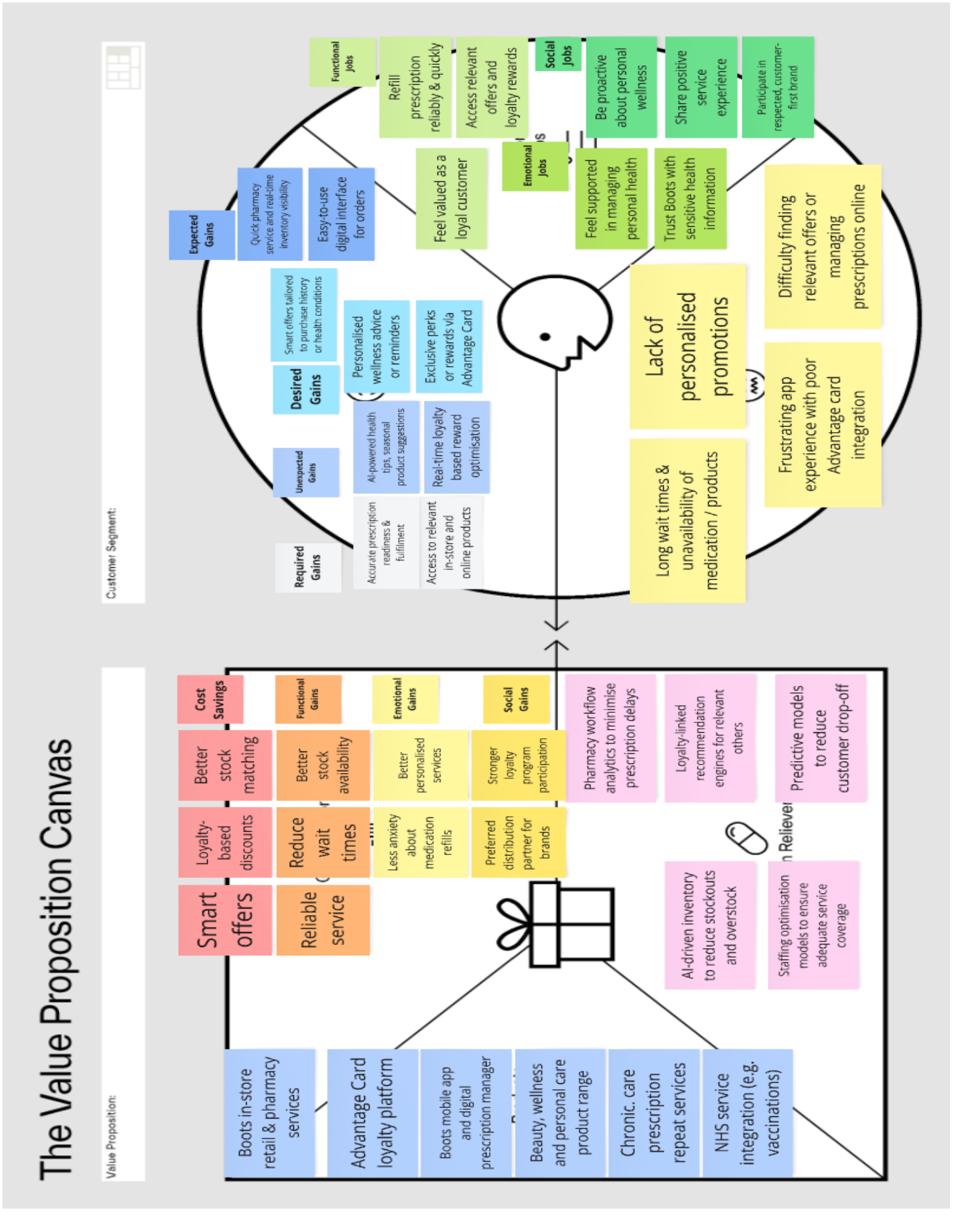
5.0 Appendix


The Value Proposition Canvas
Value Proposition:
Customer Segment:
Boots in-store retail & pharmacy services
Advantage Card loyalty platform
Boots mobile app and digital prescription manager
Beauty, wellness and personal care product range
Chronic. care prescription repeat services
NHS service integration (e.g. vaccinations)
Smart offers
Reliable service
Loyalty-based discounts
Reduce wait times
Better stock matching
Better stock availability
Less anxiety about medication refills
Better personalised services
Preferred distribution partner for brands
Stronger loyalty program participation
Cost Savings
Functional Gains
Emotional Gains
Social Gains
Pharmacy workflow analytics to minimise prescription delays
Loyalty-linked recommendation engines for relevant others
Predictive models to reduce customer drop-off
AI-driven inventory to reduce stockouts and overstock
Staffing optimisation models to ensure adequate service coverage
Reliever
Expected Gains
Quick pharmacy service and real-time inventory visibility
Easy-to-use digital interface for orders
Desired Gains
Smart offers tailored to purchase history or health conditions
Personalised wellness advice or reminders
Exclusive perks or rewards via Advantage Card
Unexpected Gains
AI-powered health tips, seasonal product suggestions
Real-time loyalty based reward optimisation
Required Gains
Accurate prescription readiness & fulfilment
Access to relevant in-store and online products
Functional Jobs
Refill prescription reliably & quickly
Access relevant offers and loyalty rewards
Social Jobs
Be proactive about personal wellness
Share positive service experience
Participate in respected, customer-first brand
Emotional Jobs
Feel valued as a loyal customer
Feel supported in managing personal health
Trust Boots with sensitive health information
Lack of personalised promotions
Long wait times & unavailability of medication / products
Difficulty finding relevant offers or managing prescriptions online
Frustrating app experience with poor Advantage card integration