

Assignment:

Recommendation for Walmart



Image Generated by Dalle-E 2 from chat GPT

Prepared for

Kalis Ahmed

Prepared by Group 6

Valentine Jingwa, Jean-Pierre Nde-Forgwang, Jonah Scott, Ryel

Rapada

Security System, Cohort E

School of Advance Digital Technology

SAIT

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Introduction

History

- Walmart's journey began with a single store in Rogers, Arkansas, in 1962. Founded by Sam Walton, it was built on the simple idea of offering more for less. With relentless focus on efficiency and cost-cutting, Walmart revolutionized retail by scaling its model across the United States and then globally, becoming the world's largest retailer. As of the end of the 2020s, Walmart operates over 11,300 stores under 58 banners in 27 countries and eCommerce websites, employing over 2.2 million associates worldwide.[2]
- Throughout its history, Walmart has been a pioneer in supply chain management and technological innovation, implementing universal bar codes in the 1980s and launching one of the earliest large-scale satellite communication systems in 1987 to link all operations of the company together. Despite its physical store success, Walmart has faced challenges in the digital era, navigating the shift to online retailing and integrating its massive inventory with a seamless online customer experience.[2]

Line of Business

- Walmart serves millions of customers each week in its stores and online with its wide range of merchandise, including groceries, apparel, electronics, and home goods. Beyond retail, Walmart has also expanded into pharmacy services, financial services, and digital entertainment. Walmart's e-commerce operations are a critical area of focus, aiming to provide customers with convenient access to its offerings, anytime and anywhere.

Business Gap

Bridging the Digital-Physical Divide

- While Walmart has excelled in physical retail, its digital platforms (app and website) have not kept pace with modern user expectations or the capabilities of its competitors. Specific areas of concern include user interface design, personalization of shopping experiences, integration of in-store inventory and offers, and the functionality of its mobile applications. This gap has potential repercussions on Walmart's ability to compete effectively in the e-commerce domain.
- *Reasons:* The digital-physical divide was selected due to its significant impact on customer loyalty, brand perception, and sales in the digital age. Addressing this gap is critical as online shopping continues to grow, and customer expectations for seamless, omnichannel experiences increase.

How we Identified the gap

- The gap was identified through a combination of customer feedback analysis, competitive benchmarking, and internal reviews of digital strategy. The use of models such as the SWOT analysis and the Service Quality Gap Model helped pinpoint specific areas for improvement.

Customer Feedback Examples (from Play Store)

Below are the customer reviews which could be accessed publicly on Play Store. [1]

- *"The app is clunky and makes shopping difficult," "Inventory is often incorrect, leading to wasted trips," and "Offers and discounts are hard to find and not personalized."*
- *"Very unreliable delivery service. In my experience, 4/5 times, one or multiple items will be missing, and delivery is consistently at least an hour past the selected window. Not to mention, they send out reusable bags with no opt-out option. So you end up with hundreds of these things. The call centre is fairly quick but tedious when you are calling on almost every order to request refunds."*
- *"They charged me again for the products that were out of stock. I would not recommend ordering through this app. Customer service is the worst. Go with Instacart. It's cheaper."*
- *"Well, I didn't think the app could get worse and it did. I have to sift through 3rd party sellers while trying to buy my groceries and it's super inconvenient. Yes, you can filter them out but you have to do it for every single search. Also, there are still a lot of glitches and*

items not categorized properly. I'm just trying to buy my groceries and I don't want a \$3 item from China that costs \$50 to ship."

- *"Great system but the catalogue doesn't reflect what is actually in stock. I had made up an order and was upset to see that everything I ordered on the regular was showing "out of stock". I physically went into the same store and found all the items that were listed as unavailable."*

Customer Review Analysis

- Key challenges include a cumbersome user interface that complicates the shopping process, inventory inaccuracies that lead to unproductive trips, and poorly executed personalization in offers and discounts. Additionally, the reliability of Walmart's delivery service has been brought into question with frequent reports of missing items, delayed deliveries, and an overabundance of reusable bags that customers find inconvenient and wasteful. Complaints regarding billing errors, such as being charged for out-of-stock items, and the difficulty in navigating through third-party sellers add to the customer's frustration. Furthermore, the app's catalog often does not reflect the actual in-stock items, leading to customer dissatisfaction.

To address these issues, the implementation of several key technologies could be considered:

Impact

Direct Impacts

- Decreased app usability and customer satisfaction, leading to lost sales and reduced digital engagement.

Indirect Impacts

- Erosion of Walmart's competitive edge, weakening brand loyalty among digitally-savvy consumers, and increased operational inefficiencies.

Business Gap Analysis Table

Gap Aspect	Description	Impact Analysis
App Usability	Users find the app difficult to navigate.	Direct loss in sales; increased customer churn.
Inventory Sync	Discrepancies between online and in-store stock	Wasted customer trips; dissatisfaction.
Personalization	Lack of tailored recommendations and offers.	Missed opportunities for sales; poor engagement.
Offers Visibility	Hard to find and not localized offers.	Decreased usage of deals; lower in-store traffic.

Evaluation Tool

Description of the Evaluation Tool

- The evaluation tool is a comprehensive matrix designed to assess the potential impact of emerging technologies on Walmart's digital transformation. It rates each technology against criteria critical to retail success, such as efficiency improvement, targeting accuracy, analytical depth, cost-effectiveness, and system integration compatibility.

Development of the Evaluation Tool

- Our interdisciplinary team developed the evaluation tool by drawing from industry best practices, academic research, and our expertise in retail technology. To create a

balanced and robust tool, we engaged in a series of brainstorming sessions to identify the key criteria that would impact Walmart's digital platform performance. We then assigned weights to each criterion based on its relative importance to Walmart's operational objectives.

- To test the tool, we conducted a pilot study using historical data and case studies of similar retail technology implementations. The tool underwent several trials with different technology options to ensure consistency and reliability in the results it produced.

Iterations

- The initial version of the tool was heavily skewed towards cost implications, which undervalued the importance of customer experience enhancements. After reviewing the outcomes of several mock evaluations, we adjusted the weights to better reflect Walmart's strategic focus on customer-centric innovation. We also refined the scoring system to allow for more nuanced distinctions between the performances of different technologies.

Confidence in the Evaluation Tool

- We are confident that this tool provides an objective, balanced, and thorough evaluation of emerging technologies. It has been designed to minimize biases and focus on tangible outcomes, ensuring fair and unbiased results that can guide strategic decision-making.

Emerging Technologies

Definition of Emerging Technologies

Emerging technologies

- These are defined as innovations that are on the brink of commercialization or have just entered the market but have not yet been widely adopted. These technologies have the potential to fundamentally change business and social landscapes.

Candidate emerging technologies

- These are identified as potentially useful for a specific purpose—in this case, for closing the gap in Walmart's digital services. They are the subset of emerging technologies that are applicable and have shown promise in preliminary evaluations.

Sources of Candidate Technologies

- Our team sourced candidate technologies from academic journals, industry whitepapers, and market analysis reports. Among these, industry whitepapers and expert consultations were particularly insightful, offering the most up-to-date and applicable information.

Researched Candidates and key owners

Enhanced Artificial Intelligence (AI) and Machine Learning (ML): AI could drastically improve the personalization of deals and offers by analyzing customer purchase history and preferences. ML algorithms can predict stock levels more accurately, potentially reducing the frequency of incorrect inventory data.

Advanced Data Analytics: By employing advanced analytics, Walmart can gain real-time insights into inventory levels, ensuring that the app's catalogue is accurate and up-to-date. This would minimize customer complaints about stock inconsistencies.

Robust User Interface/User Experience (UI/UX) Design: A complete overhaul of the app's UI/UX design could simplify navigation, making shopping more intuitive. This includes streamlining the process of filtering out third-party sellers and ensuring that items are categorized correctly.

Blockchain for Supply Chain Transparency: Integrating blockchain technology could increase transparency in the supply chain, offering customers real-time information about product availability and origin, which can also aid in accurate inventory management.

Chatbots and Enhanced Customer Service: Chatbots powered by AI can offer quick and efficient customer service for common issues such as refunds, reducing the need for calls to customer service and improving overall customer experience.

Ethical Considerations

- In integrating emerging technologies, it is crucial to consider the ethical implications of their deployment to ensure that they align with societal norms and values. Below are ethical considerations for each candidate technology:

Enhanced Artificial Intelligence (AI) and Machine Learning (ML)

Data Privacy

- AI and ML systems require vast amounts of data, which can include sensitive customer information. There is a risk of misuse or breach of this data, leading to privacy violations.

Bias and Discrimination

- AI algorithms can inadvertently perpetuate biases if they are trained on skewed or non-representative data sets, leading to discriminatory outcomes.

Mitigation Strategies:

Data Privacy:

- Implement robust data encryption and anonymization techniques. Adopting privacy-by-design principles and complying with regulations such as GDPR can enhance data protection.

Bias and Discrimination

- Regularly audit algorithms for bias and ensure diverse and inclusive data sets for training. Establishing ethical guidelines for AI development can aid in this effort.

Advanced-Data Analytics

Information Accuracy

- Incorrect or misinterpreted data can lead to false insights, affecting business decisions and customer trust.

Data Monetization

- The temptation to monetize customer data can lead to ethical dilemmas about the commodification of personal information.

Mitigation Strategies

Information Accuracy

- Create protocols for data validation and cross-referencing with multiple sources to maintain accuracy.

Data Monetization

- Develop clear policies on data usage and customer consent, ensuring transparency in how data is utilized and avoiding the sale of data without explicit customer approval.

Robust User Interface/User Experience (UI/UX) Design

Accessibility

- Designing an app that is not accessible to users with disabilities could lead to exclusion and inequality.

User Autonomy

- Overly persuasive design could manipulate user choices and compromise autonomy.

Mitigation Strategies

Accessibility

- Adhere to the Web Content Accessibility Guidelines (WCAG) and involve users with disabilities in the design process.

User Autonomy

- Employ ethical design principles that respect user choices and clearly distinguish between paid promotions and organic content.

Blockchain for Supply Chain Transparency

Transparency vs. Privacy

- While blockchain can enhance transparency, it could also expose sensitive business information or customer data.

Energy Consumption

- The environmental impact of blockchain, particularly regarding energy consumption, is a concern for sustainable practices.

Mitigation Strategies:

Transparency vs. Privacy

- Develop permissioned blockchains that provide transparency while protecting sensitive information through controlled access.

Energy Consumption

- Utilize more energy-efficient blockchain protocols and invest in renewable energy sources for blockchain computations.

Chatbots and Enhanced Customer Service

Data Security

- As chatbots gather personal data to function effectively, they become targets for cyber-attacks.

Human Employment Impact

- The deployment of chatbots could potentially displace human workers, leading to job losses.

Mitigation Strategies

Data Security

- Implement stringent security measures, including regular security audits and adherence to cybersecurity best practices.

Human Employment Impact

- Re-skill and re-deploy displaced workers into roles that require human empathy and decision-making, ensuring technology complements human labor rather than replaces it.
- Each of these technologies has the potential to significantly enhance Walmart's operations and customer service. However, their successful implementation will require

more careful consideration of the associated ethical concerns and proactive measures to mitigate potential negative impacts.

Evaluation

	1	2	3	4	5	6	7	8	9	10
Feasibility (5%)	Significant technical barriers	–	–	–	–	–	–	–	–	Minimal operational disruption
Cost (15%)	Operational change	–	–	–	–	–	–	–	–	Under \$10 million (USD)
Impact Customer Satisfaction (40%)	Above \$1 Billion (USD)	–	–	–	–	–	–	–	–	Over 80% Increase in Customer Satisfaction
Supply Chain Transparency (20%)	Negligible	–	–	–	–	–	–	–	–	Complete Transparency
Integration Ease (15%)	No Improvements	–	–	–	–	–	–	–	–	Plug-and-Play
Scalability (5%)	Significant Compatibility Issues	–	–	–	–	–	–	–	–	Easy to Grow
	Not Scalable	–	–	–	–	–	–	–	–	

Walmart								Total Points	Final Calculation
	Weight %	Feasibility 5%	Cost 15%	Impact Customer Satisfaction 40%	Supply Chain Transparency 20%	Integration Ease 15%	Scalability 5%		
Enhance Chatbot	Points Obtained	8	7	5	9	6	10	45/60	6.65/10 66.5%
Machine Learning	Points Obtained	7	7	8	6	8	9	45/60	7.45 74.5%
Blockchain Technology	Points Obtained	8	6	9	8	7	9	47/60	8 80%

Results and Recommendations

- We recommend integrating three key technologies: Enhanced Chatbots, Machine Learning, and Blockchain. By combining these, we aim to improve customer satisfaction and increase transparency in the supply chain, ultimately boosting revenue and retaining customers for Walmart.
- Our analysis shows that Blockchain Technology performed the best, leading in all criteria with a score of 80%, indicating it provided the most effective results.

Conclusion/Summary

- In conclusion, by integrating Enhanced Chatbots, Machine Learning, and Blockchain, Walmart can significantly enhance customer satisfaction and supply chain transparency. This strategic technology integration is projected to increase revenue and customer retention, addressing the existing digital-physical divide and improving overall service delivery. Our findings highlight Blockchain Technology as particularly impactful, leading

in all evaluation criteria with an impressive 80% effectiveness score. This integrated approach promises a robust solution to Walmart's current challenges in digital customer engagement.

Glossary

Term/Word	Definition
Artificial Intelligence (AI)	Technology enabling machines to mimic human intelligence, involving tasks like decision-making and speech recognition.
Bias and Discrimination in AI	Inherent or learned bias in AI algorithms that can lead to unfair outcomes for certain user groups.
Blockchain	A system in which a record of transactions made in cryptocurrency or other data are maintained across several computers that are linked in a peer-to-peer network.
Chatbots	Automated programs that simulate interactive human conversation using pre-defined or machine learning algorithms.
Cybersecurity	Measures and technologies that are used to protect computers, networks, and data from unauthorized access, vulnerabilities, and attacks.
Data Encryption	The method of converting plaintext into secure encoded data that can only be read or processed after it's been decrypted.
Data Privacy	The aspect of information technology (IT) that deals with the ability an organization or individual has to determine what data in a computer system can be shared with third parties.

Digital-Physical Divide	The gap between digital capabilities and physical services within a business, often highlighting a disparity in customer experience between online and in-store interactions.
Emerging Technologies	New technologies that are currently developing or will be developed over the next five to ten years, and which will substantially alter the business and social environment.
GDPR (General Data Protection Regulation)	Regulation in EU law on data protection and privacy in the European Union and the European Economic Area, which also addresses the transfer of personal data outside the EU and EEA areas.
Inventory Sync	The process of ensuring that inventory data is consistent across multiple platforms and physical locations.
Machine Learning (ML)	A form of artificial intelligence (AI) that allows software applications to become more accurate in predicting outcomes without being explicitly programmed.
Personalization	The process of tailoring a service or product to accommodate specific individuals or segments of a broader market.
Privacy-by-Design	An approach to systems engineering which takes privacy into account throughout the whole engineering process.
Robust (in technology)	Referring to systems that are reliably operational under a variety of conditions or capable of handling a wide range of inputs without error.
SWOT Analysis	A strategic planning technique used to help identify Strengths, Weaknesses, Opportunities, and Threats associated with a project or in a business situation.

Supply Chain Transparency	The extent to which all stakeholders have a clear understanding of the parts, processes, and providers involved in the supply chain.
UI/UX Design	User Interface (UI) and User Experience (UX) design focuses on enhancing customer satisfaction and loyalty by improving the usability, ease of use, and pleasure provided in the interaction between the customer and the product.
Web Content Accessibility Guidelines (WCAG)	Part of a series of web accessibility guidelines published by the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C), the main international standards organization for the Internet.

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