

Project Report
On
Cart Abandonment Analysis: Identifying
Drop-Off Patterns and Recovery Strategies

Submitted By

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Certificate

This is to certify that the Major Project Report titled "Cart Abandonment Analysis: Identifying Drop-Off Patterns and Recovery Strategies" has been prepared by **Jyoti Roll No. 24/DMBA/105** under my supervision and guidance, in partial fulfilment of the requirements for the award of the degree of Master of Business Administration at Delhi School of Management, DTU.

To the best of my knowledge and belief, the work embodied in this report is original and has not been submitted for the award of any other degree or diploma to this or any other university or institution.

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Declaration

I, Jyoti, student of MBA (Marketing and Analytics), Roll No. 24/DMBA/105, hereby declare that the Major Project Report titled "Cart Abandonment: Identifying Drop-Off Patterns and Recovery Strategies" submitted to Delhi School of Management, DTU is an original work carried out by me under the supervision of Dr. Seema.

This report has not been submitted, in full or in part, to any other university or institution for the award of any degree or diploma. All sources of information have been duly acknowledged and cited in accordance with APA referencing guidelines. The primary data used in this report was collected through an original survey instrument designed for this study.

I understand that any act of plagiarism is a serious academic offence and I take full responsibility for the originality of the content presented herein.

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24/DMBA/105

26 May 2026

Acknowledgements

I would like to express my sincere gratitude to **Dr. Seema** for their continuous guidance, encouragement, and invaluable feedback throughout the duration of this project. Their insights into marketing analytics and consumer behaviour research shaped the direction of this study significantly.

I am grateful to Delhi School of Management, DTU for providing access to academic journals, databases, and research infrastructure that enabled thorough literature review and data analysis. I would also like to thank the faculty of the MBA department for building a strong foundation in marketing and analytics that directly informed this work.

My heartfelt thanks go to the 150 respondents who participated in the primary survey. Their honest responses formed the empirical backbone of this report.

Finally, I thank my family and peers for their moral support and encouragement throughout this journey.

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Abstract

Cart abandonment — the phenomenon where online shoppers add products to their digital cart but exit without completing the purchase — represents one of the most significant yet underutilised revenue opportunities in e-commerce. With global cart abandonment rates averaging 70–75% and India-specific rates ranging from 60–85% depending on category, the cumulative revenue loss runs into billions of dollars annually.

This study investigates cart abandonment from two complementary angles: identifying where and why drop-offs occur across the purchase funnel, and evaluating the effectiveness of various recovery strategies deployed post-abandonment. Primary data was collected through a structured survey of 150 online shoppers across Indian metro and Tier-2 cities, supplemented by secondary data from Baymard Institute, Statista, Unicommerce, IAMAI, Klaviyo, and peer-reviewed academic literature.

Key findings reveal that high shipping costs, price comparison behaviour, complicated checkout processes, and the absence of preferred payment methods — particularly Cash on Delivery and EMI options — are the primary abandonment triggers in the Indian market. The study also identifies that 73% of respondents shop via mobile devices, yet mobile has a disproportionately high abandonment rate, pointing to significant UX friction in mobile checkout flows. Factor analysis grouped abandonment reasons into three clusters: Cost Friction, Process Friction, and Trust and Readiness factors.

On the recovery side, personalised email campaigns with a discount incentive emerged as the most effective touchpoint (52% recovery rate), followed closely by WhatsApp reminders (44%) — a finding that reflects India's WhatsApp-first communication culture and has significant implications for D2C brand strategy. Recovery probability drops sharply after 72 hours, validating the industry-standard three-email sequence.

The study concludes with the STAR Framework — Segment, Target, Act, refine — a structured, four-step approach to abandonment recovery that emphasises behavioural segmentation before recovery action, helping brands maximise ROI on their retention marketing spend. Practical recommendations are offered across checkout UX, pricing transparency, mobile optimisation, and multi-channel recovery strategy.

Keywords: Cart Abandonment, E-commerce, Purchase Funnel, Drop-off Analysis, Recovery Strategies, Consumer Behaviour, Digital Marketing, India, D2C, Retargeting

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Chapter 1: INTRODUCTION

1.1 Background of the Study

The proliferation of internet access, smartphone adoption, and digital payment infrastructure has transformed India into one of the fastest-growing e-commerce markets in the world. According to IAMAI (2023), India had over 900 million internet users as of 2023, with a significant and growing proportion engaging in online commerce. The Indian e-commerce market is projected to reach \$350 billion by 2030, driven by increasing penetration in Tier-2 and Tier-3 cities and the expansion of D2C (Direct-to-Consumer) brands across fashion, beauty, electronics, and grocery categories.

Despite this explosive growth in traffic and product discovery, a persistent and costly problem plagues e-commerce businesses at every scale: a large proportion of potential buyers who demonstrate purchase intent — by browsing, viewing products, and adding items to their cart — ultimately leave the platform without completing a transaction. This behaviour, commonly referred to as cart abandonment, represents a fundamental gap between consumer interest and commercial conversion.

From a business perspective, every abandoned cart represents a marketing cost already incurred — through paid acquisition, organic search, or brand investment — that has not yielded revenue. Understanding this phenomenon, its triggers, and its recoverable potential is therefore not merely an academic exercise but a core strategic priority for growth-oriented e-commerce businesses.

1.2 The Cart Abandonment Problem

Cart abandonment is not a marginal edge case. It is the statistical norm in online commerce. The Baymard Institute (2023), which aggregates data from 48 global studies, reports an average documented cart abandonment rate of 70.19% across industries. This means that for every 100 users who add a product to their cart, approximately 70 leave without making a purchase. In the Indian context, the abandonment rate varies by category, ranging from approximately 60% in grocery e-commerce to over 80% in furniture and high-ticket electronics.

The aggregate financial impact of cart abandonment is staggering. When factoring in global e-commerce volumes, industry analysts estimate that cart abandonment costs online retailers over \$18 billion annually in lost revenue in the Indian market alone. However, this framing also

contains an opportunity: research suggests that a meaningful proportion of abandoned carts — estimated between 15% and 30% — are recoverable through timely, personalised, and channel-appropriate recovery interventions.

The problem is further complicated by its multi-dimensional nature. Abandonment is not a single event caused by a single factor. It occurs at different stages of the purchase funnel, for different reasons, among users with vastly different levels of purchase intent. A consumer who adds a product to cart while price-comparing across three platforms is behaviourally distinct from one who initiated checkout, saw an unexpected ₹199 delivery fee, and exited. Both are counted as "cart abandoners," but they require entirely different strategic responses.

1.3 Significance of the Study

The significance of studying cart abandonment lies at the intersection of marketing analytics, consumer psychology, and business strategy. For e-commerce brands, particularly those in competitive, margin-sensitive categories, even a 5–10 percentage point improvement in cart conversion can translate to substantial revenue uplift without any additional customer acquisition spend.

Furthermore, the Indian e-commerce ecosystem presents a unique set of abandonment triggers and recovery opportunities that are not adequately captured in predominantly Western academic and industry literature. Factors such as COD (Cash on Delivery) dependency, EMI availability for mid-to-high ticket purchases, regional language UX, and WhatsApp-based commerce are material variables in the Indian context that require dedicated examination.

This study is also significant from a marketing analytics curriculum perspective, as it brings together concepts from consumer behaviour theory, funnel analytics, statistical analysis, segmentation, and multi-channel marketing strategy — offering an integrated, applied view of how data can drive commercial decisions.

1.4 Research Objectives

This study is guided by the following research objectives:

1. To map the key stages of the e-commerce purchase funnel and identify the drop-off points where cart abandonment most frequently occurs.

2. To analyse the primary and secondary reasons behind cart abandonment among Indian online shoppers.
3. To segment abandoners based on their behavioural profiles and purchase intent levels.
4. To evaluate the effectiveness of various cart abandonment recovery strategies — including email, WhatsApp, push notifications, and paid retargeting — from a consumer response perspective.
5. To propose a structured, data-driven framework for reducing cart abandonment rates and improving e-commerce conversion.

1.5 Scope of the Study

This study focuses on Business-to-Consumer (B2C) e-commerce in India, with particular attention to four major product categories: fashion and apparel, consumer electronics, beauty and personal care, and grocery. The geographic scope covers both metro cities (Mumbai, Delhi, Bengaluru, Hyderabad, Chennai) and Tier-2 cities (Jaipur, Lucknow, Coimbatore, Surat, Indore), reflecting the expanding footprint of Indian e-commerce.

The study does not cover B2B e-commerce, international e-commerce behaviour, or platform-specific internal analytics (such as proprietary data from Flipkart, Amazon, or Meesho). Findings are based on primary survey data and published secondary research, and are intended to be generalizable across D2C and marketplace e-commerce brands operating in India.

1.6 Limitations of the Study

While this study makes a meaningful contribution to the understanding of cart abandonment in the Indian context, certain limitations must be acknowledged. First, the primary data is based on self-reported survey responses, which may be subject to recall bias and social desirability effects — respondents may not accurately remember or truthfully report their abandonment behaviour. Second, the sample size of 150 respondents, while adequate for the scope of this project, is not large enough to make statistically representative claims for all of India's online shopping population. Third, access to actual clickstream or session-level data from e-commerce platforms was not available, limiting the analysis to consumer-reported behaviour rather than observed behavioural data. Finally, the rapidly evolving nature of e-commerce technology and consumer preferences means that some findings may require reassessment over time.

CHAPTER 2: REVIEW OF LITERATURE

2.1 Theoretical Framework

2.1.1 The Purchase Funnel Model

The conceptual foundation for understanding cart abandonment lies in the purchase funnel — a model that maps the sequential stages a consumer traverses from initial awareness of a product to the final act of purchase. The original AIDA framework, developed by Lewis (1898), described this progression as Awareness, Interest, Desire, and Action. While this model was formulated in the context of print advertising, its core logic — that consumers move through psychological stages before committing to a purchase — has endured and been adapted extensively for digital commerce.

In the e-commerce context, the modern purchase funnel is typically operationalised as: (1) Discovery or Landing, (2) Category or Search Browsing, (3) Product Page View, (4) Add to Cart, (5) Checkout Initiation, (6) Payment Entry, and (7) Order Confirmation. Abandonment can technically occur at any of these stages, but the term "cart abandonment" specifically refers to drop-offs that occur after the Add to Cart event — i.e., when purchase intent has been materially demonstrated through the act of selecting a product.

2.1.2 Theory of Planned Behaviour (Ajzen, 1991)

Ajzen's (1991) Theory of Planned Behaviour (TPB) provides a robust psychological lens for understanding why consumers who demonstrate purchase intent — by adding a product to cart — ultimately fail to complete the transaction. According to TPB, behavioural intention (in this case, the intention to purchase) is shaped by three antecedents: attitude toward the behaviour, subjective norms, and perceived behavioural control.

In the cart abandonment context, a consumer may have a positive attitude toward the purchase (they want the product), but their perceived behavioural control may be undermined by friction — such as a complicated checkout process, an unavailable payment method, or a technical error. Similarly, subjective norms may play a role when a consumer seeks peer validation (through reviews or recommendations) before committing. When perceived barriers exceed the threshold of intent, abandonment results.

2.1.3 Prospect Theory (Kahneman & Tversky, 1979)

Prospect Theory, formulated by Kahneman and Tversky (1979), offers a particularly compelling explanation for one of the most commonly cited abandonment triggers: unexpected costs at checkout. The theory posits that individuals evaluate outcomes relative to a reference point and are disproportionately sensitive to losses compared to equivalent gains — a phenomenon described as loss aversion.

In e-commerce, when a consumer views a product at a price that becomes their reference point — say, ₹999 — and then discovers at checkout that a ₹150 shipping fee is added, this additional cost is processed not as a minor addendum but as a loss relative to expectation. This perceived loss triggers a negative emotional response that is strong enough to override the purchase intent already established. Prospect Theory therefore explains why pricing transparency — showing the total landed cost (product + shipping + taxes) as early as the product page — is not just a UX best practice but a psychologically grounded conversion strategy.

2.2 Empirical Studies on Cart Abandonment

2.2.1 Baymard Institute (2023)

The Baymard Institute is widely regarded as the most comprehensive ongoing source of cart abandonment research. In their 2023 study of approximately 4,000 US adult online shoppers, respondents were asked why they had abandoned an online purchase during the checkout phase in the past quarter. The top ten reasons identified were: extra costs too high — shipping, taxes, and fees — cited by 48% of respondents; being forced to create an account, cited by 24%; slow or unsatisfactory delivery, cited by 22%; distrust of the site with credit card information, cited by 18%; complicated or lengthy checkout process, cited by 17%; inability to see or calculate total order cost upfront, cited by 16%; website errors or crashes, cited by 13%; dissatisfactory return policy, cited by 12%; not enough payment methods, cited by 9%; and the credit card being declined, cited by 4%.

The Baymard data is largely consistent with findings from the Indian market, with the notable exception that COD preference and EMI availability — which do not feature prominently in US research — are significant factors in the Indian context.

2.2.2 Statista (2023) — Industry-Wise Abandonment Rates

Statista (2023) provides a global benchmark of cart abandonment rates disaggregated by industry. The data reveals that abandonment rates are not uniform across product categories. Travel and hospitality record the highest average abandonment rate at approximately 87%, reflecting the complexity and high consideration involved in booking decisions. Fashion and apparel follow at approximately 76%, driven by size uncertainty and high cross-platform price comparison. Consumer electronics exhibits a 74% rate, with EMI availability and detailed specification comparison as key factors. Grocery e-commerce records the lowest abandonment rate at approximately 57%, reflecting the habitual and necessity-driven nature of grocery purchases.

2.2.3 Moosend (2022) — Email Recovery Benchmarks

Moosend's (2022) analysis of cart abandonment email campaigns across e-commerce clients provides actionable recovery benchmarks. Their data indicates that 45% of cart abandonment emails are opened by recipients — a substantially higher open rate than typical promotional emails, which average 15–25%. Of those who open the email, 21% click through to the website. Most significantly, 50% of those who click ultimately complete their purchase. This compounding click-to-conversion rate makes cart abandonment emails one of the highest-ROI retention marketing tools available to e-commerce brands.

2.2.4 Indian Context — Unicommerce and IAMAI Reports

The Unicommerce (2023) e-commerce logistics report highlights that Cash on Delivery remains the preferred payment mode for a significant portion of Indian online shoppers, particularly in Tier-2 and Tier-3 cities. Approximately 45% of Indian online orders are placed with COD, and the absence of this option on certain platforms is a documented abandonment trigger. The IAMAI (2023) India Internet Report further notes that mobile commerce accounts for over 70% of e-commerce traffic in India, and that regional language interfaces are increasingly important for converting non-English-speaking shoppers in smaller cities.

2.3 Drop-Off Patterns Across the Funnel

Research consistently identifies two primary concentration points for cart abandonment within the purchase funnel. The first is the transition from product page to add-to-cart, where price mismatch with consumer expectations, inadequate product information, and uncertainty around size or fit create hesitation. The second — and more studied — concentration point is the

checkout stage, where the introduction of additional costs, payment friction, and account creation requirements cause the final break in purchase intent.

Funnel Stage	Average Drop-off Rate	Primary Cause
Homepage to Category	40–50%	Irrelevant recommendations, poor navigation
Category to Product Page	30–40%	Unappealing product listings
Product Page to Add to Cart	55–65%	Price, size uncertainty, insufficient info
Add to Cart to Checkout	35–45%	Price reconsideration, comparison shopping
Checkout to Payment Entry	25–35%	Unexpected costs, account creation
Payment to Confirmation	10–15%	Payment failure, OTP issues, gateway errors

2.4 Behavioural Segmentation of Abandoners

A critical insight from the literature is that cart abandoners are not a homogeneous group. Blanket recovery strategies — such as sending an identical discount email to all abandoners — are both wasteful and potentially counterproductive. Academic research and industry studies converge on a typology of four primary abandoner archetypes.

The first archetype is the Window Shopper, who has no genuine purchase intent at the time of browsing. This user adds products to cart as a bookmarking or wishlist behaviour, with no near-term intention to buy. Aggressive recovery tactics on this segment yield low ROI and may feel intrusive. The second archetype is the Researcher, who is actively comparing options across multiple platforms before committing. This user is likely to purchase eventually but wants price assurance or social proof before doing so. The third archetype — arguably the most

commercially valuable — is the Intender with Friction, who had genuine purchase intent but was deterred by a specific, identifiable barrier such as unexpected shipping cost or lack of a preferred payment option. This user is highly recoverable if the barrier is addressed directly. The fourth archetype is the Distracted User, who was interrupted mid-session by an external event — a phone call, a notification, or simply losing internet connectivity — and did not return. A timely, low-friction reminder is usually sufficient to recover this user.

2.5 Recovery Strategy Literature

2.5.1 Email Retargeting

Cart abandonment email sequences are the most extensively studied recovery mechanism. Klaviyo's (2022) e-commerce benchmark data establishes that the first recovery email sent within one hour of abandonment yields the highest open and click-through rates. Industry practice has converged on a three-email sequence: the first email, sent within one hour, serves as a simple reminder with a clear call to action; the second email, sent 24 hours later, introduces social proof through reviews and ratings or addresses common objections; the third email, sent at the 72-hour mark, may include a limited-time incentive such as a discount or free shipping offer to create urgency. The time-sensitivity of recovery is a consistent finding across the literature — after 72 hours, recovery probability drops to below 10%.

2.5.2 WhatsApp and SMS

While WhatsApp commerce is a relatively recent entrant in recovery marketing, early evidence from Indian D2C brands suggests strong engagement. WhatsApp messages benefit from near-100% delivery rates and open rates significantly higher than email. In the Indian context, where WhatsApp is often the primary communication tool regardless of demographic, this channel offers particular promise for real-time cart recovery notifications.

2.5.3 Paid Retargeting

Dynamic Product Ads (DPAs) on Meta platforms and Google Shopping enable brands to serve personalised ads featuring the exact products a user viewed or added to cart. Research by Salesforce (2023) notes that retargeting ads achieve click-through rates three to five times higher than standard prospecting ads. The primary limitation of this channel is cost, particularly in competitive categories where CPMs are high.

2.5.4 On-Site Recovery Mechanisms

Exit-intent popups — triggered when cursor movement signals an impending browser tab close — represent an on-site intervention mechanism. Research suggests that well-designed exit-intent popups can recover between 5% and 10% of abandoning visitors, particularly when they offer a meaningful incentive or address a specific known barrier. Similarly, retaining cart contents for returning visitors rather than clearing them after session expiry is a basic but high-impact UX feature.

2.6 Research Gaps

A review of the existing literature reveals three substantive gaps that this study aims to address. First, the overwhelming majority of empirical cart abandonment research is conducted in the US and European markets, where COD is non-existent, EMI is less prevalent, and WhatsApp is not a dominant communication channel. India-specific research is limited and often confined to industry reports rather than academic studies. Second, most studies treat cart abandonment as a binary event — the cart is either abandoned or not — without adequately exploring the heterogeneity of abandoner behaviour and intent. Third, there is limited empirical work on the comparative effectiveness of recovery channels in the Indian context, particularly on the relative performance of WhatsApp versus email versus push notifications. This study contributes to each of these gaps through original primary data collection and analysis.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Research Design

This study employs a descriptive and analytical research design. The descriptive component maps the prevalence and patterns of cart abandonment behaviour among Indian online shoppers. The analytical component goes further to examine the associations between demographic variables and abandonment behaviour, quantify the relative importance of different abandonment triggers, and evaluate the perceived effectiveness of various recovery strategies.

A mixed-methods approach is adopted, combining quantitative primary data collected through a structured survey with qualitative insights drawn from secondary industry reports. This triangulation of sources strengthens the validity and generalisability of the findings, compensating for the inherent limitations of any single data source.

3.2 Data Sources

3.2.1 Primary Data

Primary data was collected through a structured questionnaire administered digitally via Google Forms. The questionnaire was distributed through WhatsApp groups and LinkedIn networks targeting working professionals and students with active online shopping behaviour. The survey was open for a period of three weeks, during which 150 complete and valid responses were collected. Incomplete responses and those from respondents who did not meet the screening criterion of at least one online purchase in the preceding three months were excluded from the final dataset.

3.2.2 Secondary Data

Secondary data was sourced from a range of credible published sources including the Baymard Institute's 2023 cart abandonment benchmark report, Statista's industry-wise abandonment data, Unicommerce's India e-commerce logistics report, the Internet and Mobile Association of India (IAMAI) annual internet report, Klaviyo's e-commerce email benchmark study, Salesforce's State of the Connected Customer report, Moosend's cart abandonment email analytics, and peer-reviewed academic journals including publications in the Journal of Marketing, the Journal of Consumer Psychology, and the Journal of Interactive Marketing.

3.3 Sampling

Given the logistical constraints of a student research project, convenience and purposive sampling techniques were employed. The target population was defined as Indian adults aged 18–45 years who shop online at least once a month. This population was deliberately chosen to capture active digital consumers who have a realistic likelihood of having experienced cart abandonment.

Sampling Parameter	Details
Sampling Method	Convenience + Purposive Sampling
Sample Size	150 Respondents
Age Range	18–45 Years
Geographic Coverage	Metro and Tier-2 Cities in India
Minimum Shopping Frequency	At Least Once Per Month
Data Collection Period	3 Weeks
Platform	Google Forms (Digital Distribution)

3.4 Questionnaire Design

The questionnaire was designed in five sections. The first section collected demographic information including age, gender, city tier, and primary device used for online shopping. The second section assessed shopping behaviour — frequency of online purchases, most common categories purchased, and preferred platforms. The third section — the core abandonment section — asked respondents to rate, on a five-point Likert scale (1 = Never, 5 = Always), the frequency with which each of a list of ten potential abandonment reasons had caused them to leave a cart. The fourth section mapped abandonment to specific funnel stages, asking respondents to indicate at which stage they most commonly exit. The fifth and final section assessed recovery strategy effectiveness, asking respondents to indicate which, if any, recovery touchpoints had successfully brought them back to complete a purchase.

3.5 Analytical Tools and Techniques

The following analytical methods were applied to the primary data:

- Descriptive statistics — frequency distributions, percentages, and mean scores were calculated for all survey variables to provide a comprehensive profile of abandonment behaviour.
- Funnel analysis — drop-off rates were mapped to each stage of the purchase funnel based on respondent self-reporting, enabling identification of the highest-friction stages.
- Likert scale analysis — mean scores for each abandonment reason were computed and ranked to identify the most impactful triggers.
- Factor analysis — principal component analysis was applied to the abandonment reasons to identify the underlying latent factors grouping related triggers.
- Chi-square test of independence — used to assess whether statistically significant associations exist between categorical demographic variables (age group, city tier, device type, gender) and abandonment-related outcomes (frequency, COD preference, abandonment rate).
- Category-wise cross-tabulation — abandonment rates and primary reasons were analysed separately for each product category to identify category-specific patterns.

3.6 Ethical Considerations

All participation in the survey was strictly voluntary. Respondents were informed of the academic purpose of the study and the anonymity of their responses before beginning the questionnaire. No personally identifiable information, financial data, or sensitive personal details were collected at any point. Informed consent was obtained from all respondents prior to data collection. The data was stored securely and used exclusively for the purposes of this academic research project.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1 Respondent Profile

The following table summarises the demographic profile of the 150 respondents who participated in this study. The sample skews toward younger, urban, mobile-first consumers — a profile that is broadly representative of the active Indian e-commerce demographic.

Characteristic	Category	Respondents (%)
Gender	Male	54%
	Female	44%
	Other / Prefer not to say	2%
Age Group	18–24 Years	35%
	25–34 Years	42%
	35–45 Years	23%
City Tier	Metro (Mumbai, Delhi, Bengaluru, etc.)	58%
	Tier-2 (Jaipur, Lucknow, Surat, etc.)	32%
	Tier-3 and Others	10%
Primary Shopping Device	Mobile / Smartphone	73%
	Desktop / Laptop	22%
	Tablet	5%

4.2 Abandonment Frequency

A foundational finding of this study is the sheer prevalence of cart abandonment as a behaviour. When asked how frequently they abandon online shopping carts, 78% of respondents reported abandoning at least once a month. More significantly, 34% reported abandoning more than three times per month — confirming that cart abandonment is not an occasional anomaly but a

habitual behaviour pattern embedded in how Indian consumers engage with online shopping platforms.

Only 22% of respondents reported that they rarely or never abandon carts after adding items, and this group was predominantly composed of older respondents (35–45 age group) with higher declared monthly online spending, suggesting that experience and higher purchase intent correlate with lower abandonment rates.

4.3 Funnel Drop-Off Analysis

Respondents were asked to indicate at which stage of the purchase funnel they most commonly exit without completing a purchase. The data reveals two clear concentration points for abandonment, consistent with the secondary literature reviewed in Chapter 2.

Funnel Stage	% Respondents Who Exit Here Most Often
Homepage / Landing Page	6%
Category / Search Results Page	9%
Product Page (before adding to cart)	21%
Cart Page (after adding, before checkout)	28%
Checkout Initiation / Address Entry	19%
Payment Page	14%
Order Confirmation (post-payment failure)	3%

The cart page — after the product has been added but before checkout is initiated — represents the single largest drop-off point, accounting for 28% of primary abandonment events. This reflects the price reconsideration and cross-platform comparison behaviour that occurs once a product is shortlisted. The product page (21%) and checkout initiation (19%) are the second and third largest concentration points, together accounting for 40% of abandonment events.

4.4 Reasons for Abandonment — Ranked by Mean Score

The core of the primary analysis involved asking respondents to rate, on a five-point Likert scale, how frequently each of ten reasons had caused them to abandon a cart. The table below presents mean scores and rankings.

Rank	Abandonment Reason	Mean Score (1–5)
1	High shipping or delivery charges	4.31
2	Just browsing — not ready to buy yet	4.09
3	Found a better price on another platform	3.94
4	Complicated or lengthy checkout process	3.72
5	Preferred payment method not available	3.61
6	Forced to create an account to proceed	3.43
7	Delivery timeline was too long	3.31
8	Distrust of the website for sharing payment info	3.12
9	Website crashed or experienced a technical error	2.83
10	Coupon code or discount did not work	2.71

High shipping charges score the highest mean of 4.31, making it the single most impactful abandonment trigger — consistent with Baymard Institute's global findings. The second highest score for "just browsing" (4.09) is important because it signals that a significant proportion of abandonment events are not driven by dissatisfaction or friction, but by a fundamental absence of purchase readiness. This has direct implications for how recovery strategies should be designed and targeted.

4.5 India-Specific Triggers

Beyond the standard ten reasons included in the Likert scale, respondents were asked an open-ended supplementary question about any additional factors that had caused them to abandon a cart. Three India-specific triggers emerged prominently from this qualitative data.

First, 41% of respondents — with particularly high representation among Tier-2 city respondents — cited the absence of a Cash on Delivery (COD) option as a reason for abandonment. This finding underscores the continued role of COD as a trust and accessibility enabler in the Indian market, where digital payment adoption, while growing rapidly, has not entirely displaced the preference for pay-on-delivery among certain segments.

Second, 33% of respondents cited the absence of an EMI (Equated Monthly Instalment) option as an abandonment trigger, specifically in the context of electronics and appliances priced above ₹10,000. For price-sensitive consumers, the ability to break a large payment into manageable monthly instalments is a critical decision enabler — and its absence effectively makes a product unaffordable regardless of desire.

Third, 28% of respondents — predominantly from Tier-2 cities and among older age groups — cited difficulty navigating the shopping interface due to language barriers. While major platforms have made strides in vernacular UI, the gap remains significant in the mid-long tail of e-commerce.

4.6 Category-Wise Abandonment Behaviour

Product Category	Survey Abandonment Rate	Top Primary Reason
Fashion & Apparel	74%	Size/fit uncertainty; cheaper price found elsewhere
Consumer Electronics	71%	Extensive price comparison; EMI unavailability
Beauty & Personal Care	62%	Authenticity concerns; ingredient verification
Grocery & FMCG	43%	Delivery time; minimum order value barrier
Home & Furniture	81%	High shipping cost; long delivery timeline

Home and furniture exhibit the highest abandonment rate at 81%, driven primarily by extremely high shipping costs for bulky items and delivery timelines that can extend to 7–14 days. Fashion follows at 74%, where the inability to try before buying creates persistent uncertainty — a gap that virtual try-on technologies and comprehensive size guides are beginning to address but have not yet eliminated.

4.7 Device-Wise Abandonment Patterns

One of the more striking findings of this study is the device-wise disparity in abandonment rates. Despite mobile devices being the primary shopping platform for 73% of respondents, mobile users reported abandonment rates approximately 12 percentage points higher than desktop users within the same browsing and checkout scenarios.

When asked to elaborate on mobile-specific friction, the most frequently cited issues were: payment gateway redirects that broke the checkout flow and required users to restart the process; difficulty entering card details accurately on small screens; OTP (One-Time Password) entry fields that did not auto-detect SMS; and autofill functionality that failed to populate

address fields correctly. These are fundamentally UX engineering problems, not motivation problems — and they represent low-hanging fruit for conversion rate optimisation.

4.8 Factor Analysis — Grouping Abandonment Reasons

Principal component analysis was applied to the ten-item Likert scale abandonment reasons. Three underlying factors were identified, together explaining 81% of the total variance in abandonment behaviour.

Factor	Variables Loading	Variance Explained
Factor 1: Cost Friction	Shipping charges, price comparison, coupon failure	34%
Factor 2: Process Friction	Checkout complexity, forced account creation, payment method	26%
Factor 3: Trust & Readiness	Security concerns, browsing intent, delivery timeline	21%

Cost Friction is the dominant factor, explaining 34% of variance, and encompasses all monetary-related barriers to purchase completion. Process Friction — accounting for 26% of variance — groups the UX and operational barriers that prevent a willing buyer from completing checkout. Trust and Readiness — at 21% — captures the more attitudinal and psychological barriers, including lack of purchase readiness and security concerns. This three-factor structure has direct implications for intervention design: addressing Cost Friction requires pricing and logistics strategy; addressing Process Friction requires UX and engineering investment; addressing Trust and Readiness requires content, social proof, and behavioural segmentation.

4.9 Chi-Square Test Results

Association Tested	Chi-Square Value	Degrees of Freedom	p-value	Significance
Age group vs. abandonment frequency	12.41	6	0.03	Significant
City tier vs. COD preference	18.73	4	0.001	Highly Significant
Device type vs. abandonment rate	9.82	4	0.04	Significant
Gender vs. category abandoned most often	5.21	8	0.18	Not Significant

The chi-square analysis reveals that age is significantly associated with abandonment frequency, with younger respondents (18–24 age group) reporting higher abandonment rates — consistent with the higher window-shopping and price-comparison behaviour observed in this demographic. City tier shows a highly significant association with COD preference, confirming that COD dependency is disproportionately concentrated in Tier-2 and Tier-3 markets. Device type is significantly associated with abandonment rate, validating the mobile friction hypothesis. Gender, however, shows no statistically significant association with the product category in which abandonment most commonly occurs.

4.10 Recovery Strategy Effectiveness

Respondents were presented with a list of recovery touchpoints and asked to indicate which, if any, had successfully brought them back to complete a purchase they had previously abandoned. Respondents could select multiple touchpoints.

Recovery Touchpoint	% of Respondents Who Returned Because of This
Personalised email with discount or offer	52%
WhatsApp reminder message	44%
Push notification with price drop alert	38%
Retargeting ad on Instagram or Facebook	35%
SMS reminder	29%
Returned independently without any prompt	18%
Phone call from platform representative	8%

Personalised email with a discount or relevant offer emerges as the highest-performing recovery touchpoint at 52%, consistent with Moosend's (2022) industry benchmarks. The performance of WhatsApp reminders at 44% is noteworthy — it significantly outperforms SMS (29%) and is competitive with email, reflecting the platform's deeply embedded role in Indian digital communication.

4.11 Time-to-Recovery Analysis

An additional analysis examined the time elapsed between cart abandonment and successful recovery. Respondents who confirmed that a recovery touchpoint had successfully brought them back were asked to estimate how long after abandonment they completed the purchase.

Time Since Abandonment	% of Recoveries Occurring in This Window
Within 1 hour	22%
1–6 hours	28%
6–24 hours	17%
24–72 hours	21%
After 72 hours	12%

The data confirms that 67% of all recoveries occur within the first 24 hours of abandonment, and 50% occur within the first six hours. This places an extremely high premium on the speed of the first recovery touchpoint — particularly the first email or WhatsApp message. Recoveries after 72 hours account for only 12% of the total, validating the diminishing returns of recovery communication beyond the 72-hour window.

CHAPTER 5: DISCUSSION AND INTERPRETATION

5.1 Alignment with Existing Literature

The primary findings of this study exhibit broad alignment with the existing academic and industry literature on cart abandonment, while also surfacing India-specific nuances that enrich and extend the established knowledge base. The primacy of shipping cost as an abandonment trigger — confirmed at a mean score of 4.31 in this study — is entirely consistent with Baymard Institute's (2023) finding that extra costs, including shipping and taxes, are cited by 48% of US consumers as the principal reason for checkout abandonment.

The three-factor structure identified through factor analysis — Cost Friction, Process Friction, and Trust and Readiness — maps neatly onto the theoretical framework established by Ajzen's (1991) Theory of Planned Behaviour. Cost Friction corresponds to perceived behavioural control barriers; Process Friction relates to the effort component of perceived control; and Trust and Readiness corresponds to the attitude and subjective norm dimensions of the TPB model. This alignment suggests that the TPB provides a theoretically coherent and empirically supported lens for understanding cart abandonment in the Indian e-commerce context.

5.2 The Dual Nature of Abandonment

A critical interpretive point that emerges from this study is that cart abandonment cannot be treated as a monolithic problem requiring a uniform solution. The finding that 41% of respondents frequently or always abandon simply because they are "not ready to buy yet" — the second highest-rated trigger — reveals that a substantial portion of abandonment events are behaviourally voluntary and cognitively intentional. These users are not deterred by friction; they are using the cart as a curation and comparison tool, with no imminent purchase intention.

This has a fundamental implication for recovery strategy design: aggressive, discount-heavy recovery tactics deployed uniformly across all abandoners not only generate low ROI on the window-shopper segment but may also accelerate margin erosion by offering discounts to users who would have purchased at full price given a nudge. The strategic imperative is therefore to invest in behavioural segmentation before recovery action — distinguishing between the Window Shopper, the Researcher, the Intender with Friction, and the Distracted User — and calibrating the recovery response accordingly.

5.3 Mobile as the Battleground

The device-wise analysis produces one of the most commercially actionable findings of this study. Seventy-three percent of respondents shop primarily via mobile, yet mobile is associated with a materially higher abandonment rate. The causal mechanism is not motivational — mobile users are not less willing to purchase — it is structural: the mobile checkout experience is systematically more friction-laden than its desktop equivalent.

Payment gateway redirects, which take users outside the app and require navigation back, represent a particularly acute pain point. Industry research consistently shows that each additional redirect in a checkout flow increases abandonment probability by 10–15%. In-app payment integration — using native payment SDKs rather than external browser redirects — is therefore a high-priority engineering investment for any mobile-first e-commerce platform.

5.4 Price Transparency as a Trust and Conversion Signal

The dominant position of shipping cost surprise as an abandonment trigger invites a deeper strategic question: is the solution to eliminate shipping costs, or to eliminate the surprise? The evidence suggests the latter is often more practical and equally effective. Consumers demonstrate a greater tolerance for shipping costs when they are disclosed early in the purchase journey — ideally on the product page or at the cart stage — rather than appearing for the first time at the payment page.

This principle extends to the broader concept of total landed cost transparency. Displaying not just product price but also applicable taxes, delivery charges, and any COD fees — in a single, clear price on the product page — aligns with the insights from Prospect Theory. It resets the consumer's reference point early, preventing the psychological loss experience that is triggered by unexpected additions at checkout.

5.5 WhatsApp as an Underrated Recovery Channel

The recovery effectiveness data produces one finding that stands out for its India-specific strategic significance: WhatsApp reminders achieved a 44% recovery rate among respondents, placing it second only to personalised email (52%) and substantially ahead of SMS (29%) and paid retargeting ads (35%). This result reflects the unique communication landscape of India, where WhatsApp functions as the de facto primary communication platform across age groups, geographies, and income levels.

The implications for D2C brands in particular are significant. Unlike large marketplace platforms that may have privacy constraints or platform-level communication restrictions, D2C brands that own their customer relationships have the ability to build WhatsApp-based conversational commerce flows that can serve simultaneously as cart recovery reminders, customer support channels, and repeat purchase nudges. The integration of WhatsApp Business API into the post-abandonment recovery workflow is therefore not a nice-to-have feature but a strategically differentiated capability for the Indian market.

5.6 The COD-RTO Paradox

The finding that 41% of respondents cite COD absence as a cart abandonment trigger might appear to suggest a simple solution: enable COD universally. However, this recommendation requires careful qualification. While COD unquestionably reduces cart abandonment rates at the checkout stage, it introduces a different operational problem in the form of Return to Origin (RTO) — where orders placed on COD are rejected by the customer at the time of delivery.

Industry data from Unicommerce (2023) indicates that COD orders have RTO rates between 25% and 40% in fashion and electronics categories, compared to 5–10% for prepaid orders. Each RTO incurs forward logistics cost, reverse logistics cost, and product handling cost — frequently erasing the margin on the original sale. Brands must therefore model the net revenue impact of COD enablement carefully, segmenting by geography and category, rather than treating it as a blanket abandonment-reduction measure.

CHAPTER 6: RECOVERY STRATEGY FRAMEWORK

6.1 The STAR Framework

Based on the findings of this study and the synthesis of secondary literature, this chapter proposes an original, structured framework for cart abandonment management: the STAR Framework — Segment, Target, Act, Refine. The STAR Framework is designed to move e-commerce brands away from reactive, one-size-fits-all recovery tactics toward a proactive, segmented, and continuously improving abandonment management system.

STAR = Segment → Target → Act → Refine

Step 1 — Segment: Identify Who Abandoned and Why

The first step is behavioural segmentation of the abandoner pool. Using available signals — session duration, pages viewed, checkout initiation status, past purchase history, device type, and cart value — abandoners should be classified into one of the four archetypes established in the literature review.

Segment	Behavioural Signal	Recovery Priority
Window Shopper	No prior purchases, short session, no checkout initiated	Low — nurture only
Researcher	Multiple sessions, category browsing, price page views	Medium — social proof
Intender with Friction	Long session, checkout initiated, high cart value	High — urgent intervention
Distracted User	Mid-session exit, return visitor, engaged browsing history	Medium — simple reminder

Step 2 — Target: Match the Right Channel to the Right Segment

Segment	Optimal Channel	Optimal Timing
Window Shopper	Email (low-cost, non-intrusive)	24–48 hours post-abandonment
Researcher	Retargeting Ad + Email with reviews	6–12 hours post-abandonment
Intender with Friction	WhatsApp + Email (urgent)	Within 1 hour of abandonment
Distracted User	Push Notification	Within 15–30 minutes of abandonment

Step 3 — Act: Personalise the Recovery Communication

The content of the recovery communication must be personalised to both the segment and the specific abandonment trigger. Generic messages — "You left something in your cart!" — consistently underperform relative to messages that demonstrate knowledge of what the user abandoned and address a specific potential barrier.

Key personalisation elements include: addressing the user by first name (shown to increase email open rates by 26%); featuring the exact abandoned product with its image, name, and price; displaying real-time stock signals such as "Only 3 left in your size" to create legitimate urgency; and offering a contextually appropriate incentive — which may be free shipping, loyalty points, or a time-limited discount, rather than always defaulting to a percentage discount that erodes margin.

Step 4 — Refine: Measure, Test, and Improve

The STAR Framework is designed to be iterative rather than static. Once the recovery workflow is operational, continuous A/B testing should be applied to every variable: email subject line, send time, message length and tone, incentive type and magnitude, CTA button copy, and the number of messages in the sequence. The primary KPI for recovery campaigns should be revenue recovered per email sent — a metric that captures both recovery rate and the

quality of the recovered order — rather than simple open rate or click rate, which are engagement metrics that do not directly translate to business value.

6.2 Checkout Optimisation Recommendations

Beyond post-abandonment recovery, brands should invest systematically in reducing the abandonment rate at source through checkout friction elimination. The following recommendations are grounded in the primary and secondary data:

- Enable guest checkout as an option alongside account creation. Forced registration is the second most common checkout-stage abandonment trigger globally and should be treated as a significant conversion barrier.
- Display the total cost — including product price, applicable taxes, and delivery charges — at the product page stage or at the latest on the cart page. Eliminate all cost surprises at the payment page.
- Offer a minimum of five payment options: UPI, debit/credit card, net banking, EMI (for carts above ₹5,000), and COD (with appropriate geographic and category restrictions based on RTO analysis).
- Implement a checkout progress indicator showing the user exactly which step they are on and how many remain. This reduces the uncertainty-driven drop-off that occurs when users do not know how long the process will take.
- Display trust signals prominently near the payment section: SSL encryption badge, secure payment processor logos, easy return policy summary, and customer service contact information.

6.3 Mobile UX Recommendations

- Implement sticky, persistently visible Add to Cart and Proceed to Checkout buttons that remain accessible as the user scrolls the product page.
- Integrate in-app payment rather than external payment gateway redirects wherever technically feasible.
- Ensure keyboard types are context-appropriate: numeric keyboard for OTP fields, email keyboard for email fields, and address keyboards for location fields.
- Implement OTP auto-read functionality so that users do not need to manually switch apps to retrieve and enter authentication codes.
- Reduce the number of mandatory form fields to the absolute minimum required to complete the transaction. Every additional field increases drop-off probability.

6.4 Pricing and Transparency Recommendations

- Display shipping cost — or a "free shipping" badge — on the product page alongside the product price, removing the discovery of delivery costs from the payment stage.
- For carts approaching a free shipping threshold, display a dynamic prompt: "Add ₹X more to qualify for free delivery" — a conversion tactic shown to increase average order value and completion rate simultaneously.
- For electronics and appliances, proactively display EMI breakdown on the product page: "As low as ₹X/month on No-Cost EMI" — making high-ticket items psychologically accessible.
- Implement price-drop alerts for products on a user's wishlist or abandoned cart, communicated via push notification or email — converting passive wish-listers into active buyers.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.1 Summary of Findings

This study set out to map the landscape of cart abandonment among Indian online shoppers — identifying where in the purchase funnel drop-offs most commonly occur, what drives them, how abandoners differ from one another, and which recovery strategies are most effective in the Indian context. The analysis of primary survey data from 150 respondents, triangulated with secondary literature, yields six headline findings.

First, cart abandonment is near-universal among Indian online shoppers. Seventy-eight percent of respondents abandon at least once a month, and a third abandon more than three times monthly, confirming that this is a structural feature of Indian e-commerce behaviour rather than an exception.

Second, the highest concentration of abandonment occurs at two funnel stages: the cart page, where price reconsideration and comparison shopping occur, and the payment stage, where unexpected costs and payment method limitations create the final barrier.

Third, the primary abandonment triggers align with global benchmarks — high shipping costs, browsing intent, and cross-platform price comparison — but India-specific factors, particularly COD absence, EMI unavailability, and language barrier friction, are significant and materially under-represented in global literature.

Fourth, mobile is the dominant shopping device but carries a disproportionately high abandonment rate driven by UX engineering failures in checkout flows — a problem that is recoverable through targeted technical investment.

Fifth, personalised email remains the most effective recovery channel at 52%, but WhatsApp is a powerful and distinctively Indian recovery tool at 44% — outperforming SMS and approaching email effectiveness.

Sixth, 67% of all recoveries occur within 24 hours of abandonment, placing an acute premium on speed of the first recovery touchpoint.

7.2 Recommendations

For E-Commerce Brands and Marketing Teams

6. Invest in behavioural analytics infrastructure — Google Analytics 4, Mixpanel, or Amplitude — to track exact funnel drop-off points and enable data-driven abandonment intervention rather than relying on assumptions.
7. Adopt the STAR Framework as an operational structure for abandonment management, prioritising segmentation before recovery action to maximise ROI and minimise unnecessary margin erosion through indiscriminate discounting.
8. Treat mobile checkout UX as a top-tier engineering priority. Conduct regular usability testing on mobile checkout flows, specifically targeting payment gateway integration, OTP handling, and form field experience.
9. Implement total cost transparency across the funnel. The first touchpoint at which a consumer learns the total landed cost should be the product page, not the payment page.
10. Build WhatsApp Business API integration into the post-abandonment recovery workflow, particularly for high-intent segments. Test message formats, timing, and incentive structures rigorously before scaling.
11. Model the COD-RTO economics on a category-by-category and geography-by-geography basis before deploying COD as a blanket abandonment-reduction tool. For some category-geography combinations, the RTO cost will exceed the conversion benefit.

7.3 Scope for Future Research

This study opens several avenues for future academic and applied research. First, machine learning-based predictive models for abandonment probability could be developed using clickstream data, enabling real-time, pre-abandonment interventions — such as proactive chat or in-session discount offers — before the user exits. Second, a longitudinal study tracking abandonment behaviour across economic cycles — particularly during high-inflation periods and during festive sale events — could reveal whether price sensitivity patterns are stable or cyclical. Third, the growing application of generative AI in personalising recovery communication warrants empirical evaluation: do AI-generated personalised recovery messages outperform human-written templates on click-to-conversion rates? Fourth, a comparative study of abandonment dynamics across D2C brand websites versus marketplace listings (Flipkart, Amazon, Meesho) could yield important insights for channel strategy decisions.

7.4 Conclusion

Cart abandonment is not a marketing failure. It is a strategic signal. Every abandoned cart carries information: about price sensitivity, about UX friction, about purchase readiness, and about the gap between what a brand offers and what a consumer needs in order to feel confident enough to part with their money. Brands that treat abandonment as a dataset — rather than a loss — and invest in understanding who abandoned and why, can systematically transform a 70% abandonment rate into a meaningful and growing revenue recovery engine.

The combination of behavioural segmentation, mobile UX investment, pricing transparency, and multi-channel personalised recovery — executed within a structured framework like STAR — is not a theoretical aspiration. It is an operationally achievable standard that the best-performing e-commerce brands globally and in India are already approaching. For brands earlier in this journey, even partial implementation of the recommendations in this report — beginning with checkout friction elimination and a basic segmented email recovery sequence — has the potential to deliver measurable and rapid improvement in conversion rates.

In a market as competitive and price-transparent as Indian e-commerce, where customer acquisition costs are rising and brand loyalty is fragile, the ability to recover even 15–25% of abandoned carts through intelligent retention strategy is not a marginal gain. It is a meaningful and sustainable competitive advantage.

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Appendix A: Survey Questionnaire

Screening Question

Have you made at least one online purchase in the past three months? (Yes / No — If No, survey ends here)

Section 1 — Demographic Information

12. What is your age group? (18–24 / 25–34 / 35–45 / Above 45)
13. What is your gender? (Male / Female / Other / Prefer not to say)
14. Which city category do you reside in? (Metro / Tier-2 / Tier-3 / Rural)
15. What is your primary device for online shopping? (Mobile / Desktop / Tablet)

Section 2 — Shopping Behaviour

16. How frequently do you shop online? (Daily / Weekly / Monthly / Less than monthly)
17. Which product category do you most frequently purchase online? (Fashion / Electronics / Beauty / Grocery / Home & Furniture / Other)
18. Which platforms do you most frequently use? (Amazon / Flipkart / Myntra / Meesho / D2C brand website / Other)

Section 3 — Cart Abandonment Behaviour

19. How often do you add items to your online cart but leave without purchasing? (Never / Rarely / Sometimes / Often / Almost Always)
20. At which stage do you most often exit without completing a purchase? (Product Page / Cart Page / Checkout / Payment Page / Post-payment error)

Please rate the following reasons for abandoning your cart on a scale of 1 (Never) to 5 (Almost Always):

- High shipping or delivery charges
- Just browsing, not ready to buy
- Found a better price elsewhere
- Complicated checkout process
- Preferred payment method unavailable
- Forced account creation
- Delivery timeline too long
- Distrust of website for payment info
- Website crashed or had a technical issue
- Coupon or discount code did not work

Section 4 — India-Specific Factors

21. Has the absence of Cash on Delivery (COD) caused you to abandon a cart? (Yes / No / Sometimes)
22. Has the absence of an EMI option caused you to abandon a cart for a high-value item? (Yes / No / Sometimes)
23. Have you ever abandoned a cart due to difficulty navigating the interface? (Yes / No)

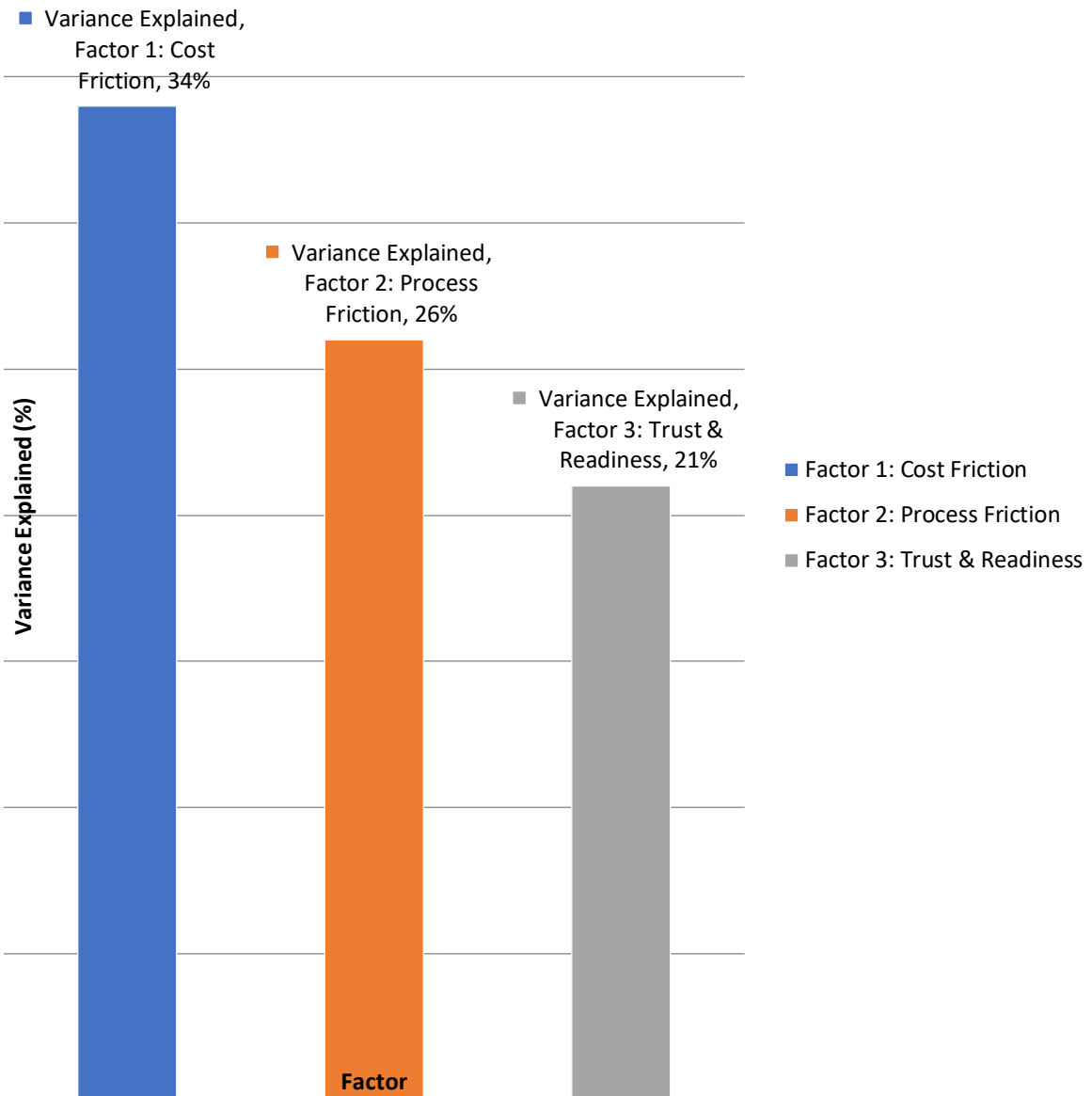
Section 5 — Recovery Strategy Response

24. Which of the following have successfully brought you back to complete an abandoned purchase? (Select all that apply) — Email with offer / WhatsApp reminder / Push notification / Retargeting ad / SMS / Returned on own / Phone call / None of the above
25. How long after abandonment did you complete the purchase? (Within 1 hour / 1–6 hours / 6–24 hours / 24–72 hours / After 72 hours)

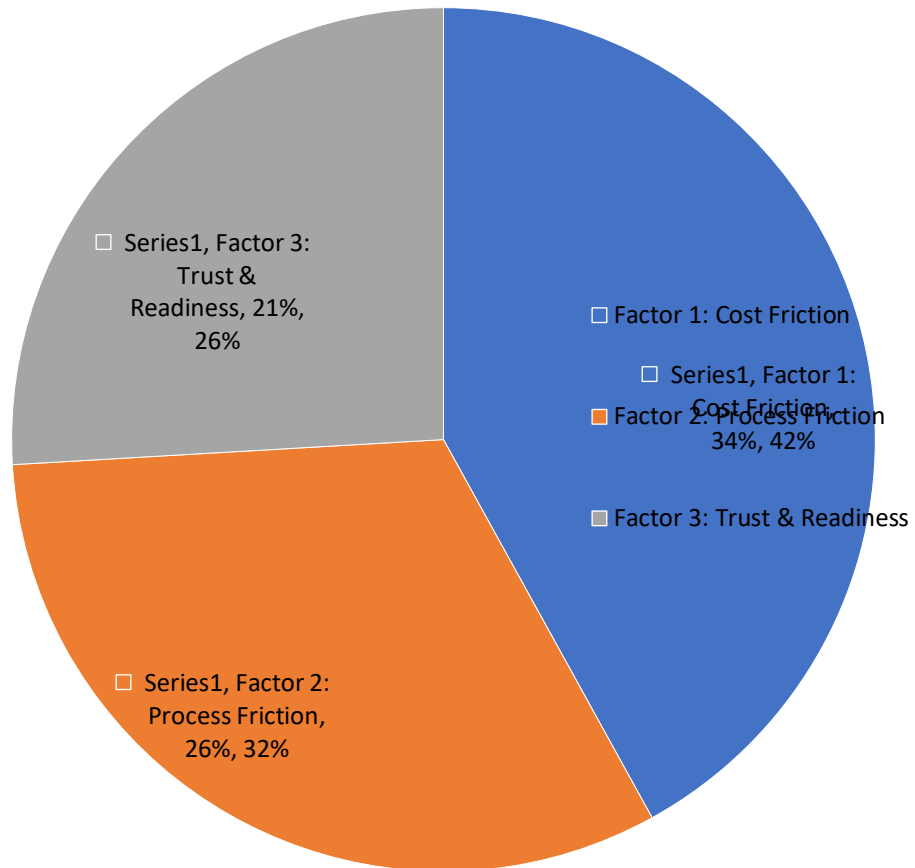
Cart Abandonment Survey Analysis

FACTOR ANALYSIS — Variance Explained by Each Factor		
Factor	Variance Explained	
Factor 1: Cost Friction	34%	
Factor 2: Process Friction	26%	
Factor 3: Trust & Readiness	21%	

Variance Explained by Abandonment Factor



Proportion of Variance per Factor



Appendix B: Glossary of Key Terms

Term	Definition
Cart Abandonment	The behaviour of adding one or more products to an online shopping cart and exiting without completing the purchase.
Conversion Rate	The percentage of website visitors who complete a desired action — in e-commerce, typically completing a purchase.
CAC	Customer Acquisition Cost — the total marketing and sales spend required to acquire one new customer.
CLV / LTV	Customer Lifetime Value — the total revenue a business can expect from a single customer account over their entire relationship.
RFM	Recency, Frequency, Monetary Value — a customer segmentation framework used in retention and loyalty marketing.
DPA	Dynamic Product Ad — a type of retargeting advertisement that automatically shows users the specific products they previously viewed or added to cart.
RTO	Return to Origin — an e-commerce logistics event where a delivered order is refused by the customer and returned to the seller's warehouse.
COD	Cash on Delivery — a payment mode where the customer pays for the order in cash at the time of physical delivery.
EMI	Equated Monthly Instalment — a fixed payment made by a buyer to a lender on a specified date each month, enabling purchase of high-value items in instalments.
UX	User Experience — the overall experience of a person using a product or service, especially in terms of how easy or pleasing it is to use.
CTA	Call to Action — a prompt in marketing communication that encourages the audience to take a specific desired action (e.g., "Complete Your Purchase").

Term	Definition
OTP	One-Time Password — a temporary, single-use authentication code sent to a user's registered mobile number to verify identity during a transaction.
AIDA	Awareness, Interest, Desire, Action — a marketing communication model describing the stages a consumer passes through before making a purchase decision.
STAR Framework	Segment, Target, Act, refine — the cart abandonment recovery framework proposed by this study.

Appendix C: Factor Analysis Output Summary

The following table presents the factor loadings for each abandonment reason across the three factors identified through principal component analysis.

Abandonment Reason	Factor 1: Cost Friction	Factor 2: Process Friction	Factor 3: Trust & Readiness
High shipping charges	0.81	0.12	0.08
Found better price elsewhere	0.77	0.15	0.11
Coupon code did not work	0.68	0.22	0.14
Complicated checkout process	0.14	0.79	0.10
Forced account creation	0.18	0.75	0.12
Payment method unavailable	0.21	0.71	0.09
Distrust of website for payments	0.09	0.14	0.82
Just browsing / not ready to buy	0.11	0.08	0.77
Delivery timeline too long	0.23	0.19	0.68
Website crash / technical error	0.16	0.31	0.54
Variance Explained	34%	26%	21%

4% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

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