Reducing Cart Abandonment in Swift Cart Co.

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Sumit

Swift Cart Co.
E-commerce
Founded in 2022.

Project Overview

At Swift Cart, we pride ourselves on providing a seamless and intuitive shopping experience. However, as our business has grown, so have the challenges. Over the past months, our analytics team has observed a consistent pattern: a significant number of users add items to their carts but fail to complete their purchases. As part of our mission to optimize the customer journey, we're figuring out to understand the underlying reasons behind cart abandonment and identify actionable insights that can transform these missed opportunities into completed sales.

Problem Statement

Every day, X numbers of potential transactions are lost at Swift Cart. The data tells a compelling story: The drop-off between cart creation and purchase completion is quite high. **The problem is clear—our current checkout process, user interface, or possibly external factors like shipping costs might be causing friction that prevents users from finalizing their purchases.**

Business Impact & Importance

The impact of cart abandonment is far-reaching.

At Swift Cart, every abandoned cart represents **lost revenue, decreased customer satisfaction,** and a missed opportunity to **build long-term customer loyalty.**

Project Goal

Our primary objective is to identify, analyze the factors that lead to cart abandonment at Swift Cart. We will leverage data conclusion to pinpoint friction points in the customer journey and propose targeted interventions that make the checkout process smoother and more intuitive.

Project End-Users

The findings from this project will serve multiple teams within Swift Cart:

Marketing Team:

To refine retargeting strategies and enhance promotional campaigns.

Product and UX Teams:

To improve the checkout flow and overall website design.

Customer Service:

To better understand customer pain points and address common concerns.

Executive Leadership:

To inform strategic decisions with data-backed insights on revenue optimization.

Project Metrics & KPIs

To gauge the success of our interventions and to thoroughly understand the user journey, we will focus on the following key metrics:

Cart Abandonment Rate:

The percentage of sessions where an item is added to the cart but no purchase is completed.

Conversion Rate:

The ratio of sessions ending in a completed purchase to total sessions with a cart addition.

Time Spent in Cart:

The average duration between the first item being added and the checkout process being initiated or abandoned.

Drop-Off Points:

The specific stages in the funnel where the highest percentages of users exit the process.

Revenue Impact:

Estimation of potential revenue loss from abandoned carts and the financial gains expected from conversion improvements.

Device-Specific Performance:

Abandonment rates segmented by device type (mobile, desktop, tablet) to identify usability issues.

Business Questions

Our analysis is driven by a set of targeted business questions designed to uncover the root causes of cart abandonment:

Q. What are the critical drop-off points in the checkout process, and at what stage do most users abandon their carts?

Q. How does the user's device affect their likelihood to abandon the cart? What could be the potential reasons with devices affecting user engagement?

Q. What is the impact of applied discounts and shipping costs on the decision to complete a purchase?

Q. Are there specific user segments or demographics that exhibit higher abandonment rates?

Executive Summary

SwiftCart abandonment analysis has 6.1K abandoned records with 1.5K Transactions across 2024 shows annual 255.6K revenue.

- **Cart Abandonment Drivers:**
    - Changed Mind (56.4%) is the most common reason among 1,304 abandoned sessions, influenced by both internal platform design and external seasonality.
    - High Shipping Costs (34%) and No Guest Checkout (34%) are the top reasons for abandonment across all devices.
    - Two month period, abandonment sessions peaked, with the highest rates occurring between weeks 20 and 30 (May to July). This pattern suggests a seasonal effect, particularly during summer sales.

- **User Behavior & Engagement:**
    - Users engage actively on the platform, but abandonment peaks after 30 minutes of browsing.
    - 78% of customers prefer shorter browsing sessions (<30 min), yet the platform's design encourages prolonged engagement.
    - First two pages retain 79.8% engagement, while engagement drops significantly beyond Page 3.

- **Conversion & Discounts Impact:**
    - Discounts significantly impact conversions, with 87.4% of discounted sessions converting versus 27.8% abandoned without discounts.
    - Bundled discounts drive a 75.2% conversion rate, particularly for carts with up to 4 items.
    - High shipping costs, especially without discounts, are a key barrier in North America (62.7%), Europe (65.9%), and Asia (58.4%).

- **Regional & Customer Segmentation Insights:**
    - North America leads in revenue share (40%), followed by Europe (19%) and Asia (19%), yet also has the highest abandonment rate (40%).
    - Existing customers generate 75% of revenue, with 6–12 month customers driving $129K in sales.
    - New signups increased in Q4 (Oct–Dec 2024), with new customers contributing 24% of revenue while showing higher initial engagement.

Opportunities for Growth:

- Reduce high shipping costs by introducing region-specific discounts to improve conversions.
- Enhance guest checkout functionality to reduce friction at the final purchase stage.
- Optimize product page engagement by simplifying navigation beyond the first two pages.
- Leverage bundled discounts to maintain high conversion rates and encourage multi-item purchases.
- Focus on customer retention strategies, as existing customers (6–12 months) drive the highest revenue but also have high abandonment rates.

customer_profile

customer_id 🔑	varchar
signup_date	timestamp
preferred_device	varchar
region	varchar
customer_tier	varchar
customer_tenure	varchar

cart_abandonment

session_id	varchar
customer_id	varchar
device_type	varchar
session_start	timestamp
first_item_added	timestamp
last_item_added	timestamp
discount_count	int
item_category	varchar
number_of_items	int
total_price	int
shipping_region	varchar
abandoned_checkout	varchar
checkout_attempted	varchar
payment_method	varchar
reason_for_abandonment	varchar
marketing_source	varchar
discount_applied	boolean
cart_spent_time	int

event_log

event_id 🔑	varchar
session_id	varchar
customer_id	varchar
event_timestamp	timestamp
event_type	varchar
event_details	varchar
device_type	varchar
s_no	int

transactions

order_id 🔑	varchar
session_id	varchar
customer_id	varchar
order_timestamp	timestamp
total_price	int
number_of_items	int
payment_method	varchar
shipping_region	varchar
device_type	varchar

Project Analysis Overview

This analysis aims to provide comprehensive insights into our project by addressing key business questions and understanding the underlying patterns and implications.

Structure of Analysis

What Questions: Examining the current state, metrics, and observable patterns

Why Questions: Understanding root causes and factors influencing outcomes

Insights: Drawing meaningful conclusions from the data

Recommendations: Based on the analysis and insights, strategic decisions will be made to identify opportunities for growth and improvement.

What Questions: Examining the current state, metrics, and observable patterns

What is the abandonment rate?

What is the total revenue?

What is the total lost revenue?

What is the average order value (AOV)?

Abandonment Rate%	Total Revenue	Total Lost Revenue	AOV (Avg. Order Value)
75.26	255.60K	759.85K	$164.45

Why Questions: Understanding root causes and factors influencing outcomes

Business Question:

Q. What are the critical drop-off points in the checkout process, and at what stage do most users abandon their carts?

Hypothesis:

• The longer users spend on the platform, the more friction they experience, leading them to leave without making a purchase (Longer platform time correlates with less engagement).

• Extended checkout process duration reduces the likelihood of converting cart items into purchases.

Key Questions:

• Does increased time spent correlate with decreased engagement during checkout?

• What are the most common reasons for abandonment during the checkout process?

Does increased time spent correlate with decreased engagement during checkout?

Number of users with Time Spend Category
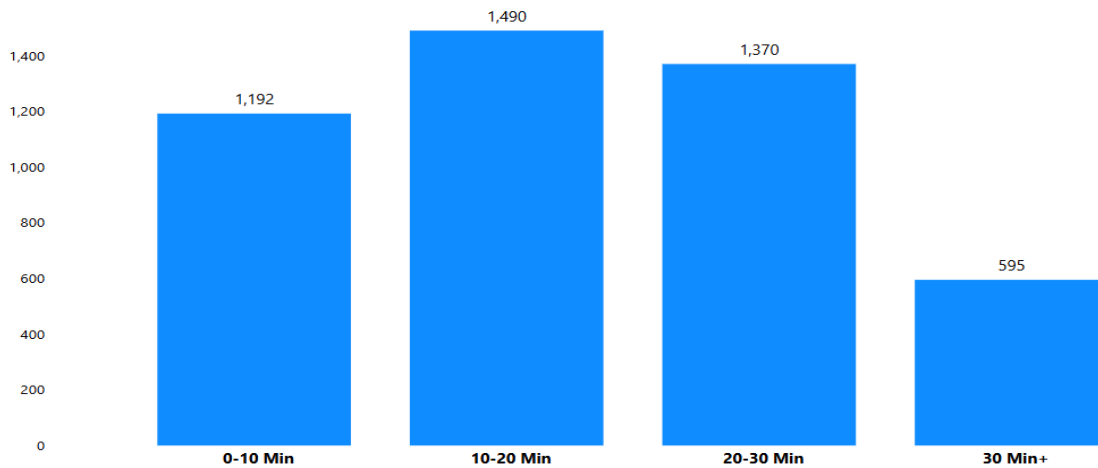
Insights:

- The majority of users **(4,052 out of 4,647 total users)** spend between **0-30 minutes** on the platform, showing a clear concentration in **shorter session durations**

- There's a significant drop in user numbers for sessions lasting over 30 minutes (595 users), indicating a clear user preference for shorter sessions

- **The peak usage occurs in the 10-20 minute** time bracket (1,490 users), followed closely by the 20-30 minute bracket (1,370 users)

What are the most common reasons for abandonment during the checkout process?

Abandoned Reasons During Checkout
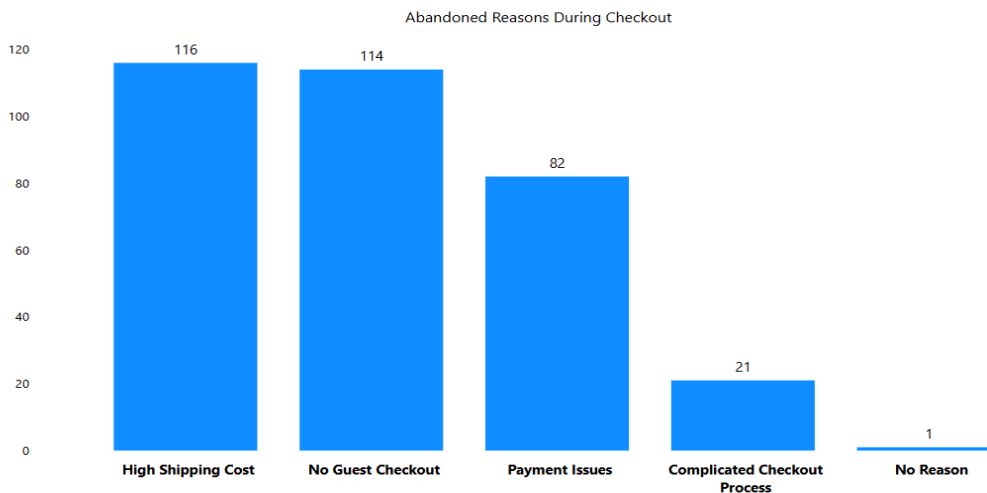
Insights:

- While multiple reasons for cart abandonment have been analyzed, three key factors stand out:
    - **High Shipping Costs (34%)**
    - **No Guest Checkout (34%)**
    - **Payment Issues (24%)**

- High Shipping Costs and No Guest Checkout significantly impact user engagement at the final stage, preventing successful checkouts.

- Two out of these three factors highlight usability issues within the website or application. However, high shipping costs remain a crucial deterrent, further discouraging users from completing their purchases, even beyond the absence of a guest checkout option.

💡 Let's dive deeper into this funnel and analyze the drop-off points at each stage.

Two key questions emerge:

At which stage does friction develop between users and the platform?

Are there any factors before checkout that create obstacles and complicate the shopping experience?

## At which stage does friction develop between users and the platform?

Funnel Analysis of Conversion Rate

	100%
Session Start	4K
Page View 1	79.8%
Page View 2	100.0%
Product Description	30.8%
Reviews	12.4%
Is Product Available	79.0%
Similar Product Recommend	60.2%
Page View 3	4,111.9%
Page View 4	66.2%
Page View 5	51.4%
Checkout Initiate	308.6%
Payment Attempt	22.6%
Complete Purchase	100.0%
	14.2%
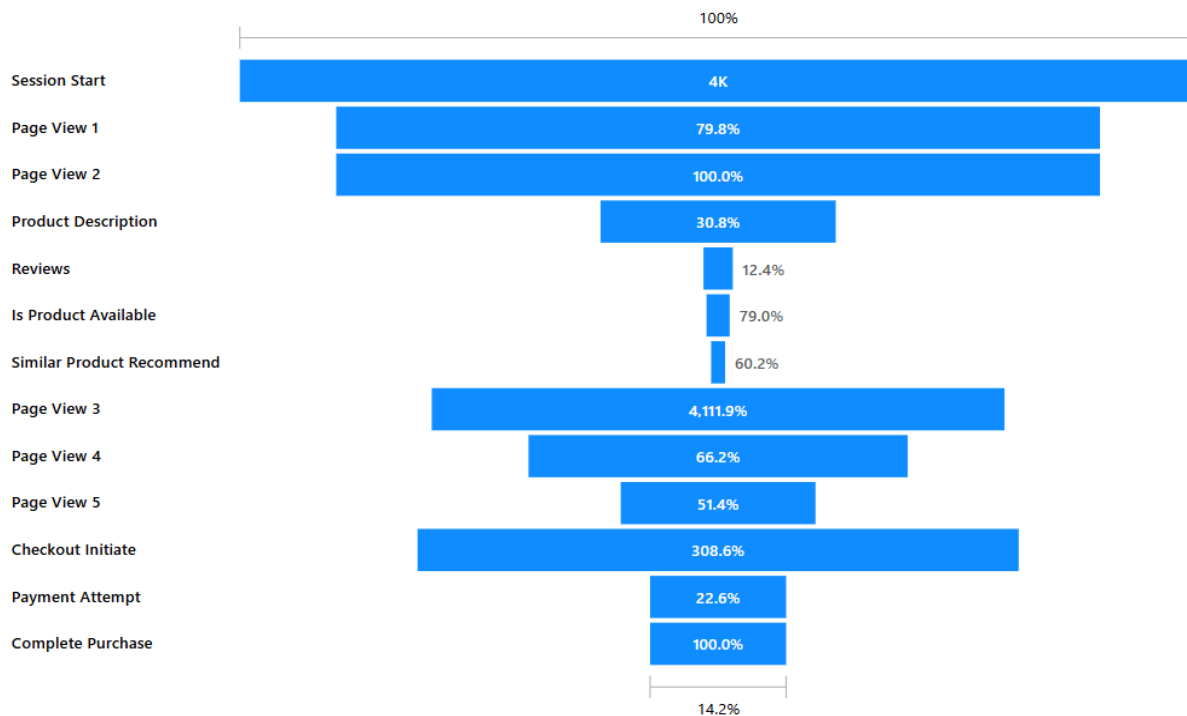
Insights:

- **Users begin with approximately 4,000 sessions, but the conversion rate drops to just 14.2%.** While the first two pages effectively engage customers and encourage browsing, a significant drop-off occurs on the Product Description & Reviews Page.

- The transition from the Product Description Page to the Product Recommendation Page may or may not impact user behavior. If product pages are well-designed, customers may not feel the need to explore reviews or similar products unless their desired item is unavailable.

- As users navigate through more pages, engagement declines, and friction increases. Pages 3 to 5 prove less effective compared to Pages 1 and 2, where engagement is notably high at 79.8%.

Are there any factors before checkout that create obstacles and complicate the shopping experience?

Abandoned Reasons Before Checkout
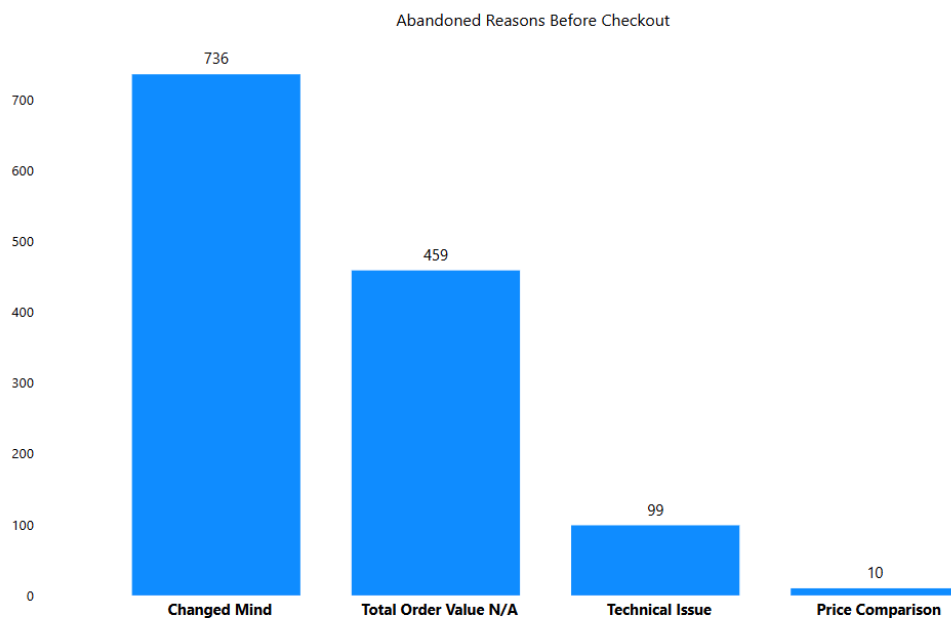
Insights:

- **Changed Mind accounts for 56.4% of cart abandonment cases, affecting 1,304 users who did not complete checkout.** This suggests that users often add items to their cart as part of a decision-making process, possibly weighing the perceived value against the total order cost.

- Additionally, **Total Order Value N/A and Technical Issues collectively contribute to 42.7%** of abandonment cases. **The absence of a clearly displayed final order value—including extra charges like shipping fees, handling costs, and government taxes**—prevents users from making confident purchase decisions, leading them to explore alternative platforms before completing their order.

Analyze the consistency of the growing abandonment rate trend over time and identify a specific period of significance.

Monthly Trend

Abandonment Sessions Monthly Trends
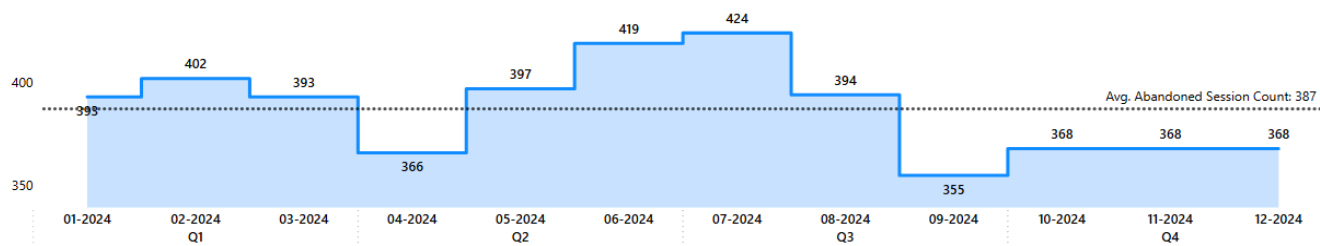
Weekly Trend

Abandonment Sessions Weekly Trends
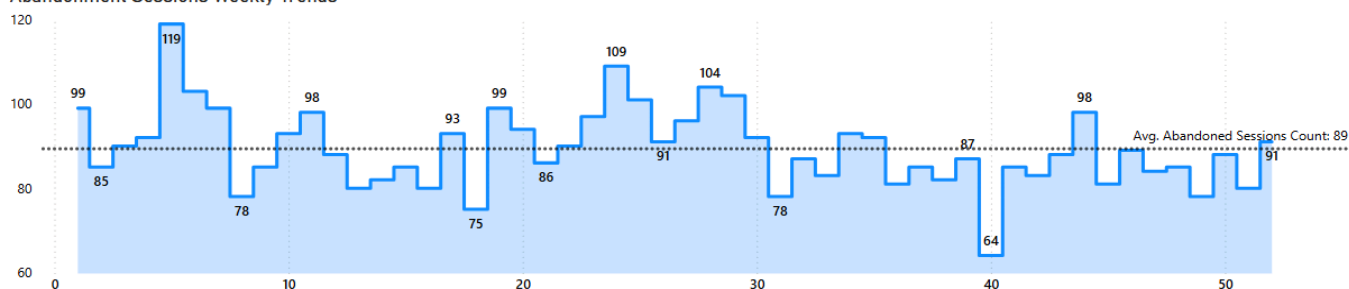
Insights:

- **Q2 and Q3 experienced the highest abandonment rates**, while Q1 also saw a rate above the average of 387 abandoned sessions.

- Q4 showed a consistent abandonment trend with no fluctuations, highlighting two potential key insights:
    - Users might be engaging with the platform.
    - New or existing users might not be returning.

- Over a two-month period, abandonment sessions peaked at 119, with the **highest rates occurring between weeks 20 and 30 (May to July)**, consistently exceeding the average abandoned sessions of 89.

- **This pattern suggests a seasonal effect, particularly during summer sales,** as customers explore multiple marketplaces to find the most budget-friendly deals.

Business Question:

Q. How does the user's device affect their likelihood to abandon the cart? What could be the potential reasons with devices affecting user engagement?

Pros and Cons of Different Devices:

- **Navigation Accessibility**
- **User Engagement**
- **Connectivity Access**
- **Screen Size and Visibility**

Hypothesis:

- **Mobile users are increasing on the platform at a higher rate than users of other devices.**
- **Users who prefer mobile devices for shopping tend to spend more time on the platform but are more likely to abandon their carts.**

Key Question:

- **What are major potential reasons that create friction while shopping and reduce customer engagement on the platform?**

Mobile users are increasing on the platform at a higher rate than users of other devices.

Monthly Trend

Signups Devices Monthly Trend

Weekly Trend
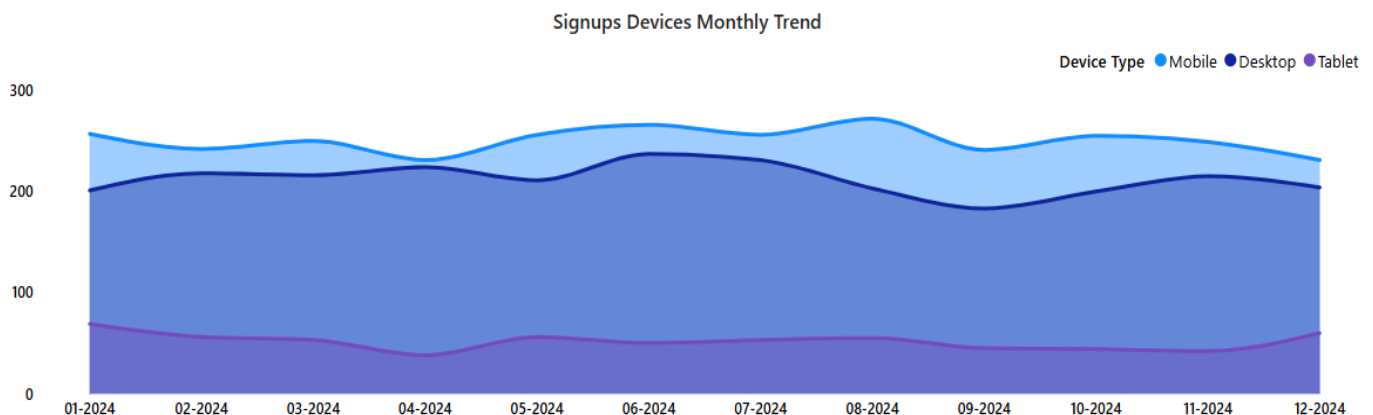
Signups Devices Weekly Trend
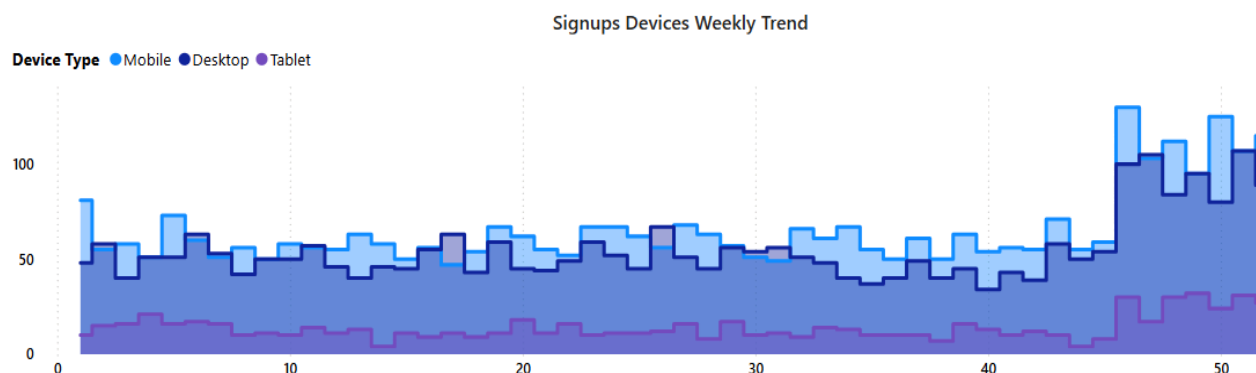
Insights:

- Mobile and Desktop are the primary devices used for signups, with tablets being less common. Both mobile and desktop signups have fluctuated at similar rates over time, but desktop has never surpassed mobile usage, reinforcing the shift towards M-commerce (Mobile Commerce).

- Between November and December, mobile and desktop signups declined, while tablet signups increased, showing a growing adoption of tablets leading into 2024. A further rise in tablet user adoption is expected in 2025.

- Weekly trends appear more dynamic than monthly trends. **From weeks 40 to 52 (October to December 2024), there was an increase in new user signups**, suggesting higher sales potential with a lower abandonment rate during this period.

Users who prefer mobile devices for shopping tend to spend more time on the platform but are more likely to abandon their carts.

Sessions Category With Different Devices
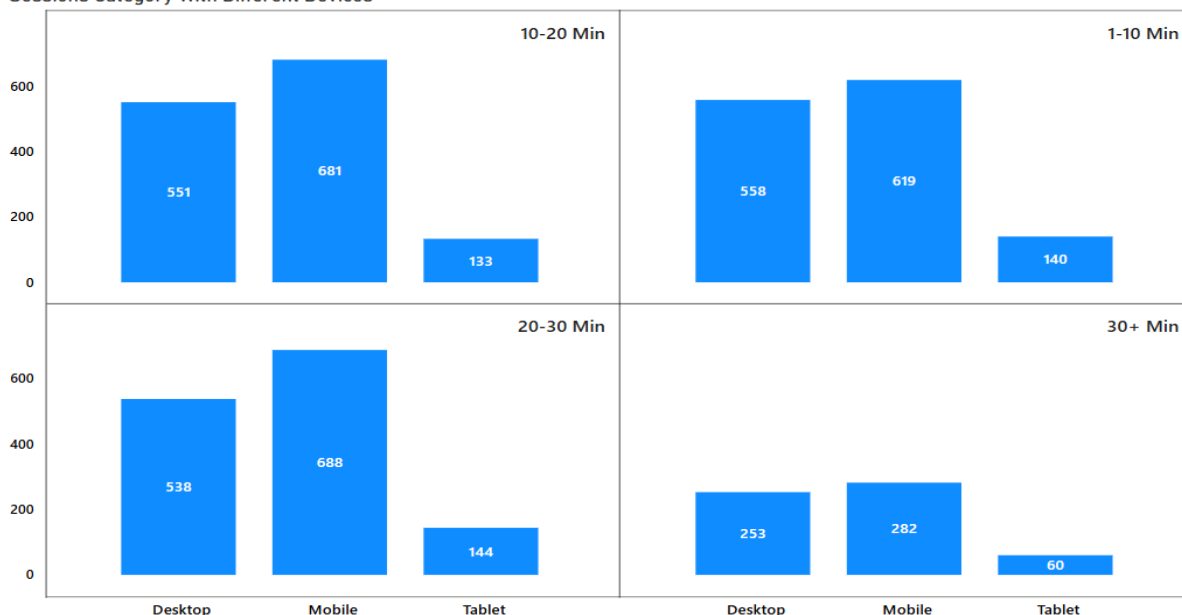
Insights:

- Users are highly engaged on the platform, which suggests an increase in sales. However, cart abandonment rates peak after 30 minutes of browsing.

- **78% of customers (Mobile & Desktop) prefer browsing for less than 30 minutes.** However, the platform's design encourages prolonged browsing, potentially delaying quick purchase decisions.

- As session duration increases, cart abandonment rates also rise, particularly among mobile users (1,988 out of 4,647 abandoned carts). The trend by session duration is as follows:
  - **0–10 min: 619 abandoned carts**
  - **10–20 min: 681 abandoned carts (9% increase)**
  - **20–30 min: 688 abandoned carts (1% further increase)**

This indicates that extended browsing sessions contribute to a higher likelihood of cart abandonment, especially among mobile users.

What are major potential reasons that create friction while shopping and reduce customer engagement on the platform?

Top 3 Abandoned Reason With Different Device Users
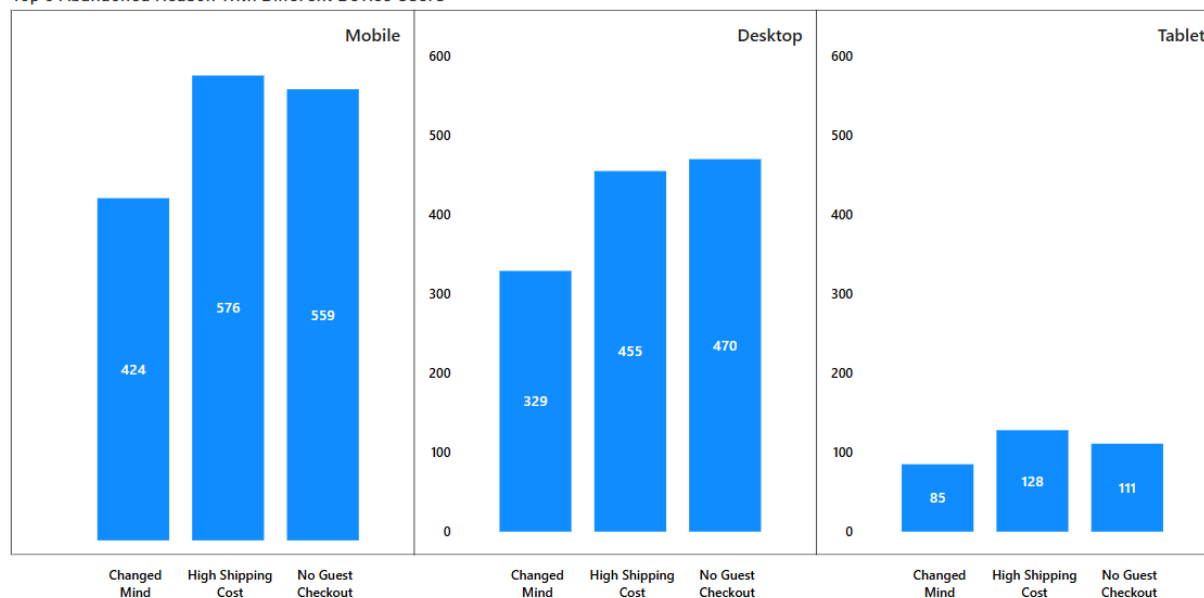
Insights:

- **49% of users abandon their carts on mobile devices, followed by 41% on desktop.**

- The top reasons for abandonment across all devices are High Shipping Costs and No Guest Checkout.

- **Two out of three key abandonment factors are internal platform issues.** However, Changed Mind can be influenced by both internal and external factors, particularly seasonal trends.

Business Question:

Q. What is the impact of applied discounts and shipping costs on the decision to complete a purchase?

Hypothesis:

- **Fewer applied discounts result in a lower conversion rate.**
- **High shipping costs, due to the lack of available discounts, reduce user engagement.**

Key Question:

- **Do fewer available discounts impact the conversion rate and increase cart abandonment?**
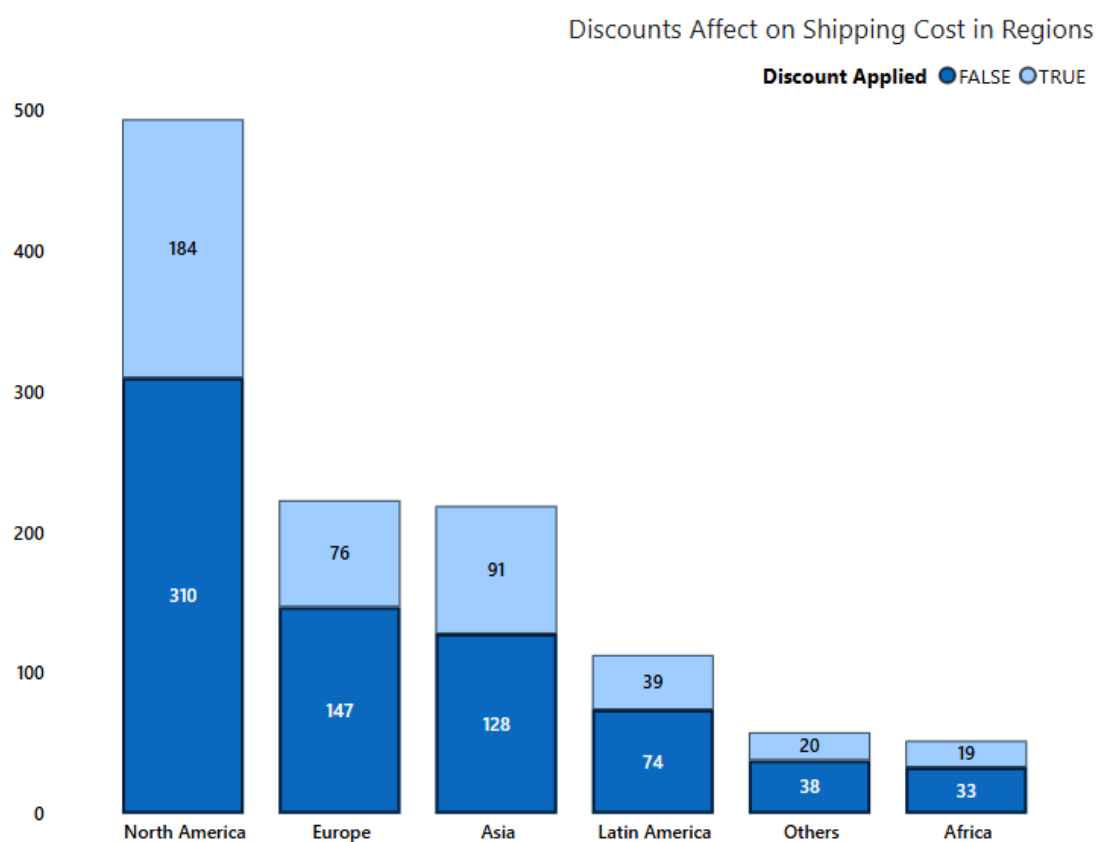- **How does bundle discount impact the conversion rate and abandonment rate, and what is their correlation?**

Do fewer available discounts impact the conversion rate and increase cart abandonment?

Discount Affect on Conversion & Abandonment
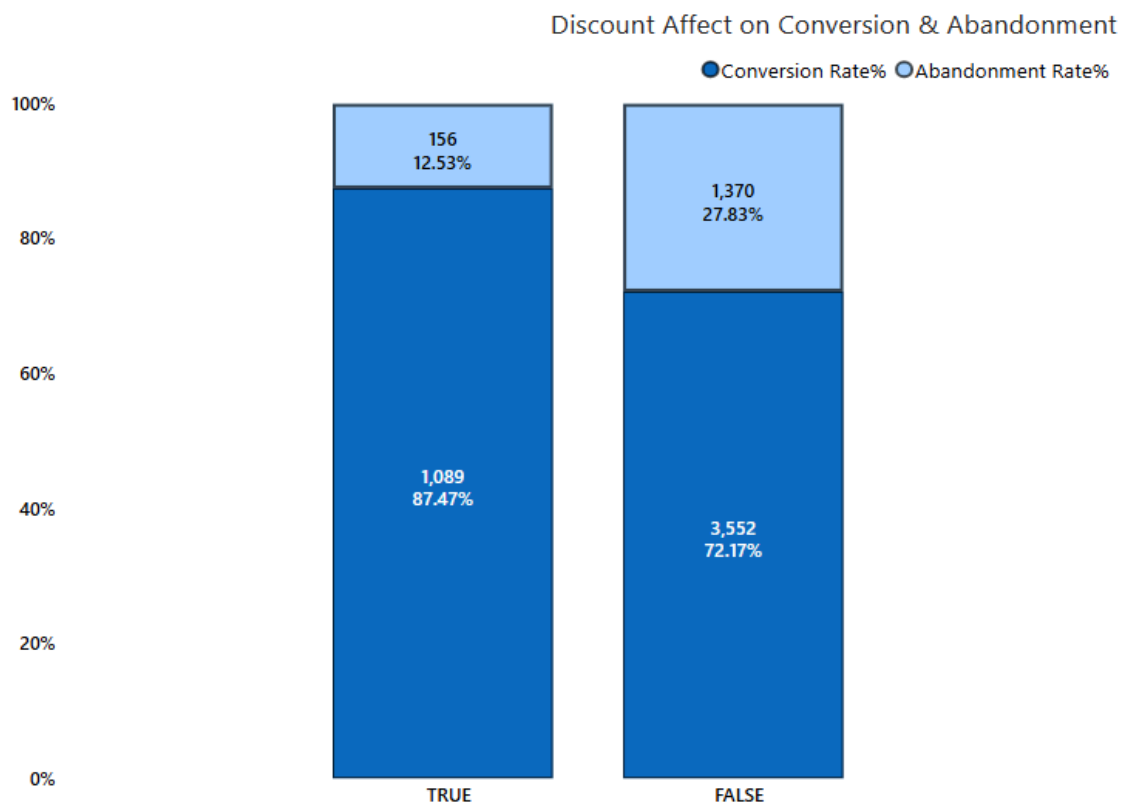
Insights:

- The **conversion rate significantly improves** when discounts are applied compared to when they are not.

- **1,089 sessions converted (87.4%)** after a discount was applied, whereas **1,370 sessions were abandoned (27.8%)** without any discount.

- This highlights the **strong impact of discounts** in driving conversions and reducing cart abandonment rates.
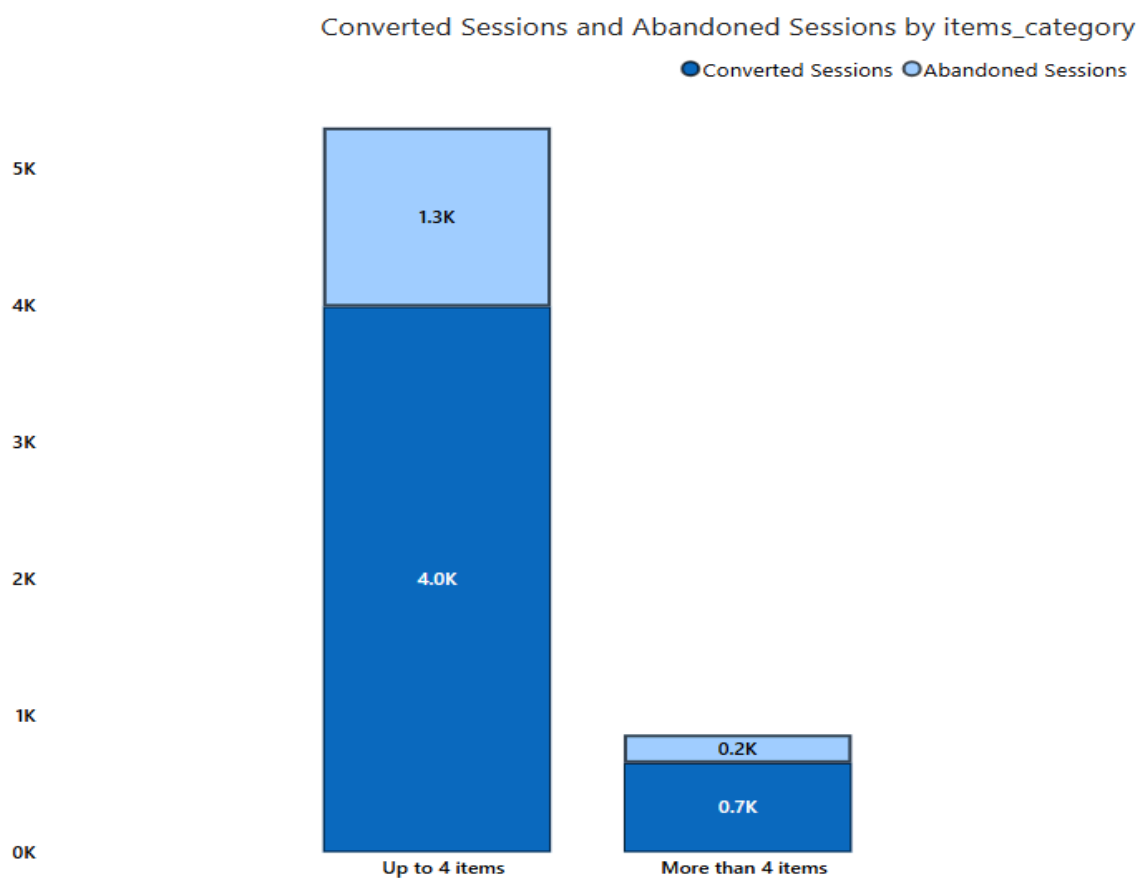
Does the availability of discounts help reduce shipping costs across different regions?

Discounts Affect on Shipping Cost in Regions

Discount Applied ● FALSE ○ TRUE

Insights:

- **North America has the highest number of abandoned sessions due to the lack of discounts**, with an abandonment rate of 62.7%, followed by **Europe (65.9%) and Asia (58.4%)**.

- Although Europe has the highest abandonment rate, the total number of abandoned sessions is highest in North America (310 out of 494 sessions).

- **Three out of six regions with large marketplaces are significantly impacted by high shipping costs**, primarily due to the absence of discounts.

How does bundle discount impact the conversion rate and abandonment rate, and what is their correlation?

Converted Sessions and Abandoned Sessions by items_category

● Converted Sessions ○ Abandoned Sessions

	Up to 4 items	More than 4 items
Abandoned Sessions	1.3K	0.2K
Converted Sessions	4.0K	0.7K

Insights:

- **Bundled discounts significantly boost the conversion rate to 75.2%**, particularly for carts with up to 4 items (3,994 out of 5,306 sessions).

- However, for **carts with more than 4 items, the abandonment rate remains high, with 653 out of 861 sessions abandoned.**

- The contrast between these two categories is striking, highlighting the effectiveness of bundled discounts in converting cart items into purchases and reducing the abandonment rate to 24.7%.

  Business Question:

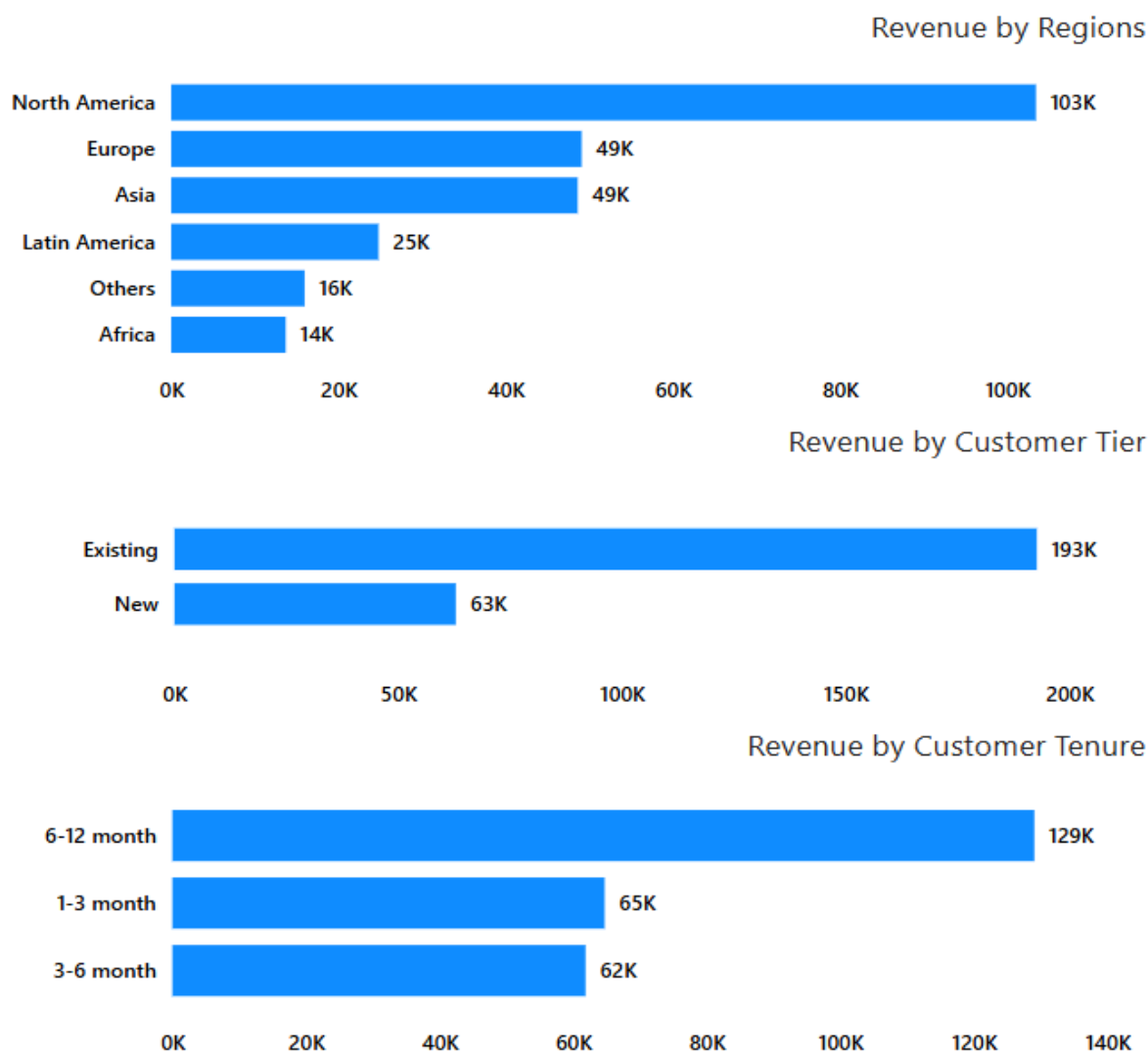 **Q. Are there specific user segments or demographics that exhibit higher abandonment rates?**

  Key Question:

  What is the total revenue for each region, customer tier, customer tenure, and how does it correlate with the underlying causes?

  Does a specific region have a significant impact on the abandonment rate?

  Which customer segments are most affected by cart abandonment? Is there a specific user group that plays a major role in this issue?

What is the total revenue for each region, and how does it correlate with the underlying causes?

Revenue by Regions

Region	Revenue
North America	103K
Europe	49K
Asia	49K
Latin America	25K
Others	16K
Africa	14K

Revenue by Customer Tier

Tier	Revenue
Existing	193K
New	63K

Revenue by Customer Tenure

Tenure	Revenue
6-12 month	129K
1-3 month	65K
3-6 month	62K

Insights:

- **North America leads with a 40% revenue share, followed by Europe (19%) and Asia (19%).**

- **Existing customers generate 75% more revenue** than new customers, **despite a rise in new signups over the last three months (Oct–Dec 2024).**

- **Customers who have been active for 6–12 months are driving sales growth**, contributing $129K in revenue and holding a 50% revenue share.

Does a specific region have a significant impact on the abandonment rate?

Abandonment Rate by Region
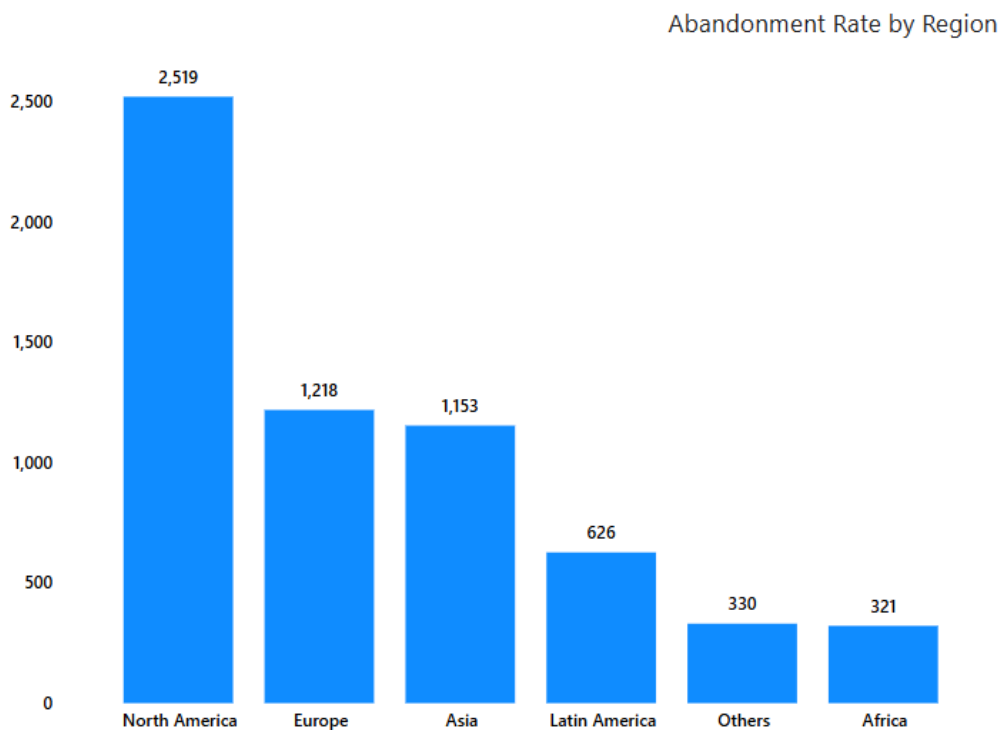
Insights:

- **North America has the highest abandonment rate at 40%, followed by Europe (19%) and Asia (18%).**

- The three major marketplace giants are all experiencing high abandonment rates, and shipping costs are a contributing factor across all of them.

- While high shipping costs may be the primary cause of the elevated abandonment rate, other factors also play a role in reducing this rate.

Which customer segments are most affected by cart abandonment? Is there a specific user group that plays a major role in this issue?

Customer Tier Analysis:

Abandoned Sessions by Customer Tier
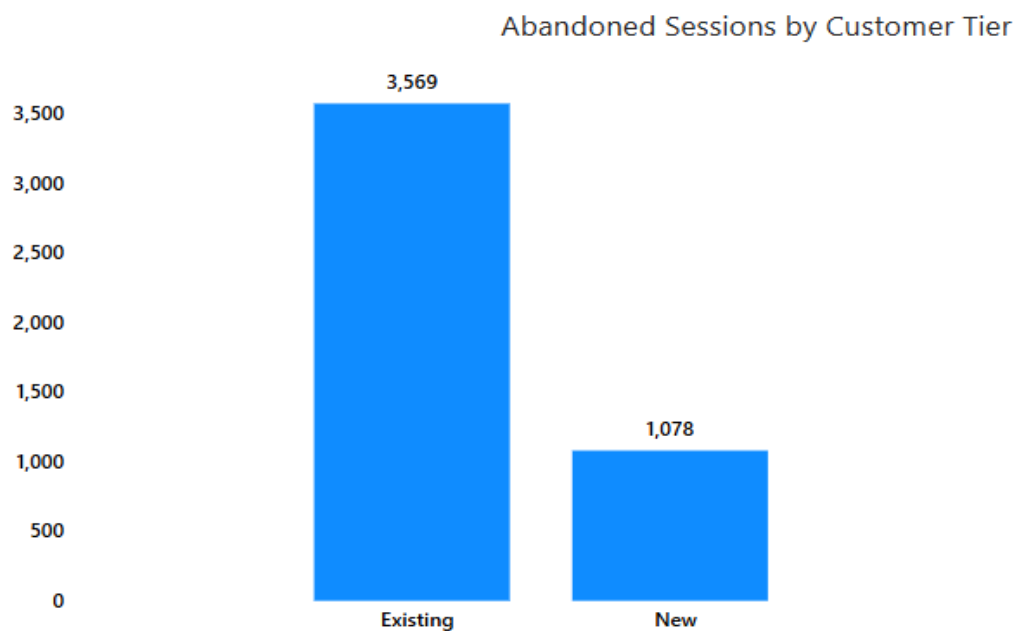
Customer Tenure Analysis:

Abandoned Sessions by Customer Tenure
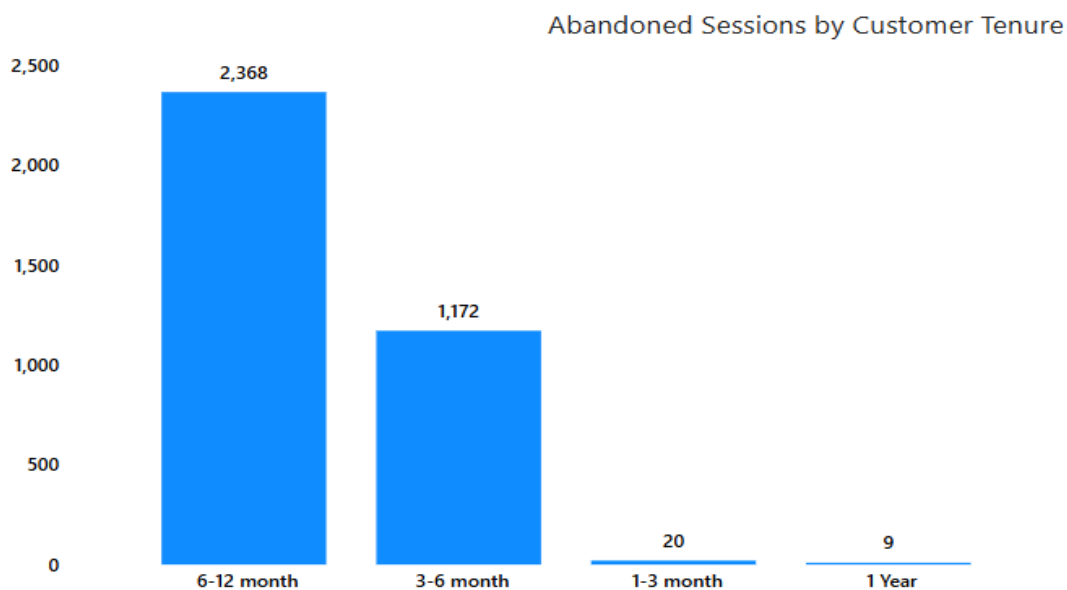
Insights:

- Existing customers are more affected by cart abandonment than new customers, as reflected in customer tenure data. **6–12 month customers abandoned 2,368 sessions, compared to 1,172 abandoned sessions by new customers.**

- **Despite higher abandonment, existing customers remain more loyal, contributing 75% of total revenue**. Meanwhile, new customers (1–3 months) account for 24% of revenue, with a lower abandonment rate, suggesting they are more engaged with the platform, especially during their first purchase.

Recommendations:

1. Optimize the Checkout Process

- **Streamline Checkout Flow:**

  Data indicates significant friction during the checkout process, particularly between the Product Description & Reviews and the Recommendation pages. Simplify the checkout steps by reducing unnecessary form fields and ensuring a clear, intuitive layout. Consider enabling a one-page checkout to reduce drop-offs.

- **Implement Guest Checkout:**

  The analysis highlighted "No Guest Checkout" as a key deterrent. Allowing guest checkouts can reduce friction for first-time users who might be reluctant to create an account.

- **Enhance Order Transparency:**

  A high percentage of abandonment is due to uncertainty about final order value—especially extra costs like shipping and handling. Clearly display all fees and total order value upfront to build trust and reduce surprises at the final stage.

2. Address Shipping Cost Concerns

- **Reevaluate Shipping Policies:**

  High shipping costs are a major reason for abandonment, especially in regions like North America, Europe, and Asia. Consider strategies such as:

- Introducing free or subsidized shipping for orders above a certain threshold.

- Offering flat-rate shipping or localized shipping promotions to reduce perceived cost barriers.

- Clearly communicating shipping fees early in the shopping journey.
- **Regional Strategy:**

  Tailor shipping promotions and messaging based on regional data. Since North America has a high volume of abandoned sessions due to shipping costs, targeted offers or partnerships with local logistics providers may yield improvements.

3. Leverage Discount and Bundle Strategies

- **Targeted Discounts:**

  The data shows a marked improvement in conversion when discounts are applied. Increase the visibility and availability of discounts—particularly bundled discounts—which have proven effective in driving conversion for carts with up to four items.

- **Dynamic Discounting:**

  Use A/B testing to refine discount levels. Experiment with different discount tiers (percentage vs. fixed amount) and monitor their impact on conversion and order value.

- **Promotional Campaigns:**

  Coordinate discount promotions with seasonal trends (such as summer sales) when abandonment tends to peak. This can help mitigate seasonal effects and boost conversion rates during high-traffic periods.

4. Enhance Mobile and Multi-Device Experiences

- **Mobile Optimization:**

  Analysis indicates that mobile users tend to spend more time but are more prone to abandon carts. Focus on:
  - Responsive, intuitive mobile design with simplified navigation.
  - Faster load times and optimized performance on mobile networks.
  - Mobile-specific features like larger buttons and streamlined forms.
- **Cross-Device Consistency:**

  Ensure that the experience is seamless across mobile, desktop, and tablet. Consistent UI/UX will reduce friction when users switch devices, leading to improved retention and conversion.

5. Refine User Segmentation and Retargeting

- **Customer Segmentation:**

  Dive deeper into customer profiles to identify segments (e.g., new vs. existing customers, device type, region) that have higher abandonment rates. Use this segmentation to tailor marketing and retargeting strategies.

- **Personalized Retargeting Campaigns:**

  For customers who abandoned their carts—especially high-value segments—implement retargeting strategies such as:

  - Follow-up emails with personalized discount offers.
  - Retargeting ads that remind them of the products in their cart.
  - Incentives to return and complete the purchase (e.g., free shipping or limited-time discount).

- **Feedback Mechanisms:**

  Introduce short, targeted surveys or exit polls at the point of abandonment to capture qualitative feedback. This can help identify hidden friction points and further refine segmentation strategies.