

Analyzing User Behavior in Cosmetics E-Commerce: Funnel Drop-offs and Retention Cohorts

1. Introduction

This analysis explores the user purchase behaviour in E-Commerce Cosmetics shops, between October 2019 and February 2020. It focuses on 2 main areas:

1. Funnel Analysis: Understanding how users move from viewing to purchasing the products, and which event in the whole process sees the highest drop offs (bottleneck).
2. Retention Cohort Analysis: Understanding how well the business retains its customers after their first purchase.

The main objectives behind this project are:

- To find at which stage most users drop off, preventing the conversion
- Within the funnel, which brand/s see highest conversion
- What proportion of customers return after their first purchase

Each and every part of the analysis for both the areas, is backed by insights (Data + Business) and corresponding recommendations.

2. Funnel analysis

2.1 Overall Conversion and drop off Funnel

Here, all the 5 tables, which represent data of 5 months from Oct-Feb, are concatenated to form one single table. Conversion rate and Drop Off rate is calculated for each stage (Views→Cart & Cart→Purchases).

Stage	Users	Conversion %	Drop-off %
View	1,597,754	–	–
Cart	398,308	24.93 %	75.07 %
Purchase	110,518	27.75 %	72.25 %

Insights:

- Biggest drop-off: (Bottleneck)
 - View → Cart process shows the highest drop off (75.07%)
 - This means that $\frac{3}{4}$ of the users just view the products but don't add them to the cart.
 - This suggests that people could have not liked the pricing, there might be low discounts and offers, users might be unclear with the product due to poor description and unclear images.
- Cart → Purchase conversion is comparatively better but there too, the drop off rate is nearly $\frac{3}{4}$ of the users who have abandoned their carts. It might be due to the process of checking out being complex or lesser payment options.
- The overall conversion rate is 6.92% which is decent but there is still a big room for improvement.

Recommendations:

- Designing the product pages in such a way that they are attractive, have detailed product description, clear product images, user reviews included, and clear pricing could help users have a clear idea about the product and help them in decision making with ease.
- Recommending related products or popular products will encourage the users to pick one.
- For treating the cart abandonment, the users could be given timely reminders and could be given small incentives on checkouts.
- The process of checking out could be more user-friendly where a user could be guided towards the next step with ease. Increasing the payment options could also help as not every user would be okay with using the given payment modes.

2.1 Month over Month Funnel Conversion and Drop Off

For each month, the conversion rate and drop off rate is computed, at each stage (View to Purchase).

Mth	Views	Carts	Purch.	Cart %	Purch. %	Conv. %	View→Cart Drop %	Cart→Purch Drop %
19-10	388,331	133,818	25,762	34.46	19.25	6.63	65.54	80.75
19-11	355,643	95,939	31,524	26.98	32.86	8.86	73.02	67.14
19-12	358,212	83,458	25,613	23.30	30.69	7.15	76.70	69.31
20-01	397,775	92,653	28,220	23.29	30.46	7.09	76.71	69.54
20-02	379,246	89,269	25,759	23.54	28.86	6.79	76.46	71.14

Insights:

- Higher Conversion in Holiday Season:
 - November shows the highest conversion rate (8.86%) followed by December and January.
 - This aligns with the holiday season sales and offers (festive offers and high discounts)
- Cart → Purchase Conversion is Best in November (32.86%):
 - More users are buying in November compared to any other month.
 - This could be likely due to heavy discounts and festive offers given for upcoming festivals like black friday, thanksgiving, christmas, etc.
- Views → Cart remains a bottleneck across all months:
 - Irrespective of the festive season, the percentage of users who don't add anything to the cart remains high.
 - This suggests that drop off rate being high is not a seasonal problem but happens consistently across the 5 months.

Recommendations:

- Continuing to give heavy discounts which don't harm the margins and limited time offers during festive season (nov-jan) will maintain or even increase the customer traffic, which could boost the sales and hence increase overall conversion.
- Limited time offers, order frequency linked rewards and smaller discounts could still be given off-season in order to encourage customers to buy.

- A minimum of 65% of users are abandoning the cart throughout the 5 months. With this drop rate being high, the users could be reminded with checkout rewards.

2.3 Month over Month Funnel with Cart Removes Adjustment

Here, the event 'remove_from_cart' is also considered which represents users removing the products they once added to the cart. So here, the net Cart, i.e., the final cart event before purchasing after removal is done, is considered.

Mth	View	Carts (Gross)	Removes	Carts (Net)	Purch	Cart % (Net)	Purch. % (Net)	Conv. % (Net)	View→ Cart Drop %	Cart→Purch Drop %
19-10	388,331	133,818	47,090	86,728	25,762	22.33	29.70	6.63	77.67	70.30
19-11	355,643	95,939	54,628	41,311	31,524	11.62	76.31	8.86	88.38	23.69
19-12	358,212	83,458	45,217	38,241	25,613	10.68	66.98	7.15	89.32	33.02
20-01	397,775	92,653	51,107	41,546	28,220	10.44	67.92	7.09	89.56	32.08
20-02	379,246	89,269	49,053	40,216	25,759	10.60	64.05	6.79	89.40	35.95

Insights:

- Removals are huge in Nov–Feb:
 - Except for October, the net add-to-cart conversion is very low in festive season (nov-jan) and in feb which could be post season slowdown.
 - This indicates that the user might be indecisive when it comes to buying one of the similar items where he/she might do price and quality comparisons, leading to adding and then huge withdrawals from cart.
- If the products are kept in cart, chances of purchasing are highest in festive season:
 - The chances of users buying the product after it being kept in cart are highest in November (76.31% conv rate) followed by January and December.
 - This aligns with high sales being done in the festive season.

Recommendations:

- For the products being added to the cart, showing limited time price drops (24 hours) could reduce the indecisiveness and encourage the user more to buy the product added to the cart.
- With limited time offers to the products, clubbing it with reminders of expiry of the deals will further encourage the users to convert.
- View → Cart drop rate remains high. Users should be reminded with timely offers and upcoming expiry of the corresponding offers too.
- For reducing the Cart → Purchase drop offs furthermore, making the checkouts user friendly and along with guidance could help decrease the drop offs.

2.4 Brand Funnel Segmentation

The 5 most popular cosmetics brands from over 200 brands are considered for side-by-side comparison on the basis of conversion rate at each stage and overall conversion rate.

Brand	Views	Carts	Purchases	Cart %	Purchase %	Conv. %
irisk	153,750	80,769	30,391	52.53	37.63	19.77
runail	193,942	92,607	35,411	47.75	38.24	18.26
grattol	106,093	49,325	17,150	46.49	34.77	16.17
estel	92,359	27,330	9,190	29.59	33.63	9.95
kapous	92,035	21,724	7,217	23.60	33.22	7.84

Insights:

- Leaders:

- Irisk has seen the highest overall conversion (19.77%) followed by Runail and Grattol.
- This suggests that those brands are prominent cosmetic brands which could be preferred by the most.

- Laggards:

- Kapous shows the least conversion (7.84%) followed by Estel (9.95%).
- This suggests that these brands and brands that are less popular than these 2 (other brands) are least preferred cosmetic brands among the users.

- Carting is the real differentiator:

- Purchasing conversion rates are almost similar regardless of the brand, but the leader brands have seen highest add-to-cart conversion.

Recommendations:

- For laggard brands, giving more offers and discounts, incentivizing on first purchase and showcasing these products well will encourage customers to buy more from these brands.
- Featuring the leading brands as a prominent figure on landing pages and continuing to give discounts and offers on festive seasons could maintain the usual traffic or might also boost it.
- As the drop outs after Cart → Purchase are similar for all the top 5 brands, improvising the payment process which includes user friendly UI and step by step guidance could increase the purchase conversions.

3. Retention Cohort

The cohort for a particular month is formed by taking users who did their first purchase in that particular month. For the subsequent months, their retention is analysed in order to understand what percentage of users of a particular cohort are getting retained for each of the subsequent months.

Cohort	Month 0	Month 1	Month 2	Month 3	Month 4
2019-10	100	18.49	12.78	13.19	10.45
2019-11	100	13.76	14.63	11.61	
2019-12	100	15.51	12.59		
2020-01	100	15.97			
2020-02	100				

Insights:

- Highest Month 1 retention in October Cohort
 - October cohort has seen highest initial stickiness (18.49%) in the 1st month, among all the cohorts.
 - This suggests that this could be due to the upcoming festive season (Nov-Jan) which increased the loyalty of users slightly and temporarily.
 - The retention decreases and is the lowest in Feb, indicating it could be due to the post-season market slowdown.

- All the other cohorts (Dec-Jan) show lower first month retention
 - The retention decreases smoothly, unlike after the 1st month of Oct, where the drop is significant.
- Overall, not a single cohort has seen long term loyalty with retention dropping every month.
- Weak customer loyalty
 - More than 80% of users are churning after they buy once (1st month retention drop is severe). This indicates that in each cohort, there is a majority of users who just buy once, and don't return. Only a few of them are loyal and buy on a regular basis.

Recommendations:

- Incentivizing the initial purchases (1st/2nd) with rewards could increase the purchasing frequency.
- For at-risk users (one time buyers), targeting them with timely reminders about exciting offers and deals could possibly re-engage them.
- Offering limited time offers and discounts could also help in encouraging the customers to buy more.
- Intensifying the marketing campaigns just before the festive season could draw more customers.

4. Conclusion

The funnel and retention analysis of the cosmetics e-commerce dataset highlights several key points:

- The overall view → purchase conversion rate considering data of all the 5 months is 6.92%. This is typical and there is still a big room for improving the numbers.
- More than 70% of the users are abandoning their carts which could be due to problems/friction in the payment process or due to competitors coming up with better pricing for the same or similar products.
- Conversion rate is seen to be high in Nov-Jan comparatively, suggesting that to be due to festive season and holiday campaigns.
- Funnel segmentation by brand revealed Irisk and Runail outperform in conversions whereas Estel and Kapous lag behind.
- Retention cohort analysis showed that regardless of any month cohort, after the first purchase, there is a drop of more than 80% of users in the subsequent months, indicating weak customer loyalty. The drop amplifies with each month passing by.

All in all, while the platform succeeds in attracting a huge number of customers, the conversion and retention, both still remain low. Changes in pricing, discounts, improving the product presentation, and making user-friendly checkouts could encourage more conversion. Alongside, focusing on retention strategies for one time buyers could decrease the churn rate.