From browsing to buying: an investigation into the life cycle of a customer considering a purchase

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Project Background

Online retailers have low conversion rates due to the non-committal, intermittent and wide-reaching nature of online shopping. To convert browsing consumers into paying customers, online retailers must have a data-derived understanding of the life cycle of a customer considering a purchase. The objective of this research was to better understand and predict customers' behaviour when they are considering purchasing from an online store. Behaviour across multiple touch points was summarised to review end-to-end journeys, from initial product interest, browsing, retargeting, to making a purchase. It was considered how the consideration periods differed by product category and customer segment.

Data and Methods

A customer journey framework was imposed on clickstream data to produce datasets for eight product types: ladieswear, menswear, childrenswear, footwear, electrical, furniture, homeware and seasonal. The investigation took purchases made on one of Shop Direct's websites – Very.co.uk – in the first six months of 2018, and created customer journeys based on how the customer browsed prior to purchasing. The customer journey included every observable website visit which displayed an interest in a product type, whether it was necessarily the same product purchased or not. The data consisted of 630,820 customer journeys, made from 6 million website visits. Six example customer journeys are displayed in Figure 1. Using nonparametric and semiparametric estimates, survival analysis predicted how the length of consideration periods differed by product type, customer demographics, and browsing characteristics.
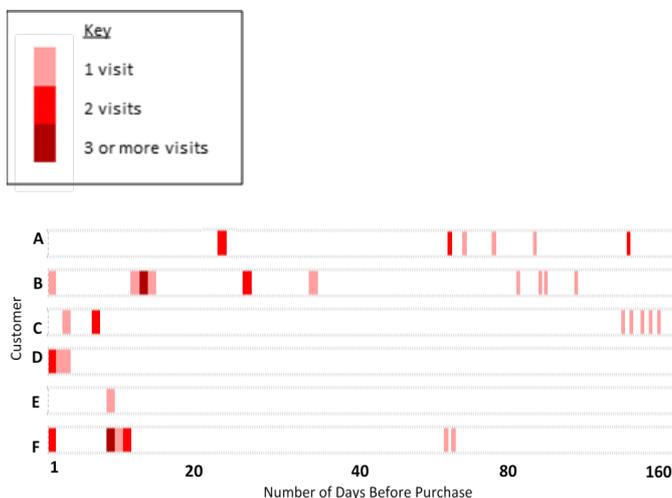

Figure 1: Number of days between website visits and purchases for six customers (A-F). The coloured rectangles

represent the number of visits made by a customer on a given day. The x-axis scale is halved at 40 days and again at 80 days.

Key Findings

The results of the product analysis provide empirical evidence for products which cause long transaction times but have so far only been identified as critical on a heuristic, non-data basis: bakery products, and loose vegetables and fruits. Moreover, it demonstrates the handling of promotional vouchers and other temporary items. The nonparametric estimates found that customer journeys were shortest in the menswear department, and longest for furniture purchases. Meanwhile, the semiparametric analysis revealed that browsing, customer, and product characteristics were all significant predictors of the consideration period, with some variables increasing the purchase consideration time and some slowing the consideration time.

Higher value items tended to lead to longer consideration times, except for menswear items, where price did not affect the consideration period. Customers who had made more purchases in the past spent less time browsing, most notably in the electrical and ladieswear departments. Shop Direct is moving away from segmenting customers by postcode, and towards segmentation by credit rating and previous shopping habits. The results from this study support this: the postcode-derived customer segments tended to heed insignificant results, whereas consideration times were heavily influenced by a customer's browsing history.

For ladieswear, childrenswear and furniture, gender did not predict consideration time and higher age resulted in shorter consideration times; whereas for the menswear, electrical, footwear and seasonal departments, it was found that older female customers had longer consideration times.

Value of the Research

The customer journey application and analysis method had significant weaknesses, such as not accounting for customer variation. Thus, the results cannot directly be applied to a marketing decision. However, this dissertation created an easily transferrable and innovative customer journey framework, and recommendations for how it could best be applied in future research. The results themselves can offer valuable preliminary insights which could be used to justify or challenge targeted promotional activities.