Assessing customer journeys with survey-based attribution modelling

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Abstract:

Contemporary approach to understanding consumer behaviour is to view it as a customer journey, in which the consumers interactions with brands and firms occurs through touch-points in multiple channels and media. While quantitative approaches, such as attribution modelling, are seen as effective methods to map these customer journeys and to attribute value to touch-points, there are several challenges in practice. There are ongoing changes in technology and access to data (e.g. decline of 3rd party cookies, changes in regulation), it is challenging to integrate data from online and offline channels, measuring value of word-of-mouth and other informal information sources. Many marketing scholars and practitioners are overwhelmed with these issues. This paper demonstrates an easy-to-use and easy-access approach for doing this with a survey approach. The paper reports findings of a pre-test, showing how many of the above mentioned challenges can be overcome.

Keywords: Customer journey, Attribution modelling, Marketing analytics

Track: Retailing & Omni-Channel Management

1. Introduction of Paper

Contemporary view of consumers' purchasing behaviour is that they are active in information search and use various channels during their purchase. This kind of buying behavior is commonly conceptualized as customer journey (Lemon & Verhoef, 2016; Stein & Ramaseshan, 2016; Ngarmwongnoi, Oliveira, AbedRabbo & Mousavi, 2020). Lemon and Verhoef (2016) posit that customer journey consists of touchpoints, which can be categorized into brand-owned (e.g. owned media and marketing mix elements), partner-owned (e.g. distribution and communication channels), customer-owned (e.g. customers thoughts about their needs or desires) and social/external touch points (e.g. peer influences and independent information sources). According to this categorization, firms have more control of brand-owned and partner-owned touch points, and less control on customer-owned and social/external touch points. Consequently, it is difficult to assess the impact of customer-owned and social/external touch points in customer journeys.

Empirical studies of customer journeys include both quantitative methods (e.g. attribution modelling, Anderl, Becker, Von Wangenheim & Schumann, 2016; Halvorsrud, Kvale, Følstad, 2016; Hosseini, Merz, Röglinger & Wenninger, 2016) and qualitative methods (Stein & Ramaseshan, 2016; Ngarmwongnoi et al. 2020). Benefit of quantitative methods include the ability to attribute conversions and value to the touchpoints, but it may be difficult to combine datasets to cover all types of touch points (Buhalis & Volchek, 2021). For example, particular difficulties are in the inclusion of both offline and online touchpoints. This is a problem because research has shown that consumers do actively use multiple touch-points for different purposes. This may take form of learning about products in either e-commerce shops and purchasing in a brick-and-mortar shop, a phenomenon called webrooming (Flavián, Gurrea, & Orus, 2020; Mukherjee & Chatterjee, 2021). Alternatively they may use its counterpart showrooming, where consumers learn about the products in a brick-and-mortar shop and then purchase from e-commerce shop. Another problem is the inclusion of touch points in the social/external and customer-owned touch point categories, such as word-of-mouth (hereafter WOM) and electronic WOM (hereafter eWOM). Further challenges to quantitative methods, such as attribution modelling, are related to the changes in the technologies and regulation of tracking consumers' behaviour online (see Papadogiannakis, Papadopoulos, Kourtellis, & Markatos, 2021).

Qualitative methods, in turn, have benefits in increasing our knowledge on all touch points, including WOM and eWOM (Ngarmwongnoi et al. 2020) and consumers' individual

touch points (Stein & Ramaseshan, 2016). The drawback of the qualitative approaches is the inability to attribute conversions and value to touchpoints and to provide a more generalizable view of the value of touchpoints.

The purpose of the present study is to develop and test an easy access method for assessing customer journeys with a survey data, which easily meets the General Data Protection Regulation (GDPR) requirements and is accessible to marketing scholars and practitioners who are facing challenges with customer journey mapping. The paper demonstrates this method and reports findings of the pre-study that utilizes quantitative attribution modelling approach to a survey data, which captures a wide set of both online and offline touchpoints. This method allows assessment of prevalence of webrooming/showrooming behaviours and assessment of the value of WOM and eWOM in consumers' customer journeys. Given that the present study demonstrates the pre-study of the approach, its theoretical implications are at the moment marginal due to inability to generalise the results. However, the potential contribution to the theory is related to increasing our understanding of consumer behaviour in a multi-touchpoint environment across different industries. This potential for contribution is discussed in more detail in the discussion section of the paper.

2. Measures and data collection

The questionnaire was administered in Qualtrics -survey platform. The respondents were first instructed to think about the previous time they purchased clothes, fashion or accessories. After this they responded to questions about what was the item purchased, its price in euros, and whether the purchase was a planned purchase or spontaneous purchase (i.e. impulsive buying). Those, who reported that their purchase was planned, were asked to select the touch-points from a list and rank them in order to describe the sequence of using "Pick, group, and rank" -question format. These questions were repeated for the customer journey stages of 1) need recognition, 2) search and evaluation, and 3) choice and purchase. Those, who reported that their purchase was spontaneous, were asked to select the point of purchase from a given list, and to indicate the reason that triggered their purchase. Finally the survey included two measures of demographics, age and gender.

The online survey was distributed to the post-graduate students during a digital marketing course. The survey was published with an anonymous link, so that no personal data was

recorded. The responses were collected within 5 days. The respondents were motivated by stating that the results will be shared and discussed in the next lecture. The course included 79 enrolled students and 54 students have been actively participating on the course. Final sample consists of 40 responses, which gives response rate of 74% of the active students. The student sample is intended as a pre-test of the method, and this conference paper focuses on reporting the findings of this pre-test study.

3. Analysis and Findings

The data was analysed with RStudio (version 1.1.463) software and for attribution modelling we used ChannelAttribution -package version 2.0.4 (Altomare, Loris, & Altomare, 2016).

3.1. Sample description

The reported gender included only female (70%) and male (30%). The mean age of the respondents was 27 years (standard deviation = 5.04). The total sum for the value of purchases reported in the data was 2884 euros, with the average purchase of 72.1 euros. Regarding the purchase type, 70 % were planned purchases and 30 % were spontaneous purchases. Spontaneous purchases accounted for 399 euros and planned purchases accounted for 2485 euros. Mean value of the planned purchases was 88.75 euros, which was larger than the mean value of the spontaneous purchases 33.25 euros ($t = 2.5717$, $df = 38$, $p = 0.01416$).

The most important point of purchase for spontaneous purchases was shopping mall (accounted for 220 euros), followed by online shopping/brick-and-mortar store (103 euros, these channels were mistakenly grouped together in the pre-test questionnaire), physical second-hand (63 euros) and supermarkets (13 euros). The reported triggers for spontaneous purchase were attractiveness of the product (11 times mentioned), finding something that respondent really needs (5 mentions), and good discount (3 mentions).

3.2. Analysis of customer journeys for planned purchases

Attribution modelling with Markov chain -approach (Anderl et al., 2016) was used to depict the sequence of touch points in the customer journeys. More specifically, transition probabilities of 1st order Markov attribution were calculated first separately for the individual

customer journey stages: Need recognition, Search & Evaluation, and Choice & Purchase. These transition probabilities are depicted as heatmaps in Figures 1 – 3.

When we look at the highest transition probabilities depicted in Figure 1, the most probable start for the need recognition is due to face-to-face discussions with someone, which is then often followed by online browsing using a search engine. It appears that many respondents look for online reviews and move on to discuss in social media. As expected, multiple touch-points are involved already in the need recognition stage, and we can see the importance of discussions (WOM and eWOM), as well as traces of both showrooming and webrooming.

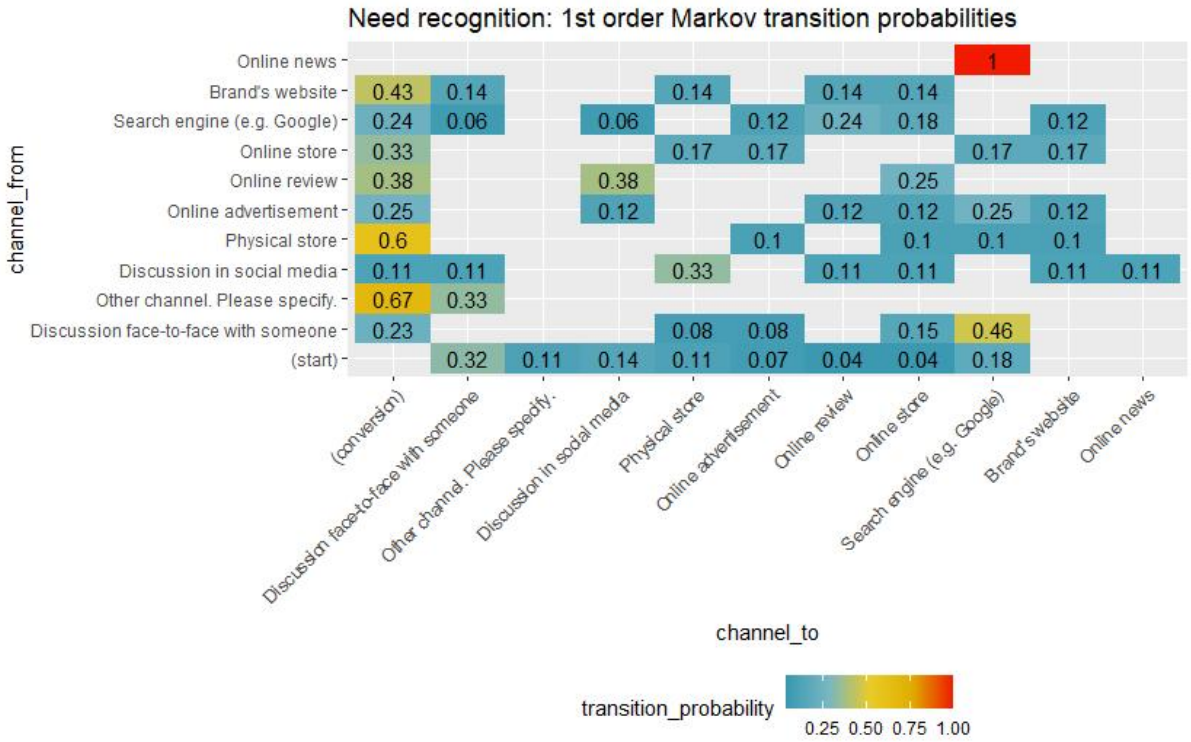

Figure 1. Customer journey touch points during need recognition

During the search and evaluation stage of the customer journey (see Figure 2), the importance of search engines as an early touch point is clearly shown. We can also observe that reading blogs appears during this stage. Interestingly blogs appear to guide respondents to brand's own websites, which shows value of influencer collaboration. In this stage we can observe more evidence of webrooming, but we do not observe showrooming (although this might be also due to Covid-19 restrictions). Both WOM and eWOM (i.e. discussions online and offline) appear important during search and evaluation. The highest transition probabilities to entering choice and purchase stage are observed from physical stores, brands' websites, and blogs.

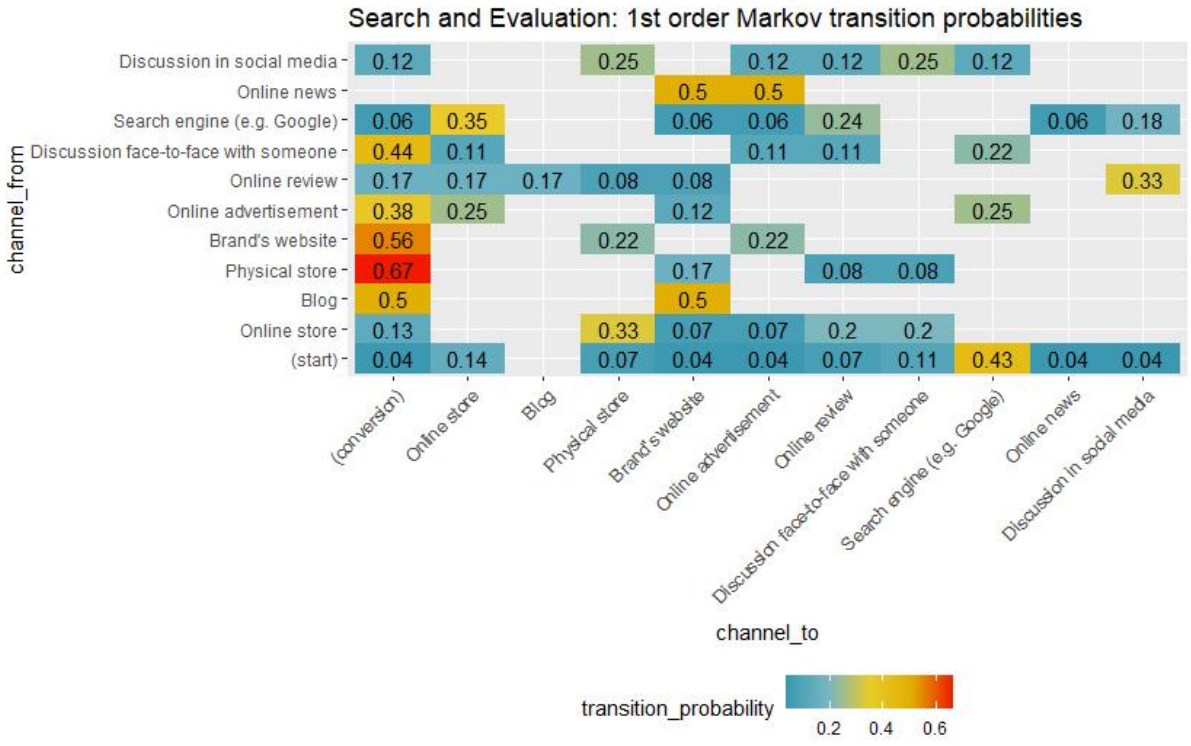

Figure 2. Customer journey touch points during search & evaluation

In the choice and purchase stage (see Figure 3), we can see further evidence of webrooming: while the online stores are have the highest transition probabilities from starting the choice and purchase, the actual conversion of the purchase is mainly done in physical stores, followed by physical 2nd hand markets and then online stores. Interestingly, the respondents do seek for the options in the online 2nd hand markets, but we do not observe actual purchases from this channel.

3.3. Attributing purchase value to touch-points in customer journeys

For the purposes of attributing purchasing value to the touchpoints, we combined the three stages in customer journey (Need recognition, Search & Evaluation, and Choice & Purchase) into one stream of touch-points. Following the recommendations made by Anderl et al. (2016), we use 3rd order Markov-model for this attribution task.

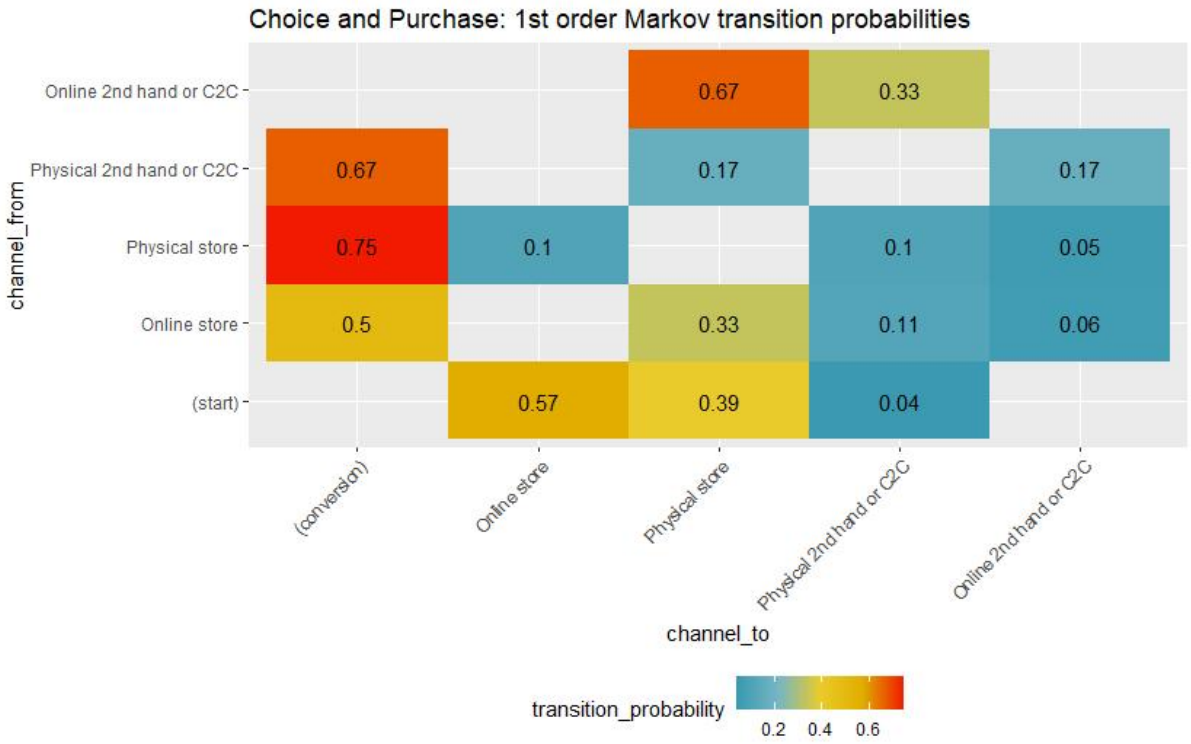

Figure 3. Customer journey touch points during choice & purchase

As depicted in Figure 4, the highest value (i.e. 410 euros) is attributed to online store and the second highest value (360 euros) is attributed to physical store. It is important to note, that all of this value is not about the final purchase, but as indicated in the previous analyses, both online and physical stores serve as information channels for consumers webrooming and showrooming behaviours. Search engine is the third ranked touch-point with the value of 335 euros. After these touch-points it seems that the value of WOM and eWOM is important. Face-to-face discussions (WOM) are ranked fourth in their importance with attributed 291 euros. In the case of eWOM, it appears that online reviews (255 euros) outweigh the value of discussions in social media (ranked 7th with 195 euros).

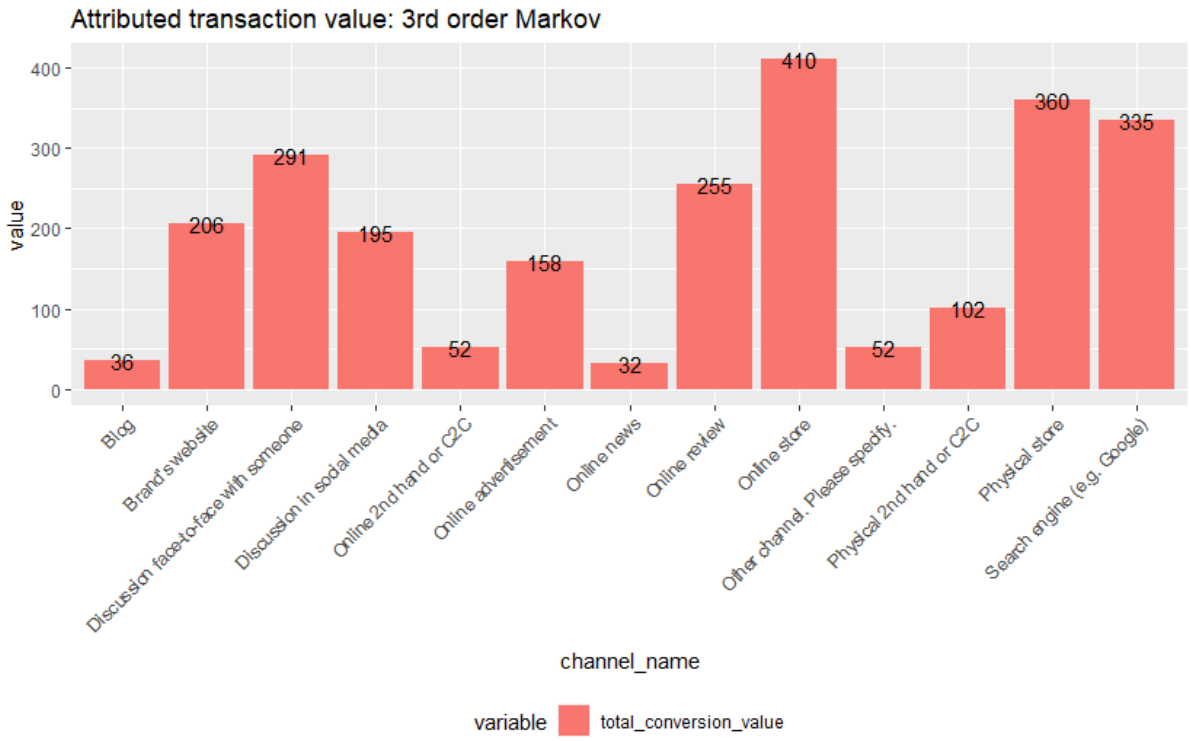

Figure 4. Attribution of purchase value (Total 2484 euros) to touch-points in customer journey

4. Discussion

The purpose of this paper was set to demonstrate an easy-to-use and easy access method for studying consumers' customer journeys and touch-point-attribution with a survey data. The benefits of this approach include ability to assess both online and offline touch-points and to include into the analyses also the customer-owned and social/external touch-points (Lemon & Verhoef, 2016). With the approach we have been able to demonstrate the value of WOM and eWOM in customer journeys, supporting the findings of qualitative studies (e.g. Ngarmwongnoi et al., 2020). We have also been able to assess the extent of consumers' webrooming and showrooming behaviours, and our preliminary findings of the pre-study confirm the prevalence of webrooming (Flavián, Gurrea & Orus, 2020) in the fashion industry, which was the context of our pre-study. Further benefits of this approach is that it is very light to administer, so that it meets the data security issues outlined by GDPR. Also the difficulties related to online tracking due to decline of 3rd party cookies (Rivero, 2021) do not prevent using this approach.

The survey-based data collection can be designed for different levels of analysis. The touchpoints in the survey can be tailored for individual firms (e.g. naming specific brands or

e-commerce stores), which allows assessment of competing firms' touchpoints in the customer journeys. This is not typical in the attribution models for data observed from digital channels. Alternatively the touchpoints can be designed as more generic (as it was done in the present pre-study). This allows generating more general understanding for consumer behaviour within a certain field of industry (such as clothing & fashion in the present pre-study). The potential contributions to both theory and practice is that for example by comparing customer journeys between different industries will increase our knowledge on the environments in which different touchpoints (e.g. WOM and eWOM) have more importance, or if the sequence of touchpoints (e.g. webrooming vs. showrooming behaviours) differs across different industries. The pre-study reported in this paper will be followed by a large scale survey, comparing different industries.

There are, of course, limitations and disadvantages of the demonstrated approach. These are typical problems associated with surveys with self-reported responses. The representativeness of the sample is needed, which might be difficult with online surveys. Also the measures are self-reported and therefore the responses might biased because consumers might not remember the actual touch-points in their customer journeys, or they might be reluctant to give this information.

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