

COGITATING RECOMMENDER SYSTEMS FOR CONSUMER ENGAGEMENT IN THE DIGITAL AGE BY INDIAN SMES

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ABSTRACT

The digital age is bedecked by emergence of technological tools to assist better decision making by the consumers. These tools when used tactfully by the marketers, can result into enhanced revenue and minimal costing thus showing the impact on profit margins. Recommender system is one of such approaches used majorly for customer engagement by the big ecommerce retailers like Amazon. This digital tool holds lot of potential for SMEs also which can help in better targeting of customers, influencing them in favour and various other prospects. The chapter deals with the concepts of recommender systems, customer engagement and how it can be used by the SMEs of India to get the maximum leverage of digital platforms and their unlimited versatility.

INTRODUCTION

The marketing ecosystem has drastically changed in the last decade. Customer is no longer a passive receiver of messages of the company but is actively engaged in interactive relationships. Interactions are moving from one-way mass media like print media, radio and television to interactive online, social and mobile platforms. Online and mobile media are gaining a great importance in the lives of customers in today's era. A good amount of research points to the fact that engaged consumers might exhibit greater loyalty towards brands. These concepts have been well applied to the various larger organizations but the application of the same to Small and Medium Enterprises (SME) is still lacking. This paper tries to study the conceptual foundations of recommender systems for Consumer Engagement, literature review around that and its application/ advantages to SME. A recommender framework, or a suggestion framework is a subclass of data separating framework that tries to anticipate the "rating" or "inclination" a client would provide for a thing. They are essentially utilized

in business applications. Recommender frameworks are used in an assortment of regions and are most normally perceived as playlist generators for video and music administrations, item recommenders for online stores, or substance recommenders for web-based media stages and open web content recommenders. These frameworks can work utilizing a solitary information, similar to music, or different contributions inside and across stages like news, books, and search questions. There are additionally famous recommender frameworks for explicit themes like cafés and web-based dating. Recommender frameworks have likewise been created to investigate research articles and specialists, colleagues, and monetary administrations. The constructs of recommender system for Customer Engagement is applicable to various types of businesses and in the following paper its applications to the Small and Medium Enterprises would be studied.

RECOMMENDATION SYSTEM: THE CONCEPT

The recommender system, which examines information about the user and forecasts the rating that the user could award to a product, is one of the most important components underlying the operation of a recommendation engine. The ability to forecast client opinions before they are supplied makes recommender systems a valuable resource. A recommendation engine commonly analyses the data through the four stages

Collection: Data gathered here might be explicit, like user-supplied data (reviews and opinions on items), or implicit, such as page visits, past purchases history, and cart events.

Storing: The sort of information used to generate recommendations can help to determine whether one should use a NoSQL database, a conventional SQL database, or object storage.

Analysing: The recommender system filters and identifies products with comparable user interaction data by utilising several analytical techniques

Filtering: The final stage is to filter the information to obtain the essential information needed to offer suggestions to the user. And, to do so, one must select an algorithm appropriate for the recommendation engine.

Different Kinds of Recommendation Systems: Recommendation engines are classified into three categories- collaborative filtering, content-based filtering, and a combination of the two.

Collaboration filtering: Collaborative filtering is concerned with gathering and evaluating data on usage patterns, actions, and tastes to anticipate what an individual would enjoy based on their similarities to other users. Collaborative filtering uses a matrix-style technique to visualise and quantify these similarities. One benefit of collaborative filtering is that it does not need content analysis or comprehension (products, films, books). It just chooses which products to recommend depending on what it understands about the consumer.

Content based filtering: Content-based filtering operates on the premise that if one likes a product, he will enjoy the other product as well. Algorithms utilise

cosine and Euclidean distances to calculate the similarity of things to generate suggestions based on a profile of the user's interests and a profile of an article (type, product category, hue, word length).

Demographic based recommender system: The goal of this system is to categorise people based on characteristics and provide suggestions based on demographic groups. Many industries have adopted this technique since it is neither over complex or difficult to execute. To categorise data in a Demographic-based recommender system, the algorithms must first do adequate market research in the given region, followed by a brief survey. Demographic methods, like collaborative ones, create "people-to-people" connections, but with different data. A demographic method has the advantage of not requiring a history of user ratings, as collaborative and content-based recommender systems do.

Utility based recommender system: A utility-based recommender system generates recommendations based on the utility of each object for the user. The fundamental issue for this sort of system is, how to develop a utility for individual users. Every industry will have a distinct approach for arriving at a user utility function and applying it to the items under consideration in a utility-based system. The major advantage of adopting a utility-based recommender system is that it may include non-product factors into the utility computation, such as vendor dependability and product availability. This allows the user to verify the object's inventory in current time and present it to them.

Knowledge based recommender system: This form of recommender system makes suggestions based on assumptions about a user's requirements and preferences. Knowledge-based recommendation is based on functional knowledge: they understand how a certain item fulfils a specific user demand and thus can reason about the link between a need and a probable suggestion.

Hybrid recommender system: The hybrid recommendation system is recognised as the combination of either system in ways appropriate to a given industry. This is the most desirable recommendation system for many organisations since it combines the qualities of more than two recommendation systems and removes any shortcoming when only one recommendation system is utilised. The systems can be integrated in many ways, for example:

Weighted Hybrid Recommenders: The outcomes of all the recommending strategies contained in the system are used to calculate the score for a recommended item. For example, the P-Tango system merges collaborative, content-based recommendations that give it identical weight at the outset, but gradually adapts the weighting to confirm or disconfirm user rating forecasts. The hybrid combination does not employ numerical scores but treats each recommender's output as a group of votes, which are merged in a consensus system.

Switching Hybrid Recommender: Switching Hybrid Recommender alternates between recommending approaches depending on certain criteria. Suppose that if the contents of the switched hybrid recommender systems are combined with

collaborative recommender systems, the content-based recommender system can be deployed first.

Mix hybrid recommender: Where a high number of suggestions may be made simultaneously, Mixed Recommendation Systems should be adopted. More than one approach recommends here, so that the user may pick from a variety of options. Most media and entertainment firms utilise the PTV system, which is largely suggested to offer TV consumers created by Smyth and Cotter

THEORETICAL UNDERPINNING OF CONSUMER ENGAGEMENT

Consumer engagement could be defined as customer's behavioural interactions towards a specific brand or firm (Van Doorn *et al.*, 2009). Industries, companies and consultants worldwide are using the fundamentals of consumer engagement (Gambetti, Graffigna, & Biraghi, 2012) to their benefit. According to Sashi, (2012) consumer engagement could be defined as creating a long-term relationship with clients, and managing to adapt and facilitate innovative approaches. It is a concept that could be treated as a tool to facilitate predictive power of customer behaviour including loyalty and referrals (Roderick and Brodie, 2011; Brodie *et al.*, 2011; Calder *et al.*, 2009). "Consumer engagement could be defined as the intensity of consumer's participation and connection with the organization's offerings, and/ or organized activities."

Customer engagement could also be defined as a psychological state that occurs by virtue of interactive co-creative customers experiences with a focal agent/object (e.g. media) Brodie *et al.* (2011). In an era of digitalization, online, social and mobile are gaining more and more importance and also leading to high customer engagement and in turn creating better business results for companies. It results into winning customer loyalty. Loyal customers not only remain as a stakeholder but also create good value and high business equity in satisfying consumer needs and wants. Customer engagement in turn also plays a very important role in new product and service developments and in co-creating experience and value for the customer.

Consumer engagement is a psychological process that drives customer loyalty and a form of connection that consumers make with other consumers, companies and specific brands that is conducive to enhancement of brand loyalty (Brodie *et al.* 2011). Customer engagement has a significant impact on consumers tendency to repeat purchase. Customer Engagement is said to be an antecedent to customer loyalty and explains customer loyalty in addition to the traditional relational constructs of satisfaction, usability and convenience in interactive environments. Customer loyalty can be achieved with the help of customer engagement (Bowden 2009).

Acquiring new customers entails a huge effort and cost that many small businesses don't have, whether the business is online or offline. Acquiring new customers is 25 times more expensive than retaining current ones. Customer engagement is considered as one of the most effective and least expensive ways for small businesses to grow their profits. Any businesses success depends on their loyal customers. These customers not only account for 80% of the revenue for the company but also get referrals for the company.

MEASURING CUSTOMER ENGAGEMENT

Engaging customers is a necessity and is also important to study its impact on the profitability of the organization. In a small to medium –sized business, two simple metrics can be used to determine whether the engagement has created profitability for the organization:

Average purchase amount: This will tell about the customers spend per purchase. Loyal customers spend 66% more than the average customers.

Purchase frequency: Customer engagement keeps your organization on the top of the mind of the customer resulting into more purchases.

SIGNIFICANCE FOR SMALL AND MEDIUM ENTERPRISES

Small and Medium Enterprises play a very important role in any country's development and this role enhances in a developing country like India. SME play an important role in development of the country in terms of employment generation. Over 110 million people were employed by SME in the FY 2016 (source Statistica 2022). Employment generated in the urban areas by micro, small and medium enterprises was significantly higher than in rural areas. Among Business sizes, micro enterprises accounted for the largest share of employment in the country. Thus, they play an important role in a country's economy. They outnumber large firms considerably, employ greater number of people. These are generally entrepreneurial in nature and foster innovation.

Consumer engagement strategy creates opportunities to interact with the customers and forge deeper relationships with them. It can give you tools to drive growth, enhance the overall user experience and retain customers. Consumers can be engaged in variety of ways; the following are some of the most effective and widely used tactics:

Focus on metrics: SMEs can explore analytics to improve customer engagement. Metrics like usage frequency and active users can be used to measure customer engagement. By analysing user behaviour, key insights into customer base can be gained and thus optimization of the services can be done, and casual transactions can be converted into long-term bonds.

Provide an Omni Channel customer experience- The core element of customer engagement strategy is providing customers a seamless experience across multiple channels. The customers would be sure that their needs are met, whether through an in-person's meeting or by reaching out on social media.

Offer enhanced services for heavy usage customers- Some customers of the organization are heavy-usage customers who purchase your products and may also have referred friends and family. These are loyal, trustworthy partners and need to be rewarded for the long-term value that they're bringing to your business. They could be offered services like free upgrade, one-to-one coaching sessions or invitations to live events.

Drive the conversation with a "listening centre"- Keeping the conversation with your customers is an important aspect of consumer engagement. All questions raised by customers need an answer, this keeps the customer engagement high and customers feel like the organization has their interests at heart.

Humanise your brand- The communication with the customers should be straightforward and relatable. Any overly formal and stilted conversations should be avoided. The customer should be enjoying communicating with the company even if they're making a complaint or raising an issue with the product.

Consumer engagement is an ongoing process- Customer engagement is a process that keeps working all the time. Using various ways of customer engagement can help an organization to build a loyal customer base who would stick to the organization despite downturns and new competitors.

IMPROVING CUSTOMER ENGAGEMENT BY SMES USING RECOMMENDER SYSTEMS

For Improved maintenance: One of the center possible advantages of recommender system is their capacity to constantly adjust to the inclinations of the client. This makes items that become to an ever-increasing extent "tacky" in their client maintenance over the long haul as done by Netflix.

Improved truck esteem: An organization with a stock of a great many things would be unable to hard-code item proposals for every bit of its items, and clearly such static recommendations would rapidly be outdated or superfluous for some clients. By utilizing different methods for "separating", SMEs can discover ideal occasions to recommend (on their site, through email, or however different methods) new items that someone is probably going to purchase as practiced by Amazon.

Improved commitment and pleasure: Sometimes seeing a ROI doesn't include unequivocally requesting an installment. Numerous organizations utilize these frameworks to just empower commitment and action on their item or stage. YouTube has membership alternatives, yet most of the association's incomes are passed through notices set across its wide exhibit of video properties

Better Revenue – With long periods of examination, trials and execution principally determined by Amazon, not exclusively is there to a lesser extent an expectation to absorb information for online customers today. A wide range of calculations have likewise been investigated, executed, and demonstrated to drive high transformation rate versus non-customized item suggestions which can be used by SMEs.

Sustained Customer Satisfaction – Many a time, customers will in general glance at their item suggestion from their last perusing. Predominantly because they figure they will discover better freedoms for great items. At the point when they leave the site and return later; it might be ideal if their perusing information from the past meeting was accessible. This could additionally help and guide their online business exercises, like experienced aides at Brick and Mortar stores. This sort of customer satisfaction prompts customer maintenance.

Personalization – We frequently take proposals from loved ones since we confide in their assessment. They understand what we like better compared to any other person. This is the sole explanation they are acceptable at suggesting things and is the thing that proposal frameworks attempt to show. SMEs can utilize the information gathered in a roundabout way to improve their site's general administrations and guarantee that they are reasonable as indicated by

a client's inclinations. Consequently, the client will be put feeling better to buy their items or administrations.

Customer Discovery – For instance, the “Virtuoso Recommendations” highlight of iTunes, “Often Bought Together” of Amazon.com makes astonishing suggestions which are like what we effectively like. Individuals by and large prefer to be suggested things which they might want, and when they utilize a site which can identify with his/her decisions very totally then he/she will undoubtedly visit that site once more.

Provide Reports – Is a fundamental piece of a personalization framework. Giving the customer precise and up to the moment, reporting permits him to settle on strong choices about his site and the bearing of a mission. In light of these reports' customers can create offers for sluggish items to make a drive-in deal with SMEs.

For small businesses, some of the customer engagement strategies like increased frequency for purchase and increased spending on products can be practiced for improved customer retention. This would lead to customer advocacy resulting in loyalty. The right loyalty program would help an organization to achieve its objectives with the least cost involved. The following are some ways which could enhance the loyalty for the organization. 65% of customers modify the amount they spend to maximize their reward points. And Organizations that offer loyalty programs see more customers shopping with them. 75% customers report that they are likely to make a purchase after receiving a loyalty reward.

CONCLUSION

The constructs of recommender system can be applied for customer engagement. Customer engagement creates engaged customers who play an important role in new product and service developments and in co-creating experience and value. A recommender system is essentially an information filtering system, which aims to predict the preference; a user is likely to give to an item. Using recommender system results in an enhanced customer experience and increase in sales. Recommendations help in speeding up the search process. This creates a better user experience and thus enhance the loyalty level of the customer. This gives an organization a competitive advantage over other organizations. SMEs are embracing recommender system to create better consumer engagement and thus it plays an important role for them

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