

CONSUMER BEHAVIOUR TOWARDS PERSONALIZED DIGITAL RECOMMENDER ENGINE – A STUDY IN COIMBATORE CITY

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Abstract: In the fast-evolving digital landscape, personalization has become a cornerstone of effective marketing strategies. A Personalized Digital Marketing Recommender Engine leverages advanced technologies such as artificial intelligence (AI), machine learning (ML), and data analytics to analyze customer behavior and deliver tailored recommendations that resonate with individual preferences.

This study presents a comprehensive model for implementing a personalized recommender engine to optimize customer engagement, enhance decision-making, and drive sales. The proposed model integrates real-time data processing with diverse selling strategies, including up-selling, crossselling, and consultative selling, while clustering items, customers, and unique selling propositions (USPs) to generate actionable insights.

By gathering, storing, and processing transactional data, the engine delivers highly relevant marketing information, ensuring seamless personalization across online and offline platforms.

1. INTRODUCTION

In today's dynamic digital landscape, personalization has become a cornerstone of successful marketing strategies. A Personalized Digital Marketing Recommender Engine is an advanced technological solution designed to analyse customer data and deliver tailored recommendations that resonate with individual preferences and behaviours. By leveraging artificial intelligence (AI), machine learning (ML), and data analytics, these engines transform vast amounts of user data into actionable insights, enabling businesses to create highly relevant and engaging customer experiences.

At its core, a recommender engine predicts what a user is most likely to want, whether it's a product, service, piece of content, or promotional offer. This is achieved by analysing factors such as browsing history, purchase patterns, demographic information, and real-time interactions. The result is a seamless, intuitive customer journey that feels uniquely crafted for each individual, driving engagement, satisfaction, and loyalty.

2. OBJECTIVES

1. To investigate the impact of personalized recommendations on consumer purchasing decisions.
2. To examine the factors that influence consumer trust in personalized digital recommender engines
3. To explore the role of personalized digital recommender engines in driving consumer discovery and exploration

3. SCOPE OF THE STUDY

The scope of this study focuses on exploring the development, implementation, and impact of a Personalized Digital Marketing Recommender Engine to enhance customer engagement and marketing effectiveness. It examines key components such as data collection, machine learning algorithms, and personalization techniques, as well as their integration into digital marketing systems across various industries. The study also addresses challenges like data privacy, scalability, and real-time processing, while evaluating the engine's ability to improve customer experience, drive conversions, and optimize marketing ROI. Additionally, it considers ethical and regulatory aspects, alongside emerging trends like hyper-personalization and cross-platform recommendations, to provide a comprehensive understanding of its applications and potential advancements

RESEARCH DESIGN

The research design for a Personalized Digital Marketing Recommender Engine aims to develop and validate a model for delivering personalized marketing recommendations, leveraging advanced technologies like artificial intelligence (AI), machine learning (ML), and data analytics. This design will outline the framework for understanding how recommender engines can be applied to enhance customer engagement, satisfaction, and business outcomes

LIMITATIONS

Businesses may struggle with managing vast amounts of customer data, leading to ineffective utilization and analysis.

Many recommendation systems may not deliver accurate suggestions due to limitations in algorithms, which can result in customer dissatisfaction.

The use of customer data for personalization raises significant ethical issues related to privacy, security, and transparency, which can affect customer trust.

II. REVIEW OF LITERATURE

1. Recommender systems (RSs) are designed to help people sort through a vast array of possibilities and select material based on their interests and preferences. Software programs known as RSs offer customers recommendations for a range of products, including music, movies, jobs, careers, medications, and education [6].
2. A number of studies reviewing and surveying classical RSs have been carried out in recent years. A notable early work is by Dehdarirad et al. [6], who conducted a systematic review to investigate RSs that suggest scholarly publication venues to researchers. Choosing an appropriate publication venue is a crucial step in the publication of research papers, and new researchers often face confusion in selecting the right venue due to the variety of topics across academic disciplines.
3. A systematic literature review (SLR) of deep learning-based recommendation systems was published by Da'u and Salim et al. in [11]. In addition to examining outstanding problems in deep learning-based RSs and offering guidance for upcoming researchers, they look at new trends and approaches for resolving unsolved concerns. Based on application areas, datasets, and various metrics used to assess the effectiveness of deep learning-based RS techniques, they examined and contrasted primary studies.
4. In order to investigate methods utilized in Metrics Recommender Systems for software engineers, Farina et al. carried out a systematic literature review (SLR) in [5]. They concentrated on the SLR's datasets, algorithms, and suggestions.

PERSONALIZATION OF DIGITAL MARKETING CHANNELS

Personalization in digital marketing refers to the practice of delivering tailored content, messaging, offers, and experiences to individual customers or customer segments based on their preferences, behaviors, and demographics. Personalization has become a key strategy in modern marketing because it enhances user engagement, boosts conversions, and improves customer satisfaction by making interactions more relevant.

As businesses increasingly use digital platforms to engage with customers, the need for personalized marketing across various channels—such as websites, emails, social media, mobile apps, and advertisements—has grown significantly. By tailoring the customer experience, marketers can increase the likelihood of a customer taking a desired action, such as making a purchase or engaging with the brand.

EMAIL CAMPAIGNS

- Email marketing remains one of the most effective and direct methods of communication with customers. However, with the abundance of emails received daily, generic email campaigns often fail to engage recipients.
- Personalizing email campaigns, on the other hand, can significantly boost engagement, open rates, click-through rates (CTR), and conversion rates. In fact, personalized emails are 6 times more likely to be clicked on than generic ones.

WEB PERSONALIZATION

□ Web personalization involves tailoring the content, layout, and user experience of a website to meet the individual needs, preferences, and behaviours of its visitors. By leveraging data from user interactions, browsing history, and demographic information, businesses can create dynamic web experiences that resonate with users on a personal level. This not only improves user engagement but also boosts conversion rates and customer satisfaction.

SOCIAL MEDIA & ADS

□ Social media and paid advertising platforms have become essential tools for digital marketers, offering vast opportunities for audience targeting and engagement. However, with the rise in ad saturation, standing out and effectively

capturing users' attention requires more than just generic, one-size-fits-all campaigns. Personalization plays a crucial role in ensuring that ads and social media content are tailored to specific user interests, behaviours, and demographics.

SMS & PUSH NOTIFICATIONS

□ SMS and push notifications are powerful tools for direct, real-time communication with users. These messaging channels offer immediate delivery and a high engagement rate, making them valuable components of a personalized marketing strategy. When used effectively, SMS and push notifications can help drive customer engagement, increase conversions, and build stronger relationships with users.

III.ANALYSIS AND INTERPRETATION

In this Research there are 50 Respondents in total of both Gender. The Data was Collected through Google Form around Coimbatore city.

- Tables and Charts are Derived Form Collected Data.

Percentage = No. of Response / Total no. of Response

Online Shopping Habits

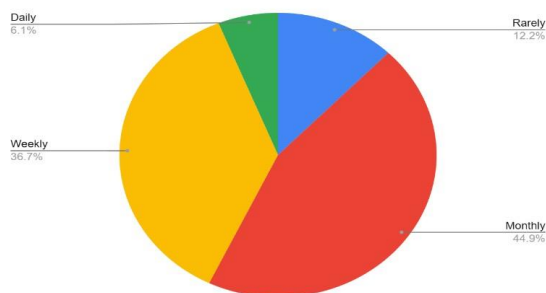
RESPONSE	No of Responders	PERCENTAGE
Daily	3	6.1%
Weekly	19	36.7%
Monthly	22	44.9%
Rarely	6	12.2%
Total	50	100%

Interpretation

Most people participate on a monthly (44.9%) or weekly (36.7%) basis, making up the majority of responses (81.6%). Only a small group engages daily (6.1%), and an even smaller group participates rarely (12.2%). This suggests that the activity is more commonly done on a regular basis, with a few exceptions who engage less frequently.

Inference:

Most people shop online on a monthly (44.9%) or weekly (36.7%) basis.



Platform to discover new products

RESPONSE	NO OF RESPONDERS	PERCENTAGE
Social media	18	36.7%
Online ads	8	16.3%
Search engines	7	14.3%
Email newsletters	9	18.4%
In-store browsing	7	14.3%
TOTAL	50	100%

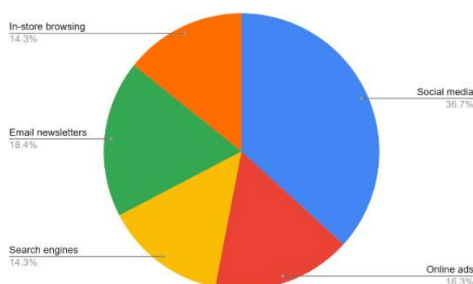
Interpretation

The largest group (36.7%) finds products through social media, followed by email newsletters (18.4%) and online ads (16.3%). Search engines and in-store browsing both attract 14.3% of responders each. This indicates that social media is the most popular method for discovering products, while traditional methods like in-store browsing and search engines are less commonly used.

Inference

Social media is the most popular method for discovering products.

CHART



Weekly online Browsing Data

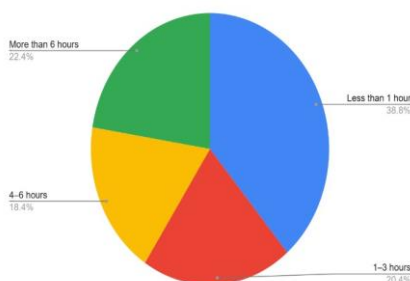
RESPONSE	NO OF RESPONDERS	PERCENTAGE
Less than 1 hour	20	38.8%
1–3 hours	10	20.4%
4–6 hours	9	18.4%
More than 6 hours	11	22.4%
TOTAL	50	100%

Interpretation

The largest group (38.8%) spends less than 1 hour, while 22.4% spend more than 6 hours. A smaller portion spends between 1–3 hours (20.4%) or 4–6 hours (18.4%). This suggests that most responders engage in the activity for less than 1 hour, but a significant portion also spends extended time on it, with 22.4% spending more than 6 hours.

Inference

Most spend less than 1 hour browsing online.



IV.FINDINGS

INFERENCE OF THE TABLE

- Most respondents shop online on a monthly (44.9%) or weekly (36.7%) basis.
- 38.8% spend less than 1 hour browsing online.
- Social media was the most popular method for discovering products (36.7%).

V.SUGGESTION

The suggestions aim to combine personalization with consumer psychology, focusing on how technology impacts decision-making, engagement, and long-term loyalty.

Leveraging Personalized Digital Recommenders to Understand Consumer Behavior. The Psychology of Personalized Digital Recommenders in Shaping Consumer Choices.

- Personalized Recommender Systems: A Game-Changer for Understanding Consumer Intentions Analysing Consumer Behaviour Through the Lens of Personalized Digital Recommendations.
- Personalized Digital Recommenders: Building Trust and Loyalty Through Consumer-Centric Suggestions.
- The Role of Machine Learning in Shaping Consumer Preferences Through Personalized Recommendations
- Consumer Behaviour Insights: How Personalized Recommendations drive engagement.
- Browsing to Buying: How Personalized Recommenders Influence Consumer Actions

VI.CONCLUSION

In today's competitive digital landscape, delivering personalized experiences has become a key driver of customer engagement, satisfaction, and loyalty. A personalized digital marketing recommender engine is a powerful tool for ensuring that your brand delivers relevant, timely, and tailored content to users, which ultimately drives conversions and enhances customer retention.

Through the various stages of developing and optimizing a recommender engine— data collection, model development, algorithm selection, integration into marketing channels, and continuous evaluation—marketers can harness the power of data to create highly targeted marketing experiences.

In conclusion, a personalized digital marketing recommender engine is a critical asset for any business looking to thrive in today's data-driven world. By focusing on continuous optimization, leveraging cutting-edge algorithms, and maintaining a customer-centric approach, businesses can build stronger connections with their audience, drive higher engagement, and ultimately boost their bottom line.

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