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**Artificial Intelligence and Consumer Behaviour Analysis in Social Media
Advertising**

Case: TikTok

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ABSTRACT:

Tekoälyn nousu liiketoimintaympäristössä on vaikuttanut kaikkiin markkinoinnin osa-alueisiin ja muuttanut keinoja, joilla yritykset keräävät dataa, analysoivat kuluttajakäyttäytymistä ja markkinoivat kuluttajille. Erityisesti tekoälyn hyödyntäminen digitaalisessa markkinoinnissa sekä sosiaalisen median alustojen laaja käyttöönotto ovat mahdollistaneet suuren kuluttaja datan määrän hyödyntämisen markkinoinnissa. Lisäksi nämä kehityssuunnat ovat mahdollistaneet tekoälyohjatun personoidun mainonnan, jossa mainossisältöä ohjataan yksittäisille käyttäjille käyttäytymisensä, kiinnostuksenkohteidensa ja yleisen verkkovuorovaikutuksensa perusteella.

Tämän tutkimuksen tarkoituksena on tarkastella, kuinka markkinoijat hyödyntävät tekoälyä kuluttajakäyttäytymisen analysoinnissa pääosin mainonnan personoinnissa. Tutkimus yhdistää kuluttajakäyttäytymisen, sosiaalisen median mainonnan, suosittelujärjestelmien sekä tekoälyohjatun personoinnin tarkastelua. Tutkimuksen teoreettinen viitekehys käsittelee sitä, kuinka tekoäly mahdollistaa kuluttajakäyttäytymisdatan keräämisen ja analysoinnin, mikä auttaa markkinoijia tunnistamaan käyttäytymismalleja, ennustamaan käyttäjien toimintaa ja toteuttamaan personoitua mainontaa. Lisäksi tutkimuksessa tarkastellaan suosittelujärjestelmien, natiivimainonnan, display-mainonnan sekä yksilötasolle ulottuvan personoinnin roolia erityisesti TikTok:issa. Tutkimuksessa käsitellään myös tekoälyohjattuun mainontaan liittyviä keskeisiä haasteita, kuten yksityisyysdenuojoja ja kuluttajien luottamus.

Kokonaisuudessaan tutkimus osoittaa, kuinka tekoälyohjattu personointi on muuttanut sosiaalisen median mainontaa laajalle kohdeyleisölle suunnatusta markkinoinnista kohti yhä yksilöllisempää mainontaa.

KEYWORDS: Consumer behaviour analysis, artificial intelligence, personalisation, social media advertising, digital marketing

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1 Introduction

Modern technologies are changing all aspects of how companies run. A key rising technology being heavily integrated into the business and marketing world is artificial intelligence (AI). AI is a central and quickly evolving technology used in digital marketing. AI technologies are evolving to have the capability to analyse large datasets and make predictions and decisions based on found patterns (Ziakis & Vlachopoulou, 2023, p. 664). This has the capability to revolutionize business and audience relationships in the digital space for example in social media (Ziakis & Vlachopoulou, 2023, p. 664).

Social media has become a key marketing tool, allowing companies to reach millions of consumers almost instantaneously. The rise of social media has naturally developed marketing statistics for example by increasing the amount of data points on consumers. However, with the integration of AI this has reached new technological levels (Singh et al., 2023). AI can comprehend these data points and find similarities or patterns to predict expected results (Van Esch & Black, 2021, p.199-203). In this way social media and AI have contributed to each other, giving marketers more consumer behavioural data than before.

Through consumer behaviour analysis marketers can optimize advertising for each individual consumer. For example, through high levelled AI analysis customers can be effectively segmented into specific groups based on a certain set of characteristics (Chinnaraju, 2025, p.401-424). Furthermore, this helps marketers personalise the advertising experience for each individual consumer (Seth et al., 2025, p.31-41). Therefore, resulting in high conversion opportunities (Acatrinei et al., 2025).

Personalisation is seen on social media through personalised recommendations and advertisements (Adomavicius & Tuzhilin, 2015, 145-167). However, through the growth of personalisation a new term" hyper personalisation" has appeared. Hyper personalisation is a more nuanced, highly tailored consumer experience, which enables

brands to predict consumer needs at the highest level (Bilgah et., 2025). This has increased the risk of privacy concerns for consumers. Consumer privacy concerns may eliminate the positive effect of tailored advertising (Lina & Setiyanto, 2021, p.47-156). However, personalisation is still a key result of consumer behaviour analysis and an important addition for social media advertising to keep up and differentiate from heavy competition.

1.1 Purpose and Objectives

This research will examine the role of AI in consumer analysis within the context of social media advertising. Specifically, the purpose of this research is to explore *how marketers use AI to analyse consumer behaviour and generate insights for purposes such as personalisation*. There will also be an empirical chapter at the end of the research in the form of a case study of the social media platform TikTok. The purpose of the case study is to give practical examples to support the theoretical findings.

The use of AI in digital marketing is a topical and rising phenomenon in the field of marketing. Therefore, it is important for both marketers and consumers to understand how AI can and is being used in analysing consumer behaviour. Previous research articles have also recommended further research in the subject (Acatrinei et al., 2025). The research covers three objectives to structure and further examine the subject.

The first objective is to *examine how marketing research defines and interprets artificial intelligence in consumer behaviour analysis in social media advertising*. The main focus will be on giving a base to the research through elaborating on social media as a marketing environment and describing the role AI plays in digital marketing.

The second objective is to *examine how artificial intelligence enables personalisation in social media especially through consumer behaviour analysis*. This objective focuses on explaining how AI and consumer data is behind personalisation in social media

advertising. Furthermore, this objective covers the rising issue of consumer privacy that hyper-personalisation brings.

Using the gathered theoretical base from the previous two objectives, the third objective will describe *how personalisation in advertising is seen on TikTok*. This will be examined through a case study on TikTok as a social media advertising platform. TikTok uses AI as the basis of their algorithms and, therefore, AI is used for gathering data on consumer behaviour. Furthermore, this third objective will analyse balancing personalisation with consumer perceptions. Thus, drawing the theoretical findings of the research to a practical conclusion.

1.2 Delimitations and Structure

AI is a broad and highly technical concept, which has multiple subcategories. For example, machine learning, deep learning and many more that all fall under the umbrella of the word artificial intelligence (Singh et al., 2023). However, this research will focus on AI as a broad term to avoid deviating from the main purpose of the study, which is analysing a marketing phenomenon. Nevertheless, in certain situations more precise terms may be used for clarification purposes.

This research will focus on social media, which leaves out multiple major e-commerce platforms. However, social media platforms have become e-commerce platforms, in their own right (Huang and Benyoucef, 2015). Consumer behaviour analysis is a broad marketing concept and it affects multiple marketing decisions. In order to limit the scope and narrow the size of the study down, the research focus will mainly be on personalisation and not on other forms of marketing.

The research is divided in five main chapters. The first chapter contains of an overview of the topic and describes the purpose of the research. The subsections of the introductory chapter further elaborate the focus of the research by explaining the main

objectives and key concepts of the research. Furthermore, the subsections mention possible delimitations and the structure of the study.

The second chapter focuses on AI in social media advertising. Subsections 2.1 and 2.2 concentrate on the broad picture of how AI is seen in marketing and how social media is a key platform for marketers in 2026. Subsection 2.3 builds on the previous subsections to analyse how AI has given marketers new opportunities in consumer behaviour analysis. Through the chapter the reader will understand the basis of how AI is used in digital marketing.

The third chapter focuses on a deeper analysis on AI in digital marketing with a focus on personalisation. Subsection 3.1 provides the reader with a base for the rest of the chapter by defining personalisation in marketing. Subsections 3.2 and 3.2.1 aim to study the link of AI and personalisation, thus, going a step deeper into consumer behaviour analysis than in chapter 2. Subsection 3.3 brings an important perspective on personalisation, which are privacy concerns of consumers and the possibility of consumer analysis going too far.

The fourth chapter brings an empirical side to the research with the aim of analysing the theory from the previous chapters with the help of a case study on TikTok. Both the consumers and marketers' side will be analysed in the subsections of the chapter. The final chapter brings the study together and discusses possible future research points.

In this study, I used artificial intelligence technologies ChatGPT 5 and Keenious. ChatGPT was used to help me structure the study. Keenious is an artificial intelligence programme provided by Vaasa university and it helped me with finding relevant peer-reviewed studies. Although different artificial intelligence technologies were used, the final structure and decision on studies used were done by me.

1.3 Key Concepts

In this study, **artificial intelligence (AI)** is defined as computer systems that are capable of performing tasks that typically require human intelligence, including learning from gathered data, and making decisions independently. In marketing AI is used to automatise certain tasks, therefore, increasing efficiency in the marketing process. Furthermore, AI can revitalise personalised marketing and consumer engagement (Labib, 2024).

Consumer behaviour analysis is a key part of marketing decision making as it helps marketers understand consumer decisions and overall behaviour (Madanchi, 2024). Consumer behaviour databases combine data on consumer purchasing patterns and consumer interactions. AI can read this real-time data, which allows marketers to personalise and predict consumer behaviour at new speeds. This results in higher optimisation and more cost-effective marketing. AI influences many consumer marketing processes, increases customer satisfaction, allows companies to keep up with competition and strengthens brand relationships over long periods (Spais and Jain, 2024).

Social media advertising is a form of marketing where potential customers are targeted through advertisements on social media. Social media has opened a new opportunity for marketers to gain more knowledge on consumers than before and with efficient tools such as AI these advertisements seen on social media become highly personalised, usually with the goal of a high conversion rate (Singh et al., 2023). Social media content analysis provides quality data in customer segmentation and customer profiling. (Fan et al. (2015, as cited in Marcello et al., 2021)).

Personalisation is a marketing approach and result of consumer behaviour analysis. Personalisation is strongly linked with customer relationship management where companies gather information to essentially design an individual marketing mix for consumers (Dawn, 2014, p. 370-377). On social media this is seen as personalised advertisements, offers and recommendations that match each individual's profiles (Adomavicius & Tuzhilin, 2015, 145-167).

2 Artificial Intelligence in Marketing

Marketing is a changing and adapting field of study. Thus, it is expected that with the rise of AI, marketing will also be affected by this phenomenon. Furthermore, the implementation of AI in marketing activities could result in stronger marketing outcomes (Salminen et al., 2019). The question is no longer if a company should use AI in their marketing, but rather who can use it best to increase sales and improve marketing strategies (Singh et al., 2023). Not using these new systems and tools may very well lead to losing market share against competitors, since AI increases sales and market share (Fast and Horvitz, 2017).

AI offers marketers with endless new opportunities, which as stated by Carmen Acatrinei and others (2025) can be divided into four main categories: “Content creation and distribution, paid advertising, user interactions, and data monitoring and analysis.” In this research the focus will be on data monitoring and analysis and, how it is used in paid advertising. These opportunities and changes in marketing are visibly seen in the subcategory and leading direction of marketing, which is digital marketing (Magano et al., 2020, p. 34-52). Chapter 2 of the study aims to answer objective one: *How marketing research defines and interprets artificial intelligence in consumer behaviour analysis in social media advertising?*

2.1 Social Media as a Marketing Environment

Social media is comprised of platforms such as TikTok, Instagram and Youtube, which allow users to create and communicate. Furthermore, people can meet each other from all around the world and share knowledge by interacting with new people (Zeng et al., 2011). New technologies have made social media a business platform. For example, brand marketing can improve through new forms of communication and customer relationship management (Singh et al., 2023). This is because of the new possibility

social media has brought marketers to be a part of consumers' everyday life (Talpa, 2014).

Utilising social media for marketing essentially means connecting with customers through social media platforms (Li, 2023). Furthermore, through paid advertisements businesses can push out their desired content or message to their set target audience (Li, 2023). Placing advertisements is also cheaper and more effective on social media, when comparing to traditional media outlets, as consumers look for products on these applications and purchasing advertisements does not require the involvement of third parties (Chu et al., 2022, p.1-20). Therefore, social media is a key marketing tool for digital marketers. Thus, it has also been heavily affected by artificial intelligence.

Artificial intelligence in social media advertising

Before focusing on the main topic of the study, which is researching how consumer behaviour analysis has been affected by the implementation of AI, it is key to understand the basics of how AI is seen in social media advertising. The literature emphasise that AI has become an integrated part of how social media platforms work as a whole, not only for any singular purpose such as marketing.

AI is transforming the online experience for both marketers and consumers. Social media is full of consumer data and AI's capability to analyse the databases by pattern recognitions has enabled it to make decisions without humans (Daqar and Smoudy, 2019). This means that AI is predicting the next move of the consumer based on gathered data, which allows for more precise consumer targeting (Shah et al., 2024). Popular social media platforms like Instagram and Facebook use different AI tools such as machine learning for this exact purpose, consumer behaviour analysis (Singh et al. 2023). Moreover, this allows for personalised and smooth interactions for consumers on their chosen social media platform (Kang et al., 2024).

The key AI technologies being used for social media advertising are machine learning and natural language processing (NLP) (Shah et al., 2024). Social media and AI are both based on ever changing technologies, which means they will both keep improving until they become the best marketing strategy together (Singh et al. 2023). An important takeaway to understand the study is simply that AI is used to create a personalised experience through content and recommendations, and through this, personalised advertisements (Acatrinei et al., 2026). In fact, AI is a massive benefit in consumer behaviour analysis for social media advertising. This will be conceptualised in the next section of the study.

2.2 Artificial intelligence at the Forefront of Consumer Behaviour Analysis

This section of the study aims to show how AI contributes to multiple different aspects of consumer behaviour analysis in advertising. The process starts with data collection where through big data analysis AI is used to filter and collect data (Maulani & Widoretno, 2024). After collecting consumer data, for example consumer behavioural patterns, consumers can be segmented into groups based on similarities, in customer segmentation (Chinnaraju, 2025, p.401-424). Finally, segmentation marketing strategies can be formed to match each customer's needs. All parts of the chapter aim to examine this through social media advertising.

2.2.1 Data as the Foundation of Consumer Behaviour Analysis

Consumer behaviour databases combine data on consumer purchasing patterns and consumer actions. Consumer behaviour analysis is the process of analysing this data. AI can analyse these massive databases efficiently and extract invaluable insights leaving marketers with only the essential information from the consumer behaviour database (Fu et al., 2023).

Big data analysis is a key term in data collection of consumers. Big data analysis of consumer behaviour means data collection from all online activities, which enables marketers to understand consumers and trends (Li, 2023). There are two types of data, structured and unstructured data. Structured data comprises basic information such as demographics and browsing history whereas unstructured data is the data provided as text, speech, and images (Kietzmann et., 2018, p.263-267). AI has the ability to process this large amount of consumer data extremely quickly or even in real time.

The collected data slightly changes from social media to social media. Thus, on Twitter (now X), an example of the data collected has been re-tweet count, username, follower count, mentions and tweet ID (Andryani et al., 2019). This information transfers well to other social media platforms such as TikTok, which have similar platform layouts just with different names for the actions consumers can take.

In consumer behaviour analysis on social media, large databases are used to discover user patterns (Huang and Liang, 2020, p.610-624). Everyone's social media applications layout is built off these databases. For example, users may share their music playlists, blogs or interests to the application and based off this, the application is personalised for the consumer (Liao et al., 2022). A digital trace shows the activity of a certain consumer that can be collected straight from the platform without consumers being part of the process (Ohme et al., 2023, p. 121-141). Thus, consumer data collection can feel almost seamless to social media users.

2.2.2 Predicting Consumer Behaviour and Segmentation in Social Media Advertising

In big data processing, AI plays the role of filtering and analysing data in real-time to identify consumer behaviour patterns (Maulani & Widoretno, 2024). Customer-centric marketing is trending, and it requires companies to use these data-based strategies

(Nugroho, 2025). Making wrong predictions on consumer behaviour can decrease sales, which can lead to a domino effect where customer loyalty is lost, and competitors take your spot (Nugroho, 2025). On the other hand, accurately predicted behaviour patterns improve customer satisfaction and give companies a stronger edge. (Oktaviani et al., 2024)

Customer segmentation means sorting consumers into groups based on different qualities such as demographic and behaviours (Chinnaraju, 2025, p.401-424). According to Chinnaraju (2025), this allows marketers to create marketing strategies for each individual group to maximize conversion rates. AI has enabled a higher level of segmentation where consumers can be segmented to even further levels, for example into categories such as potential customers and seasonal buyers (Nugroho, 2025). Furthermore, Nugroho (2025) states that AI can “nurture” these segments of the market by for example sending out promotional emails at the calculated “best” time. AI also gets smarter and more accurate overtime as the more unstructured data AI processes, the more it learns about customers (Kietzmann et al., 2018, p.263-267).

Customer segmentation traditionally has been static and slowly adaptable, but through AI segmentation has become real-time, dynamic, and data-driven (Amin, 2024). A subcategory of AI, NLP, plays a key role in segmentation especially in analysing data on social media (Chinnaraju, 2025, p.401-424). A specific example is K-means clustering, an algorithm that is efficient at creating customer groups based on wanted inputs (Amin, 2024).

Companies who use AI in as a part of their customer segmentation strategy will gain a competitive advantage and those who don't will struggle to keep up (Bhagat et al., 2024). Traditional segmentation lacks real-time adaptability that AI brings, which allows for further segmentation (Amin, 2024). Online advertising, for example social media advertising, uses this to its advantage to reach potential customers and have more effective marketing campaigns (Li et al., 2021, p.51-70). Furthermore, AI solves advertisers' question of “when to advertise”, since through the collected data it is

possible to understand emerging needs expressed by the consumer (Kietzmann et al., 2018, p.263-267).

Customer segmentation is a crucial part of social media advertising, but equally as important is using these segments to predict and influence customer behaviour. Following successful segmentation, companies can use gained analytics to predict customer behaviours (Seth et al., 2025, p.31-41). Furthermore, Seth and others (2025) highlight that on a technical level multiple predictive models used together leads to higher accuracy in AI-driven consumer behaviour analysis. However, the effectiveness still depends highly on the datasets being used, which is why quality segmentation is extremely important.

2.2.3 Implications for Social Media Advertising Strategy

Technologies are reaching new levels and are giving companies new ways of approaching and building marketing and retention-based strategies (Anshar et al., 2019). When building a marketing strategy, the goal of customer behaviour analysis is to build a customer centric strategy. This leads to better customer relationship management and brand loyalty (Ahmed et al., 2025, p.311–323). Marketing strategies are no longer fixed, but strategies are responsive, and, as AI expands, this will only go further (Labib, 2024). Strategies go from campaign based to data-driven totalities. AI assists, brings quality and speeds up strategic decision making, however, human surveillance is still needed (Massoudi et al., 2024, p.34-39).

According to Labib (2024), it is vital that these strategies resonate both cognitively and emotionally with customers. Furthermore, this emotional bond must not be lost with AI run strategies and the power of social pressure cannot be underestimated. Kietzmann (2018, p.263-267) explains that marketers already use AI software to understand consumer feelings towards brands. Social media is full of brands advertising their products and services. Accordingly, building a relationship with customers is essential

for success. Adaptive marketing strategies are extremely important in social media advertising, as consumer interactions generate continuous consumer behavioural data that can be used for strategic adjustments.

2.3 Chapter Summary

Chapter 2 examined how artificial intelligence has supported and changed the marketing playing field of today specifically, with a focus on consumer behaviour analysis and social media as an advertising and marketing platform.

Social media has exponentially increased the amount of consumer data available to marketers and through big data analysis marketers collect all this consumer data. The data ranges from demographical information all the way to information extracted from images. Artificial intelligence allows marketers to use these large databases to form patterns on consumers. While customer segmentation has before been static, AI has made it adaptable and a more accurate process, enhancing customer relationships and advertising. Online advertising can use AI segmentation to increase conversion rate and influence customer behaviour. Marketing strategies have become adaptable and responsive to change rather than stagnant and set.

3 Artificial intelligence Enabled Personalisation

The previous chapter provided an understanding on the complexity and heavy integration of AI in the different aspects of consumer behaviour analysis. The goal of this chapter is to answer the second objective, which is to *examine how artificial intelligence enables personalisation in social media*. This chapter will give an overview on personalisation in digital marketing before focusing on social media. Finally, privacy concerns brought up by personalisation will also be analysed (Chandra et al., 2022, p.1529-1562).

3.1 Personalisation in Digital Marketing

Unlike previous generations, modern consumers expect brands not only to remember their preferences, but also anticipate their needs, and deliver customized experiences, all in real time (Kaptein & Parvinen, 2015). Personalisation is a company driven approach to advertising where customer data is used to tailor the marketing mix (Chandra et al., 2022, p.1529-1562). Sunikka and Bragge (2012) define personalisation as offering the right product at the right time to the right customer. Different pieces of literature have slightly different definitions of personalisation, however, key repeated words in most definitions are customization, strategy, and individualisation.

Chandra and others (2022) analyse the rise of personalisation in marketing. Initially, personalisation was solely focused on customer relationship management, where stored information on customers was used for personalisation. However, through the rise of online channels in the early 2000s e-commerce brought technologies such as recommender systems, which enabled automated recommendations based on previous purchases. In the last decade data-driven personalisation has become key and the rise of AI has further automated and enhanced this process.

Personalisation uses consumer insights, derived with AI, to deliver high level personalisation (Chandra et al., 2022, p.1529-1562). There is not one single model or type of personalisation strategy that can be assigned for customers (Orji et al., 2017, p.1-22). This highlights the importance of AI, which enables real-time model changes to personalisation to match individual consumer needs.

Personalisation is a complex field as there are multiple different types of personalisation, which can be used based on the objectives and the available data. For example, content personalisation, product recommendations and behavioural targeting are all types of personalisation (Liu, 2024, p.34-40). All these personalisation types are used in social media advertising, but for different parts of the process. For instance, behavioural targeting tracks the user on- and offline to gain customer information, whereas content personalisation and product recommendations are based on predicting consumer patterns from past actions (Liu, 2024, p.34-40).

Ali & Zeebaree (2025, p-105-129) highlight how personalisation has become a crucial part of digital marketing, serving as a competitive advantage for companies. Furthermore, they state that automation and big data give marketers all the tools needed to control consumer behaviour when focusing on personalisation in digital marketing campaigns.

3.2 Artificial Intelligence Driven Personalisation in Social Media

Previously used manual personalisation is no longer the most efficient way for marketers. The reason behind this is improvements in machine learning, predictive analytics and automation (Verma & Fatma, 2025, p.1-9). Personalisation via AI is the methodical customisation of platform characteristics, content characteristics, and recommendations to individual user attributes, preferences, and behavioural patterns (Adomavicius & Tuzhilin, 2015). Acatrinei and others (2025) state that AI's ability to personalise user experience is one of AI's most valuable contributions to digital

marketing. Furthermore, massive online platforms such as Amazon use AI for product recommendation personalisation (Acatrinei et al., 2025). The subsection 3.2.1 will focus on further analysing topics covered in chapter 2 through the lens of personalisation.

3.2.1 Consumer Behaviour Data Used for Personalisation

In chapter 2 the research explored how consumer behaviour data is collected using AI. It was also mentioned that through the integration of social media the amount of data available to marketers has become a lot vaster than before. Therefore, it is important to understand what kind of data is most valuable for personalisation.

Since every consumer is different, different personalisation approaches will bring out different personality traits and reactions in consumers (Hess et al., 2020). Zhang and others (2024) distinguish two types of personalisation, behavioural and psychographic personalisation. Based on the article, behavioural personalisation in social media advertising would be described as personalisation tailored to immediate actions, focusing on what consumers are actively searching for. In contrast, psychographic personalisation focuses on building a message that speaks to the individuals' traits. Behavioural personalisation requires online behavioural data, such as website visits and purchasing patterns (Ham & Nelson, 2016, p.689-702). Psychographic personalisation requires data on personality, such as interests, opinions, and lifestyle choices of consumers (Zhang et al., 2024, p.247-264). The differences between data needed for behavioural and psychographic personalisation shows that the needed data works on a case-by-case basis depending on the personalisation goal. Technological advances in AI have provided marketers with the opportunity to collect this consumer behaviour data more precisely than before (Zhang et al., 2024, p.247-264).

The data collection mixed with AI provides a concrete advantage of AI in marketing, which is AI's ability to match individuals needs and interests (Samishetti, 2024, p.23-33).

Glory and Hyekonni (2025) analyse how the ability of AI technologies to process large volumes of data has progressed targeting thereby surpassing the traditional segment-based targeting and bringing marketing to a new more personalised and individual level. In this way AI has individualised segmentation. The traditional segmented groups discussed in chapter 2 are no longer up to modern standards.

Through AI segmentation marketers have reached “hyper-targeting”, which enforces this thought about individualisation (Mazumder, 2025, p.79-87). Mazumder continues to emphasise the previously mentioned benefits of AI in segmentation and re-enforces that old segmentation cannot keep up. So, in the sense of social media advertising, AI analyses consumer behavioural data and identifies user traits and predicts responses to advertising. The insights gained with the help of AI allow for more personalised digital advertising on social media.

3.2.2 Personalised Advertising in Social Media Platforms

Social media is used by billions of people, thus, making social media advertising challenging (Hassan, 2024). Understanding customers is essential for success in advertising (Raji & Ishak, 2019). Social media advertisements must be relevant or related to the consumer. This can be reached through personalisation (Zhu & Chang, 2016, p. 443). In social media advertising marketers should aim for informativeness, entertainment and credibility in advertisements as they have positive effects on online purchase intentions and consumer perceived value (Dao et al., 2014, p.271-294). Consumers perceived value of advertisements has a direct positive effect on engagement and purchasing choices (Hassan, 2024). How consumers react to advertisements is key to brand loyalty and potential purchases.

AI recommendation systems have been incorporated into social media to help consumers choose what to consume from the endless amount of content uploaded to social media (Haque et al., 2025). Furthermore, these systems rely on AI based

algorithms to make decisions on personalisation. Recommendation systems can be personalised or non-personalised systems (Haque et al., 2025). However, overall, social media platforms use personalised recommendation systems (Zhang et al., 2024). Personalised recommendation systems do not deliver advertisements to users randomly but based on collected behavioural data. Furthermore, there are multiple different types of recommendation systems and marketers must decide which ones to use. For example, some systems emphasise data on geographical data or social influence (Guo et al., 2018, p.1121-1153).

The social media platform Instagram has high personalisation possibilities due to its content being curated on data insights (Chandra et al., 2022). Inam-ul-Haq and others (2025, p.260-286) explain how Instagram's interactive stories and followable reels can establish emotional appeal. Furthermore, the article mentions customised and personalised images, call to actions, storytelling, polls and taglines as ways to increase feeling of relevance of advertisements to consumers. When marketers are making these different types of content and advertising materials it is important to focus on creativity of the advertisements as this is proven to increase positive behavioural responses of consumers in social media advertising (Lee & Hong, 2016). Personalised content is seen as more creative as it matches consumer preferences, for example, aesthetic or stylistic preferences (Inam-ul-Haq et al., 2025, p.260-286). Personalisation can also create a feeling of authenticity for consumers, which can further drive success of social media advertisements (Chandra et al., 2022).

As explained earlier AI can personalise advertisements in real-time to match consumer needs. Customers' attention and situation characteristics affect consumer motivation and responsiveness to social media advertising information and messages (Varnali, 2014, p.339-351). Therefore, it is essential that advertisements are not only personalised by content but also displayed in places that suit the customer. Advertisements on social media can be displayed to the user in multiple different places. The two main places to display advertisements on social media are either through public

feeds where messages are displayed to large audiences or through private messaging to consumers (Zeng et al., 2022). The chosen approach is a strategic marketing decision that must be taken based on the data gathered from consumer behaviour.

Native advertisements are made to blend, match the feel and surrounding context of the social media environment, thus, avoiding the feel of an advertisement being overly persuasive (Campbell & Grimm, 2018). A native advertisement is often a public feed advertisement. Examples of native advertisements seen in the public feed would be sponsored social media posts such as paid influencer marketing (Aribarg & Schwartz, 2019, p. 20-34). Display advertisements are not “hidden” like native in feed advertisements, but rather they are easy to spot and clear advertisements that can, for example, be seen at the top of a social media feed. An example of a display advertisement is a TopView advertisement, which appears on a consumer’s screen when opening an application before reaching the full platform view. Aribarg and Shwartz (2019, p. 20-34) conclude that native advertisements can drive higher click rates to webpages, whereas display advertisements can gain larger brand recognition. This study shows that the manner in which advertisements are displayed on social media matters and AI must be used to compare results and optimise this side of social media advertising as well.

The flow of advertisements, from type of content to where it is displayed, is key for setting up a positive and personalised consumer experience (Brown et al., 2024). AI models help in connecting the dots to reach this flow. In addition, generative AI enables creation and continuous adapting of advertising content based on pattern recognition (Brown et al., 2024). Personalisation has therefore become a key and intertwined part of a consumers experience online.

The following section explores how the changes brought by AI to personalisation have affected consumer privacy. The aim is to slightly focus and analyse consumer perceptions, naturally progressing the study to the case study on TikTok.

3.3 Privacy Concerns of Artificial Intelligence Used in Personalisation

As analysed and concluded in the research, AI brings a great deal of positives to personalisation and advertising. However, a prominent issue and ethical concern of the heavy integration of AI is linked to consumer data privacy (Samishetti, 2024, p.23-33). Chandra and others (2022) discuss the privacy paradox, which brings up the following issue: for effective personalisation customer data is a necessity, but customers may feel unwilling to share personal data due to risks of data leaks for example. Furthermore, customers enjoy the benefits of personalisation and seek for more customisation, but at the same time are wary about privacy concerns and don't want their information shared (Soni, 2024, p.24-31). These points display the privacy paradox that occurs with AI in personalisation.

According to the privacy calculus theorem, consumers would be willing to offer up their information, if the positives from the provided solution, in this case personalisation systems, would outweigh the potential negatives of a privacy violation (Soni, 2024, p.24-31). Real privacy issues occur when information that is contrary to the normal is shared (Nissenbaum, 2011, p.149-151). For example, sharing information that is not agreed upon or sharing information in a way that consumers would not expect. Furthermore, consumers have been analysed to be shocked when realising the amount of data collected (Arias-Cabarcos et al., 2023, p.384-399).

As analysed in the study, the use of AI in and in consumer behavioural data collection has increased the amount of data collected on consumers. This suggests that an increased level of transparency would also be required. However, the literature shows that social media platforms rarely have features enhancing data collection transparency (Arias-Cabarcos et al., 2023, p.384-399). On the other hand, some articles state that

transparency may heighten privacy concerns. However, an important note is that transparency needs are contextual based (Hu & Min, 2025).

Marketers must take action to avoid a negative trade-off and find a positive balance between AI technology centred personalisation and consumer privacy concerns (Soni, 2024, p.24-31). This could be done by for example, increasing transparent and fair AI decision-making (Radanliev, 2025). In short, this means increasing the accountability of AI decisions. In addition, marketers could increase clear communication on data policies and usage, implement less intrusive personalisation and make sure to comply with privacy laws and industry standards (Soni, 2024, p.24-31). These steps may increase trust and reduce privacy concerns that AI brings to the personalised advertising. This is important since the success of personalised marketing heavily relies on consumer perceptions.

3.4 Summary of the Theoretical Framework

The theoretical framework of the study demonstrates the large and impactful role AI plays in social media advertising through consumer behaviour analysis and personalisation strategies. This framework is further conceptualised in figure 1 through an input-process-output model. AI technologies and consumer behavioural data represents inputs of AI based personalised advertising, data analysis and behavioural predictions represent processes that lead to desired outputs such as personalised advertising.

The theoretical framework represented in the study is as follows. AI enabled efficient data collection, presents new opportunities for marketers to understand consumers. These changes have allowed AI technologies to make more precise predictions on consumer behaviour. Building on these insights, AI has optimised digital marketing processes by, for example, replacing broad consumer segments with a more individualised approach. Furthermore, the constant real-time optimisation of

advertisements has been made possible through AI gathered behavioural data. In social media key factors such as content type and how content is displayed are key personalisation decisions. These factors can also be optimised by AI.

The theoretical findings display that technological capabilities are not the only way to reach effective personalisation goals, because factors such as perceived relevance and possible privacy concerns also effect consumer perceptions.

The theoretical framework and model aim to show how interconnected different stages of consumer behaviour analysis and personalisation are and with this form a basis to understanding AI-enabled personalisation. Finally, the theoretical framework provides a foundation for the empirical chapter of the study.

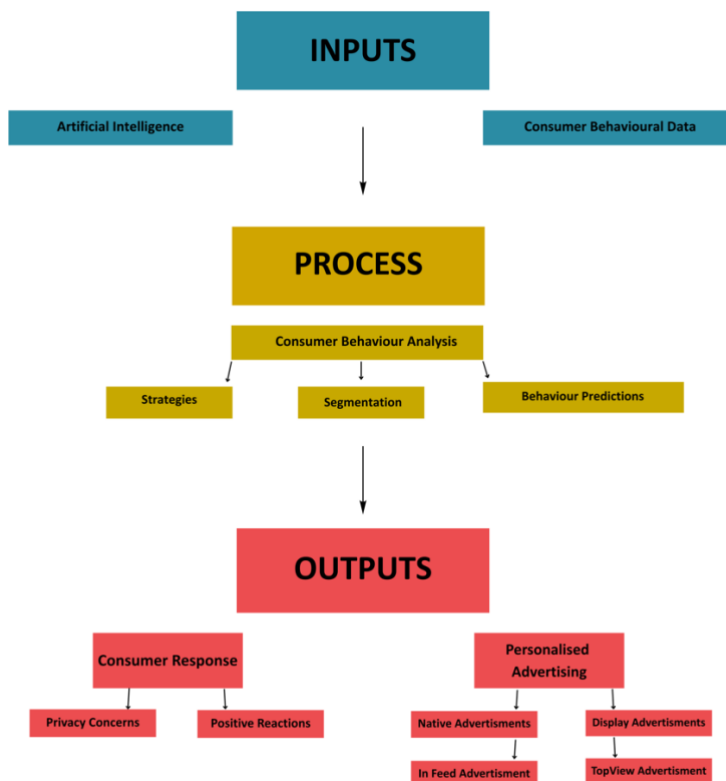


Figure 1. Theoretical framework model

4 Case-study TikTok

The aim of chapter 4 is to answer the final objective of the study, which is *how is personalisation in advertising seen on TikTok*. This will be done by taking the theoretical framework of the study and applying it to TikTok. Furthermore, the chapter will analyse the different types of digital advertising seen on TikTok and how these are used for personalisation. In the end of the chapter, the study will shortly examine how personalisation and privacy concerns are balanced on TikTok based on findings from literature and those set out in section 3.3 above. The case-study will be performed by analysing TikTok's platform and making observations that can be linked with the theory. The findings will be further illustrated through appendices.

4.1 TikTok as a Company

TikTok launched in 2016 and quickly became one of the largest and most impactful social media platforms, even becoming the most downloaded application in 2020 (Hou et al., 2025, p. 577-566). TikTok has billions of users worldwide who consume content to their liking. TikTok benefits from consumers short attentions spans by providing a platform mainly for short form video content (Hou et al., 2025, p.577-566). TikTok's algorithmic model is built on users seeing content based on their liking, in other words personalised content (Gerbaudo, 2024). Therefore, users do not need to use time or other resources to find content to their liking (Zhao). TikTok focuses on showing content around a user's identity not social networks, which differentiates it from most other well-known social platforms (Taylor & Chen, 2024). Algorithmic content distribution has changed the way consumers are exposed to information (Riemer & Peters, 2021, p.409-426).

TikTok has become a must use marketing source for companies, thereby changing the marketing playing field. Through leveraging TikTok's personalisation centric algorithmic approach to their platform, marketers have also managed to make advertising more

personalised than before. TikTok as a social media platform brings the main points of this study together, as it shows how personalisation in advertising can be used effectively at the individual level. Furthermore, the AI based algorithm presents the opportunity to show how the use of AI in personalisation is seen on social media in practice.

4.2 Advertising on TikTok

When opening TikTok's front page the application displays three viewing options: Explore, Following and For You (Appendix 1). The application automatically opens on the For You page option, which is directly personalised based on users' behaviours and previously consumed content (Author, 2025, p.924-929). In addition to organic content, TikTok also displays advertisements in different forms.

An example of advertising on TikTok is TopView advertisements, which as mentioned in chapter 3, appear on the application before getting to the For You page (Appendix 2) and being able to access the normal content feed. This would be classified as a display advertisement as its goal is not to blend in with the rest of the content on the application but aimed more for brand recognition (Aribarg & Shwartz, 2019, p. 20-34). This is what makes TopView advertisements have a very different purpose than the other advertising forms on TikTok.

Most advertisements on TikTok are native advertisements, which, as analysed previously in the study, are made to blend into the natural context of the social media environment (Campbell & Grimm, 2018). The first type of native advertisements commonly seen on TikTok are company paid, in-feed advertisements (Appendix 3). These advertisements often look like normal TikTok videos, however, in the bottom corner of the video it often reads "Ad". However, in all other ways the content format matches organic content forms.

The second type of commonly used native advertisements on TikTok are sponsored influencer-based advertising (Appendix 4). Influencers make content around a certain company's service or product within the same framework as their usual content. Influencers often aim to make these advertisements as similar as possible to their usual content to not break the flow (Brown et al., 2024) of consumed content, allowing for a somewhat seamless advertising experience. Many of these advertising styles rely on AI driven consumer behavioural data to gain important information for personalisation. The following part of the study will focus on this.

4.3 AI-Driven Personalisation and Advertising on TikTok

The large amount of user data available through the massive consumer base of TikTok gives a basis for the platform's recommendation algorithm. Furthermore, these algorithmic based systems are an answer to the rapidly increasing demands of today's society (Wang, 2022, p.60-66). Recommendation algorithms also improve personalised content distribution. Content is mainly categorised and personalised based on user personalities, content labels and characteristics of a user's environment (Zhao, 2021). TikTok's recommendation system categorises videos on the platform by using a hierarchical interest-based label tree (Zhao, 2021). An example of this label tree is seen in figure 2 below. Label trees allow AI technology to match videos to different users' interests. TikTok is a good example of a platform where AI recommendation algorithms are replacing humans in content selection (Wang, 2022, p.60-66).

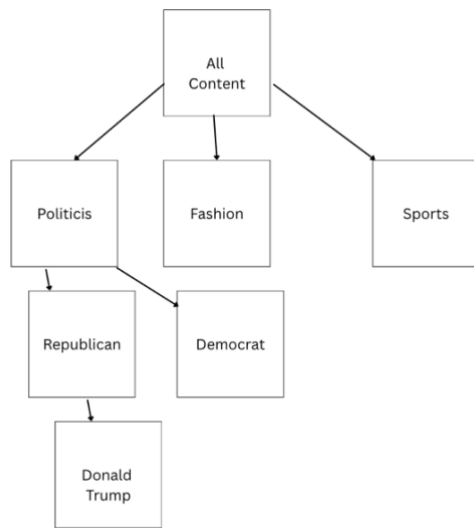


Figure 2. Hierarchical interest-based label tree

Whether it is original content or advertisements, each user on TikTok sees a different personalised feed. TikTok’s “For You Page” also changes every time you open the application or refresh the page. This shows the algorithm working through the label tree, attempting to predict desired videos based on previous behavioural patterns. In this way TikTok is constantly personalising the videos users see on their feed.

Personalised content delivery through recommendation systems directly translates to how personalised advertising is implemented on TikTok. As mentioned earlier in the study, perceived creativity and authenticity are key factors influencing consumers responsiveness to content (Chu et al., 2022, p.1-20). This highlights why advertising through TikTok is mainly based around native ads and, furthermore, aim to have the feel of being original content and not to disrupt the viewing of organic content. In addition, TikTok uses customized promotions and discounts as a method to increase conversions from advertising (Lu, 2024, p.46-50). For example, an influencer can be given a promotional code to share with their fanbase, which can then be used on a company’s website for their products. In this framework, AI has a key role of segmenting consumers, analysed in section 2.2, and matching advertisements with the consumers based on behavioural patterns.

In section 3.2, the study examined how through different AI technologies personalisation becomes adaptive rather than static. TikTok algorithms constantly learn from behavioural data to form behavioural patterns and predictions. As a result, each user on TikTok sees unique advertisements and content. This is the key technology explaining how marketing on TikTok is operated on an individual level rather than a slow and rigid system.

4.4 Balancing Personalisation and Privacy in Advertising on TikTok

Section 3.3 analysed how AI based personalisation can increase privacy concerns. TikTok has not managed to avoid these issues with privacy concerns, subjected to multiple lawsuits in data-privacy. However, the key issues from a marketer's perspective are not these lawsuits, but consumer perception to the hyper-personalisation and targeting seen on TikTok.

Based on Nguyen and others research (2025) marketers on TikTok should focus on TikTok's own interactive content format, creative storytelling, and user-generated content to create a perception of novelty. Furthermore, advertisers should use TikTok's AI based personalisation algorithms to ensure relevancy, thus, increasing purchasing decisions. These strategies are based around perceived usefulness of advertisements and have had positive reactions from consumers, although consumers may note the possible negatives of high personalisation. Furthermore, section 3.2 displayed and re-enforced that informativeness, creativity, entertainments and overall perceived credibility affect consumers perception of advertisements.

In section 3.3, increasing clear communication of data policies and implementing less intrusive personalisation were recommended for increasing the feeling of trust for the consumer. Combining Nguyen's marketing strategy suggestions and the suggestions from chapter 3 could result in increasing positivity in perceptions from consumers.

5 Conclusion

The purpose of the research was to explore *how marketers use AI to analyse consumer behaviour and generate insights for purposes such as personalisation*. This was aimed to be achieved by analysing three main objectives.

The first objective (chapter 2) was to *examine how marketing research defines and interprets artificial intelligence in consumer behaviour analysis in social media advertising*. Based on the theoretical findings it can be concluded that AI affects and enhances all aspects of consumer behaviour analysis. Big data analysis has allowed marketers to extract key consumer behavioural information for marketing purposes. Enhanced AI based segmentation has allowed for narrowing down segments and increasing personalised advertising. Furthermore, based on this large amount of data new, adaptable, and data-driven marketing strategies have emerged. Social media has only helped AI capabilities through increasing available data, leading to more accurate pattern recognition through improved AI based recommendation systems. AI can analyse every part of a consumers experience on a given platform. Social media and AI run on ever growing technologies and boost each other to new levels.

The second objective, analysed in chapter 3, was to *examine how artificial intelligence enables personalisation in social media especially through consumer behaviour analysis*. Based on the research, it can be concluded that consumer behaviour analysis is the key behind personalisation. Furthermore, AI based analysis has pushed personalisation to a new level. The use of AI in personalisation allows advertising to be personalised based on real-time pattern recognition. Where, how, and when an advertising is displayed are all personalisation decisions that are made on AI driven consumer behaviour analysis. Consumers have privacy concerns over excessive data usage, which could result in a negative trade-off between AI driven personalisation and consumer privacy perception. However, these concerns can be addressed by marketers implementing clear

communication on data policies and usage and applying less intrusive personalisation. Complying with privacy laws and industry standards is also essential.

Finally, the third objective of the study was examined in chapter 4 where the purpose was to examine *how personalisation in advertising is seen on TikTok*. TikTok's personalisation is based on AI driven algorithms and recommendation systems that analyse user behavioural data to optimise advertising decisions. TikTok uses a hierarchal label tree recommendation system, which analyses users interests to personalise advertising. Recommendation systems are used to decide on advertisement types for example between native or display advertisements and for decisions on type of content shown to users.

5.1 Limitations and Suggestions for Future Research

Despite the study analysing providing insights on AI based consumer behaviour analysis and personalised advertising happening on social media, this study has limitations that are important to acknowledge. Firstly, this study is primarily based on previous literature and theories drawn from analysis meaning that no real empirical research was conducted, for example, questionnaires or interviews. Therefore, results rely on previous research and observations. Furthermore, AI is a rapidly growing and evolving technology as advertising practices and algorithms adapt over time. Recommendation systems used on different social media platforms are difficult to access, making a full evaluation of how personalisation processes work difficult. In conclusion, the study works as a theoretical and analytical analysis of AI based consumer behaviour analysis and personalised advertising rather than a representation of all social media advertising.

The usage of AI technologies in consumer data analysis raises privacy and ethical concerns. Therefore, future research recommendations would lie in this field. Analysing

future scenarios where AI has an even larger role in marketing would therefore be beneficial. Studies on the topic could help consumers gain answers to questions on data privacy concerns and would pressure companies to address these issues. Research from an ethical point of view would also be necessary as with the rise of AI companies must re-evaluate company policies.

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Appendices

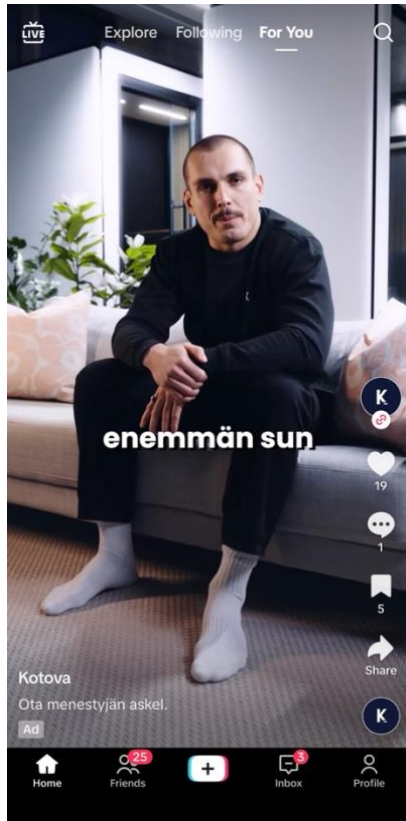
Appendix 1. TikTok Opening Page



Appendix 2. TopView Advertisement: Maybelline



Appendix 3. Native “In Feed” Advertisement: Kotova



Appendix 4. Sponsored Influencer Advertisement: Nino Ärling Advertisement for TikTok

