

**DEVELOPMENT OF AN AI-BASED AUTOMATED RATING
SYSTEM FOR THE QUALITY OF CAPCUT PROMOTIONAL
VIDEOS ON VEHICLE RENTAL SERVICES ON TIKTOK
AND REELS IN YOGYAKARTA**



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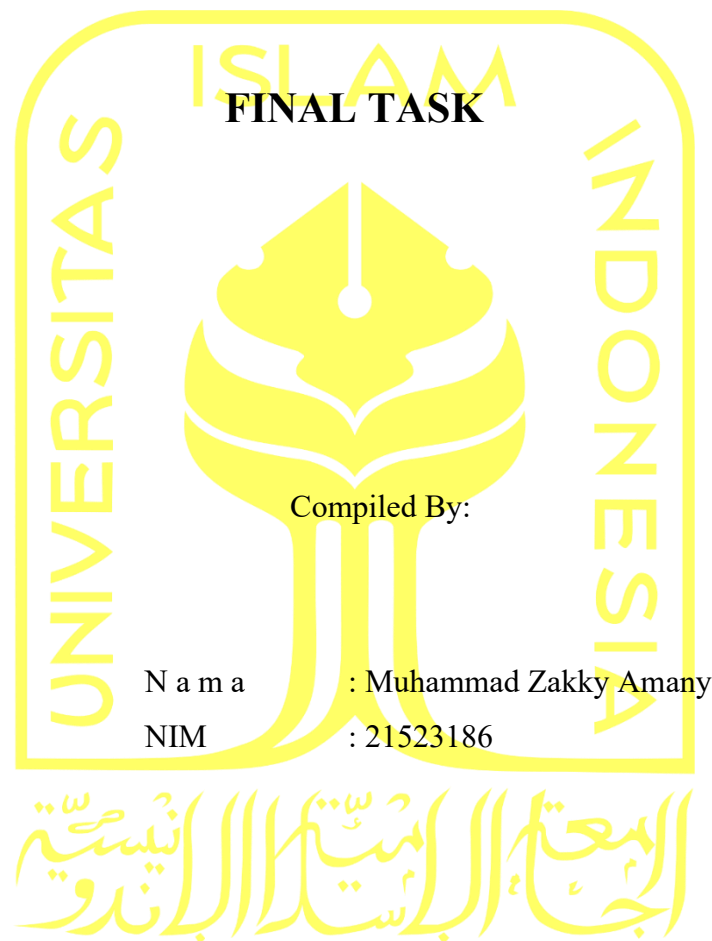
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SYSTEM FOR THE QUALITY OF CAPCUT PROMOTIONAL
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AND REELS IN YOGYAKARTA**



Yogyakarta, August 4, 2025

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((Dr. Syarif Hidayat, S.Kom., M.I.T.))

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SYSTEM FOR THE QUALITY OF CAPCUT PROMOTIONAL
VIDEOS ON VEHICLE RENTAL SERVICES ON TIKTOK
AND REELS IN YOGYAKARTA**

Stating that all components and contents in this final project are my own work. If in the future it is proven that some parts of this work are not my own work, the final project submitted as my own work is ready to be withdrawn and ready to bear any risks and consequences. Thus this statement letter is made, hopefully it can be used properly.

Yogyakarta, July 19, 2025



(Muhammad Zakky Amany)

DEDICATION PAGE

With all humility, sincerity, and deep gratitude, I dedicate this humble work to:

1. God Almighty

The Most Gracious, the Most Merciful. For every breath of strength, for every light of guidance, and for the countless blessings that have accompanied me through every stage of this journey. Without His will, none of this would be possible. Alhamdulillah.

2. My Beloved Parents

To my father, Mohammad Agus Sutrisno, and my mother, Ferida Eni Kuswandari Thank you for your unwavering prayers, unconditional love, and limitless patience. Your sacrifices are the foundation of every step I take. This work is a small gift in return for your endless support and dedication, which no words can ever fully repay.

3. My Dearest Sister

To Hafsha Haura Shafa, my little sunshine Thank you for always being there with your sweet encouragement, gentle reminders, and sincere prayers. Your presence has been a source of strength in moments of doubt and fatigue.

4. My Respected Supervisor

To the one I call mentor and guide Thank you for your tireless guidance, constructive feedback, the valuable knowledge you have shared. Your trust and support have played a pivotal role in the completion of this thesis.

5. My Friends and Fellow Companions

To all of you who have accompanied me in this academic adventure Thank you for the laughter, motivation, and even the tears we shared. You are not just friends, but precious souls who have made this journey meaningful.

MOTTO

"Have Some Faith, Zakky."

- Zakky Amany -

FOREWORD

Praise be to Allah, Lord of the worlds. With deep gratitude to God Almighty for His abundant grace and guidance, the author has been able to complete this undergraduate thesis to the best of their ability. As an expression of gratitude, this thesis is dedicated to:

1. Allah SWT, who has given grace and ease so that I can complete this thesis.
2. My beloved parents, Father (Mohammad Agus Sutrisno) and Mother (Ferida Eni Kuswandari), who always pray for me, love me, and give me endless motivation in every step of my life.
3. My beloved sister, (Hafsha Haura Shafa), who has always been a source of enthusiasm and attention during this academic journey.
4. Supervisor, Dr. Syarif Hidayat, S.Kom., M.I.T., who has provided guidance, direction, and invaluable knowledge so that this thesis can be completed well.
5. Friends and fellow fighters, who have accompanied me through thick and thin, provided support, and become an inspiration during my studies.

I sincerely hope that this final assignment will become a stepping stone to future achievements and bring meaningful benefits to a wide audience. I fully acknowledge that this work is not without its limitations. For this reason, I genuinely invite constructive criticism and valuable suggestions to help improve future revisions.

Lastly, I pray that all the efforts and prayers contributed by so many will be rewarded with kindness and blessings from Allah SWT. Amen.

Yogyakarta, July 19, 2025



(Muhammad Zakky Amany)

ABSTRACT

This study aims to design an Artificial Intelligence (AI)-based automated evaluation system using API's from Open AI to assess the quality of CapCut promotional videos for vehicle rental services distributed via TikTok and Instagram Reels in Yogyakarta. The research is motivated by the widespread adoption of short video content in MSMEs' digital marketing strategies, yet many businesses still encounter challenges in objectively and consistently evaluating the effectiveness and quality of their content. CapCut was selected as the primary tool for video creation due to its comprehensive features and user-friendly interface, while the AI system was developed to automatically assess various elements, including visual quality, audio, structure, text, and video duration, and to provide measurable improvement recommendations. The research employed the Research and Development (R&D) method using the ADDIE development model, which encompasses needs analysis, system design, development and implementation of the automated evaluation system, and assessment of its effectiveness through engagement data, user questionnaires, and business interviews. The findings reveal that the implementation of the AI-based automated evaluation system effectively enhances the quality of promotional videos, as evidenced by a significant increase in engagement rates after the content was revised based on AI recommendations. Most users and business owners reported that the improved videos were more attractive, informative, and effective in generating interest in vehicle rental services. Therefore, the integration of CapCut and the AI-based content evaluation system presents an innovative and practical solution to support MSMEs' digital promotion in a more creative, efficient, and adaptive manner in response to social media trends. This research is expected to make a tangible contribution to the development of digital marketing in Indonesia, particularly in the vehicle rental sector, and to serve as a reference for future research on the optimization of AI-based promotional videos.

Keywords: *CapCut, Artificial Intelligence, promotional video, TikTok, Instagram Reels, vehicle rental, engagement, MSME, digital marketing.*

GLOSSARY

The glossary contains a list of specific words used in the report that require explanation, e.g. imported words that are not commonly used. Sort them alphabetically. An example of writing is as below:

Social Media Algorithm	The system used by social media platforms to select and display content in users' feeds.
CapCut	A mobile video editing app that provides features to easily create engaging video content.
CTA (Call to Action)	An instruction that encourages the audience to take action, such as buying or visiting a link.
Engagement Rate	A measure of audience engagement with content, calculated from interactions such as likes, comments, and shares.
User Interaction	Forms of user engagement with content such as like, comment, share, or save.
Instagram Reels	A feature on Instagram for creating short videos similar to TikTok, used for promotion.
Content Creativity	The ability to create content that is engaging and relevant to the audience.
ADDIE Model	An instructional development model consisting of the stages Analysis, Design, Development, Implementation, Evaluation.
Social Media	Digital platforms for sharing and consuming content, such as TikTok and Instagram Reels.
Digital Marketing	Marketing of products or services through digital platforms such as social media and websites.

Vehicle Rental	A service that provides vehicles for rent for a certain period of time.
Social Media Marketing	Marketing a product or service through social media to build a brand and reach an audience.
CapCut Templates	Video templates provided by CapCut to make it easier to create promotional content.
TikTok	A short video-based app that allows users to create and share videos with effects and music.
MSME	Micro, Small, and Medium Enterprises that have a small or medium business scale.
User Engagement	User engagement with content through interactions such as liking, commenting, or sharing.
Virality	The ability of content to spread rapidly through user interaction.
Video Marketing	A marketing strategy using videos to attract audiences and promote products or services.
Short Videos	Short-form video content, usually less than a minute, is popular on social media.
Visual Storytelling	A storytelling technique using images, videos, or graphics to convey a message or story

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CHAPTER I

INTRODUCTION

1.1 Background

Digital marketing through short video content is increasingly being used by businesses, especially Micro, Small and Medium Enterprises (MSMEs) in Indonesia. Platforms such as TikTok and Instagram Reels have experienced rapid growth and become popular promotional tools because they are able to reach a wide audience with short, engaging video formats (Meyliana Tjan Mulyadi et al., 2023). TikTok, for example, had more than 1 billion global users at the beginning of this decade (Azhari & Ardiansah, 2022a). TikTok users in Indonesia are predominantly millennials, making it a strategic channel for MSMEs to increase the visibility of their products and services (Azhari & Ardiansah, 2022b). Creative video content on TikTok has been shown to increase market reach and consumer engagement when properly utilized (Ardiyono et al., 2024). Similarly, Instagram Reels are also experiencing massive adoption by brands and businesses; recent data shows 90% of brands shared at least one Reels content in the second quarter of 2023, an 86% increase over the previous year (Emplifi, 2023). These trends confirm that short videos have become a crucial marketing tool for modern businesses across various social media platforms.

The above phenomenon is also happening in the vehicle rental service sector in Yogyakarta, where local businesses are starting to rely on short videos for promotion. Yogyakarta as a favorite tourist destination presents an opportunity for car and motorcycle rental businesses to reach tourists through creative TikTok and Reels content. Many rental business owners use short videos edited by apps like CapCut to showcase their fleet of vehicles, promo prices, and customer testimonials to attract potential renters. CapCut is an AI-based video editing app that is easy to use and free, making it popular among budding content creators and MSMEs (Riche et al., 2025). The app provides complete features (e.g. templates, visual effects, text, background music) that help users produce attractive promotional videos in no time (Riche et al., 2025). In fact, CapCut has reached more than 200 million monthly active users globally by 2023. This shows the important role CapCut plays in TikTok/Reels content production: it empowers MSME players in Yogyakarta and other regions to create promo videos with relatively good visual quality without the need for high technical skills.

The problem that arises is that the quality and effectiveness of the resulting promotional videos have not been objectively measured (Luo et al., 2025). While the number of promotional videos continues to grow in line with the “short video + marketing” trend, not all content is

able to deliver the expected marketing impact. Many MSMEs face challenges in creating videos that are truly effective at capturing the attention and persuading audiences. Poor quality content - e.g. poor lighting, unclear audio, poorly structured messaging - can reduce trust in potential customers. Recent research shows that visual content quality has a significant effect on consumer trust and purchase intention (Luo et al., 2025). Videos that are informative, easy to understand and entertaining will increase audience trust and encourage purchase decisions. Conversely, low-quality or monotonous promotional videos risk aesthetic fatigue and weaken user interest (Riche et al., 2025). In the context of vehicle rental, unattractive video content can make potential renters doubt the professionalism of the service provider. Therefore, it is important for businesses to objectively assess the quality of promotional video content in order to improve the effectiveness of their strategy.

Currently, evaluating the quality of promotional videos is generally manual and subjective (Ardiyono et al., 2024). Business owners often only rely on rough feedback (number of likes, comments, or impressions) as an indicator of content success. This manual approach has several limitations: (1) inconsistent and biased, as assessments differ between individuals; (2) low scalability, as the ever-increasing volume of content is difficult to assess one by one in depth; and (3) lack of diagnostics, which does not provide specific insights into what aspects of the video need to be improved. Feedback based on social media metrics (such as views or engagement) also does not necessarily reflect the intrinsic quality of the video, as it is influenced by many external factors (momentary trends, platform algorithms, upload time, etc.). In other words, there's no guarantee that a video with a lot of views will be of good quality content-which could just be the viral factor. On the other hand, MSMEs often find it difficult to self-evaluate the quality of their videos due to limited technical knowledge (Ardiyono et al., 2024). In addition, trends on TikTok are highly dynamic - changing daily - so businesses need to adapt quickly and conduct continuous evaluation to stay relevant (Azhari & Ardiansah, 2022a). Slow and subjective manual evaluations are clearly inadequate for this pace of change.

AI-based quantitative approaches offer a potential solution to the problem of objectively evaluating the quality of promotional videos. As Artificial Intelligence (AI) advances, especially in the fields of natural language processing and computer vision, generative AI services such as OpenAI's GPT-4 model are now available that can be utilized without the need to build new AI models independently. In this research, the automated assessment system developed does not perform the machine learning model training process itself, but uses ready-made AI models from OpenAI through the API. The scoring process is carried out by sending

video descriptions or metadata to the OpenAI endpoint, which are then automatically analyzed based on specified quality criteria (such as visual, audio, structure, text, and duration aspects).

By utilizing the OpenAI API service, the system can access advanced artificial intelligence that is already trained for various tasks, including digital content evaluation, without the need for large resources for data training. This prompt-based method allows the AI to act as an objective and consistent evaluator, providing quality scores and improvement recommendations based on criteria that have been explicitly designed in the prompt. In addition, this approach is highly efficient and scalable as it can be directly used by MSME players without major investments in AI model development.

The main advantages of this approach are objectivity, consistency, and ease of integration with real performance data such as engagement rates and business conversions. Thus, this system not only assesses the technical and aesthetic aspects of promotional videos, but can also provide data-based insights into the effectiveness of content on social media. However, until now, there has been no OpenAI API-based automated scoring system specifically developed to evaluate the quality of CapCut's promotional videos for vehicle rental MSMEs in Yogyakarta. This is the main focus of the research, in order to fill the gap and provide real benefits for local businesses.

1.2 Problem Formulation

How is the process of designing, developing, and assessing the feasibility of an effective promotional content model based on the CapCut application to increase user engagement and interest in vehicle rental services on TikTok and Instagram Reels platforms in Yogyakarta City, and how can an automated assessment system be built using Artificial Intelligence (AI) by leveraging the OpenAI API to objectively and efficiently evaluate the quality of promotional videos?

1.3 Problem Limitation

In order for the research to be more focused and not to widen, the problem restrictions in this study are as follows:

1. This research only covers the development and testing of an AI-based automated scoring system using APIs from Open AI for promotional videos created using the CapCut app and published on TikTok and Instagram Reels.
2. The object of research is focused on two-wheeled and four-wheeled vehicle rental business actors in Yogyakarta City.

3. The automated scoring system only analyzes aspects of video quality based on visual, audio, content structure, text, and duration criteria, without conducting in-depth analysis of platform algorithm trends.
4. The approach applied to the creation of this Automatic Assessment System uses the API from Open AI.

1.4 Research Purposes

This research aims to:

1. Developed an AI-based automated scoring system using APIs from Open AI that is able to objectively evaluate the quality of CapCut's promotional videos about vehicle rental services on TikTok and Instagram Reels.
2. Test the validity of AI system scoring results by comparing video quality scores with real engagement data on social media as well as user and business perceptions.
3. Develop recommendations for content improvement based on the output of AI system analysis, in order to increase the effectiveness of digital promotion of vehicle rental MSMEs in Yogyakarta.

1.5 Research Benefits

This research is expected to provide the following benefits:

1. Academic Benefits: Making a real contribution to the development of AI-based digital content quality evaluation systems, especially in the domain of video marketing for MSMEs.
2. Practical Benefits:
 - a. For Businesses: Provide an automated evaluation solution that helps vehicle rental MSMEs improve the quality and effectiveness of video promotion content quickly, objectively, and efficiently.
 - b. For consumers: Increased access to more informative and engaging promotional content, thereby strengthening trust and interest in vehicle rental services.
3. Social Benefits: Encouraging the acceleration of digital transformation and competitiveness of local MSMEs through the utilization of artificial intelligence technology in digital marketing strategies.

1.6 Systematization of Writing

In order to facilitate understanding of the contents, this thesis is organized with the following systematics:

CHAPTER I Introduction

Contains background, problem formulation, problem limitation, objectives, research benefits, and writing systematics.

Chapter II Theoretical Framework and Literature Review

Discusses the theories underlying the research, a review of previous research related to digital marketing, AI for video content evaluation, and other relevant key concepts.

CHAPTER III Research Methodology

Explains the type and approach of research, location and time, population and sample, data collection techniques, and the system development model (ADDIE) used.

Chapter IV Results and Discussion

Presents the results of the implementation and testing of the automatic scoring system, data analysis, and discussion of the impact on improving the quality and engagement of promotional video content.

Chapter V Conclusions and Suggestions

Summarizes the research findings, and provides suggestions for further development both academically and practically.

Bibliography and Appendix

Contains references used and supporting research documents.

CHAPTER II

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Introduction

The rapid development of digital and social media has made video content a crucial element of modern marketing (Luo et al., 2025). Especially for businesses, short videos on platforms such as TikTok and Instagram Reels are now an important tool to reach consumers and build engagement (Luo et al., 2025). The quality of promotional videos determines the effectiveness of marketing messages: engaging, informative and relevant video content is more likely to increase consumer trust and purchase intent (Luo et al., 2025). However, manually assessing the quality of a video is not an easy task. Manual assessment by experts requires thorough attention to many aspects at once, which is laborious and difficult to scale (Khalil et al., 2025). This is where the role of artificial intelligence (AI) becomes significant. Modern AI models, especially Large Language Models (LLMs) such as GPT-4, have the capacity to process long contexts and can be prompted with specific prompts, which is hypothesized to enable comprehensive video content analysis (Khalil et al., 2025). With prompt engineering techniques, AI can be prompted to analyze a video based on specified quality criteria and provide a quick assessment. This OpenAI API prompt-based approach promises a more consistent and efficient assessment than manual methods, as AI can process various aesthetic and technical factors automatically, free from the subjectivity bias of human assessors (Hivo, 2023). This chapter will outline the theoretical framework underlying the research, including the concepts of technological determinism, digital marketing and social media, user engagement theory, and the principles of AI-based automated assessment systems. In addition, a literature review related to previous research, a research conceptual framework, the practical relevance of the theory for MSMEs, especially vehicle rental businesses, and an analysis of the strengths and limitations of each theory used are also presented.

2.2 Theory of Technological Determinism

The theory of technological determinism is the view that technological development is the main determining factor driving changes in society, culture, and human behavior (Patrick Trusto Jati Wibowo, 2021). This concept was first introduced by Thorstein Veblen and popularized by figures such as Marshall McLuhan. McLuhan even stated “the medium is the message” - the media or technology used to communicate will affect the perspective and mindset of the recipient (Warta Ekonomi, 2021). In the framework of technological determinism, new innovations are considered to trigger social transitions; each major

technological advance (such as the printing press, television, internet) shapes a new order of life and social interaction (Faidlatul Habibah & Irwansyah, 2021).

In the context of digital media and promotion, technological determinism highlights how the emergence of short video platforms and advanced editing tools has changed marketing strategies. Technology is considered to be the driver of changes in the way businesses and consumers behave. For example, social media platforms such as TikTok and Instagram (Reels) were initially born as entertainment and communication tools, but have now evolved into powerful marketing tools that determine how brands interact with consumers (Faidlatul Habibah & Irwansyah, 2021). Similarly, video editing applications such as CapCut, which were originally created to make video production easier, are now essential tools for businesses to increase their digital presence and attract customers. In other words, technological advancements have created a new toolset that indirectly “forces” businesses to adapt to stay competitive. The dominance of short video content on TikTok/Reels makes the use of easy editing apps (like CapCut) a necessity for modern businesses.

An application of this theory can be seen in the vehicle rental promotion industry in Yogyakarta: advances in smartphone technology, the internet, and editing applications allow local MSMEs to produce creative video advertisements that were previously difficult to do without a professional team. Technological determinism explains this phenomenon - that new technologies act as both enablers and drivers of changes in promotional strategies. The strength of this theory is its emphasis on the significant role of technology in driving marketing innovation; technology is seen as a key factor shaping how firms promote and how consumers interact with advertising. However, there are limitations and criticisms to technological determinism. Critics argue that technology is not entirely coercive; humans still have agency in choosing and using technology (Patrick Trusto Jati Wibowo, 2021). Users and businesses can decide to what extent they adopt new technologies. In other words, technological determinism tends to reduce the role of social factors and human choice - as if the direction of change is predetermined by technology, when in reality the interaction between technology and society is more complex (technology is also influenced by human needs and decisions). Nonetheless, in the context of this research, technological determinism provides a foundation for understanding why rent car businesses need to capitalize on advances in AI and digital platforms: in order not to be left behind by the development of AI and digital platforms.

2.3 Digital Marketing Theory

Digital marketing includes all marketing activities that utilize digital-based media as the communication channel (Tompunu et al., 2023). It includes promotion through various online platforms such as websites, search engines, emails, and of course social media. Digital marketing strategies allow businesses to reach a wider target market at a relatively lower cost than traditional marketing. Its main advantage lies in its flexibility and precise targeting capabilities, as well as the ability to measure campaign performance in real-time through various analytics tools (Tompunu et al., 2023). For micro, small and medium enterprises (MSMEs), digital marketing is very relevant because the costs are efficient and the results are measurable (Nisa Khairunisa et al., 2024). With digital channels, MSME players can reach a wider range of consumers and strengthen brand image without large investments such as television advertisements. In addition, interactions with potential customers can occur quickly and directly, for example through comments or instant messaging features, so that the persuasion and conversion process can take place shorter than conventional media (Nisa Khairunisa et al., 2024).

In the context of vehicle rental promotion in Yogyakarta, digital marketing means leveraging online platforms to attract renters, for example by displaying video ads on social media or optimizing online searches for rental services. Digital marketing theory highlights the importance of engaging, platform-appropriate content: what works on YouTube may be different from what works on Instagram or TikTok. Therefore, understanding the characteristics of each digital platform is part of a digital marketing strategy..

Practically speaking, the strength of the digital marketing approach for MSMEs is its ability to level the playing field - small businesses can compete to reach large audiences through content creativity and optimal utilization of platform algorithms, without the need for giant advertising budgets. In addition, readily available performance data (such as number of views, click-through rate, engagement rate) allows for quick evaluation and strategy adjustments. The limitation is that digital marketing is highly dynamic and competitive. Platform algorithms change frequently, so techniques that work today may become less effective in the future. Advertising content also competes in a sea of information: internet users are inundated with content every day, so the challenge is to overcome information overload and ad fatigue. Recent studies have shown audience saturation with homogeneous and repetitive content; uniform content tends to cause aesthetic fatigue and can reduce user trust (Luo et al., 2025). In short,

while digital marketing opens up great opportunities, players must be agile to adapt to trends, maintain content quality, and build trust for campaigns to remain effective.

2.4 Social Media Marketing Theory

Social media marketing is a subset of digital marketing that specifically utilizes social networking platforms (such as Facebook, Instagram, TikTok, Twitter, etc.) to build communication and engagement with audiences (Ardiyono et al., 2024). The essence of social media marketing is its two-way interactive nature: unlike one-way advertising on TV or newspapers, social media allows consumers to not only receive information, but also provide direct feedback (through comments, likes, shares, etc.) (Azhari & Ardiansah, 2022a). This two-way interaction creates a more personalized relationship between the brand and the audience. Another advantage is that social media is able to reach a very wide market at a relatively low cost. Platforms such as TikTok and Instagram can spread content to millions of users organically if the content is interesting and algorithmically appropriate. In addition, social media provides audience segmentation capabilities based on interests, demographics, location, and online behavior (Susanto et al., 2023). This allows promotional messages to be customized so that they are more relevant to different targets.

TikTok and Instagram Reels are examples of the social media platforms focused on in this study. Both are designed for short video content that is entertaining, light, and easy for smartphone users to consume. The nature of this kind of content is very effective for increasing brand awareness and engagement, as users tend to watch many short videos in one session (Natsir et al., n.d.). This consumption pattern is also supported by the platforms' algorithms: both TikTok and Reels are known to have algorithms that encourage the viral spread of content (high organic reach), so even small business accounts have the opportunity to get a wide reach if their videos are highly engaging (Natsir et al., n.d.). Of course, there is a catch: the content must match user preferences and existing trends. The use of popular music, interesting visual effects, as well as taking part in viral challenges can increase the likelihood of a video getting on the For You Page (FYP) or reaching more users (Chloe West, 2025).

For vehicle rental businesses, social media marketing on TikTok/Reels means creating promotional videos that attract attention in a short period of time, encourage users to interact (like, comment, share), and ultimately be interested in using the vehicle rental service. The strengths of this approach are clear: wide reach, immediate interaction, and a viral effect that can be achieved without large advertising costs. Social media also fosters community engagement where customers can become brand advocates by sharing business content to their

networks. However, its limitations include the unpredictability of algorithms and trends. Social media algorithms can change at any time, altering the type of content that is favored. Even content that manages to attract attention usually has a short lifecycle on fast-moving timelines. In addition, the high flow of content means that brands have to innovate continuously to keep their content from drowning in digital noise. Another issue is that when strategies rely too much on trends, there can be homogenization of content between brands, which as mentioned earlier can lead to audience fatigue or even distrust if the audience feels the content is too “advertising” and less authentic (Luo et al., 2025). Therefore, successful social media marketing demands a balance between keeping up with trends and maintaining originality and authentic brand value.

2.5 Engagement Theory and User Behavior on Social Media

The theory of engagement and user behavior in social media focuses on how and why users interact with content, as well as what content factors influence the level of engagement. User engagement is usually measured through various interactions such as likes, comments, shares, saves, or even click-throughs to links (Amin et al., 2021). A high level of engagement (the proportion of interactions compared to the number of viewers) is an indicator that the content has captured the attention and triggered a reaction from the audience. In the context of TikTok/Reels videos, engagement rate is often a key Key Performance Indicator (KPI) to assess the effectiveness of promotional content (Azhari & Ardiansah, 2022b). Content with high engagement indicates the promotional message is well conveyed and the audience is actively engaged, while low engagement indicates the content is less interesting or less relevant to the target audience (Choiri & Ariescy, n.d.).

From a user behavior standpoint, there are a number of elements in video content that are known to influence interest and engagement. First, strong visual aspects are essential. Videos with good image quality, interesting compositions, and creative visual elements are better able to stop users scrolling amidst the torrent of content. Visuals that grab attention in the first seconds are often referred to as hooks. A hook is an initial piece of content (usually the first 1-3 seconds) that aims to stop users from ignoring the video (Arifah & Anggapuspa, 2023). If the video doesn't capture interest right away, users will easily scroll past (Chloe West, 2025). Examples of effective hooks include: provocative questions in the subtitles, surprising scenes, opening with bold statements, or snippets of issues that are relevant to the audience (Social Media Growth Guide, 2023). Content marketing research emphasizes that “the hook is everything” - if the audience is lost at the beginning, then the rest of the message will not be delivered (Nikhil Wad, 2025).

Secondly, the duration of the content should be considered. Social media users generally have a short attention span for content in the feed. Videos that are too long risk being abandoned before completion. Empirical research has found that videos that are too long significantly reduce users' willingness to watch to the end and inhibit interactions such as likes (Pu, 2024). The ideal TikTok/Reels video is typically under 60 seconds long, with many creators suggesting 15-30 seconds to keep the message concise and not rambling. Pu's (2024) findings suggest that excessive video length reduces user focus and interest, thus suppressing content engagement performance. Therefore, even if platforms allow longer videos, from a user behavior perspective, “short, concise, interesting” is often more effective.

Third, the entertainment value and emotional interaction of the content. Users tend to engage with content that entertains, touches emotions, or provides value (informative/inspirational). Content that is boring or too “hard selling” without a story is generally ignored. In contrast, videos with flowing storytelling will keep viewers watching until the end. The Hook-Story-CTA strategy is widely adopted by successful creators: start with an interesting hook, then a short story that provides context or value, then end with a Call To Action (CTA) (Nikhil Wad, 2025). A CTA is an invitation for the audience to take further action, such as “Follow for more tips”, “Visit link in bio for promos”, or an invitation for discussion in the comments (Nikhil Wad, 2025). Content without CTAs is often seen as a waste of the audience's attention once the viewer is engaged, we need to direct them to take the desired action (e.g. sharing the video, visiting the product page, etc.) (Nikhil Wad, 2025). An effective CTA usually sounds natural and relevant to the content, it should not be too pushy. In TikTok/Reels, CTAs are often inserted at the end of the video or in the caption..

In addition, various technical factors can also influence user behavior: engaging audio (e.g. the use of trending background music or unique sound effects) can increase the appeal of a video (Chloe West, 2025); overlay text helps to quickly convey key information (useful in situations where users are watching without sound); and dynamic visual effects and transitions keep viewers' attention. However, these elements need to be used in proportion - too many effects can be distracting, too much text can be confusing. In essence, optimal engagement occurs when video content is able to convey a message clearly, quickly, and resonate with the audience's interests.

Past studies support the importance of the above elements. For example, Sprout Social reports that users will continue to scroll if the video does not immediately grab their interest within the first few seconds (Chloe West, 2025). RivalIQ research shows that TikTok's average

engagement rate is around 5.7%, so brands need to create content that far exceeds this average to be considered successful - this is only possible if the content stands out among millions of other videos (Chloe West, 2025). Meanwhile, academic research has found that cognitive and emotional content factors (such as uniqueness of content, storyline, emotions displayed) play a role in triggering actions such as likes, shares or comments (Pu, 2024). Content that encourages interaction usually triggers social identification or emotional support in the audience (e.g. funny videos trigger shares to entertain friends, sad videos trigger sympathy comments) (Pu, 2024).

By understanding this theory of engagement and user behavior, promotional content designers (including the AI in this study) can be more purposeful in assessing what makes a video worth engaging. If a video has good visuals, the right duration, a strong hook, and a clear CTA, it can be assumed to be of good quality because it meets the general preferences of user behavior on social media. Conversely, if these elements are weak, the video is unlikely to gain sufficient engagement and needs improvement (Arifah & Anggapuspa, 2023).

2.6 Basic AI-based Automated Assessment System (Prompt-based AI)

This section discusses the foundation of an automated video quality assessment system using prompt-based AI, without independently training a new machine learning model. This approach leverages large language models (LLMs) such as GPT-4 provided through the OpenAI API, which have been extensively trained and can perform various instruction-based tasks. The main idea: instead of building evaluation algorithms from scratch, we “borrow” the intelligence of existing AI models by providing them with prompts or instructions specifically designed to assess the quality of promotional videos.

Prompt tuning/engineering here refers to the process of designing instructions in such a way that the AI model produces the desired evaluation output. GPT models already have general knowledge of what makes compelling content, marketing rules, visual aesthetics, etc., from an extensive training corpus. With the right prompts, the model can be directed to act as a “digital marketing expert” or “video content expert” who evaluates a video based on certain criteria. For example, the prompt can contain a list of aspects to be evaluated (visuals, audio, duration, etc.) and a scoring format (score or quality description). We can also provide scoring guidelines or rubrics within the prompt. Recent research shows that LLM performance in assessment can be improved by providing explicit assessment guidelines in the prompt, rather than just a zero-shot prompt without guidelines (Khalil et al., 2025). In other words, AI will

score more consistently if we include detailed criteria (e.g. “score 1-5 for visual, 1-5 for audio, etc. and then provide recommendations for improvement”).

As a system, this AI-based automated assessment consists of several components. First, the video input representation: since language models deal with text, videos need to be represented in the form of textual descriptions or metadata. In this research, for example, the description could contain information on: the duration of the video, whether or not there is a hook at the beginning, visual elements (whether it is light/dark, resolution quality, use of filters or effects), audio elements (type of background music, clarity of narration voice), displayed text (CTA, promo info), as well as content context (storyline, theme, etc.). This data can be obtained through manual observation or automated extraction (e.g. using computer vision technology or frame reading, but for LLM's prompt-based scopes it is usually generated from the researcher's manual input). Second, an evaluation prompt that includes a description of the video and instructions/questions to the AI model: e.g. "Act as a digital marketing expert. Here is a description of a promotional video. Based on visual, audio, duration, content structure, and aesthetic elements, please rate the quality of this video on a scale of 1-10 with reasons." The prompt can also include a brief definition of good vs bad criteria to help the AI understand the context of the assessment. Third, the AI response contains the assessment and analysis. The AI model is expected to provide a quality score or category (e.g., “This video is 8/10. It is visually appealing with good lighting and colors.”).

With the above design, the AI system works without the need to train a custom model. This saves time and resources, as training a new machine learning model usually requires a large dataset of quality vs. poor quality videos, a complicated training process, and the risk of overfitting. Instead, the knowledge already embedded in the GPT model is utilized. Studies have shown the potential of LLM in automated evaluation tasks. For example, LLM GPT-4 has been used to assess the quality of medical answers on YouTube and the results have a strong agreement with the judgment of human doctors (Khalil et al., 2025). LLM has also been tested for automated content scoring in education, such as scoring student essays or short answers, with promising results where the model can provide human evaluator-like feedback. Nonetheless, there are also recognized limitations: Kostic et al.'s research found that generic LLMs sometimes struggle to score complex academic texts according to set criteria (Khalil et al., 2025). Therefore, prompt development and possibly iterative adjustments are necessary for the AI output to be consistent and valid.

The advantages of this AI-based automated scoring system are speed, consistency, and objectivity. AI is capable of quickly analyzing multiple factors simultaneously, tirelessly, and (ideally) without personal preference bias (Hivo, 2023). Each video will be measured against the same benchmark that has been defined in the prompt. This helps ensure that ratings between videos are more consistent than manual ratings by people who may be influenced by subjective taste or mood. In addition, AI can process many videos in a short period of time, making it suitable for large-scale needs (e.g. a marketing agency wants to screen dozens of advertising content from clients).

However, the limitations of this approach should also be noted. Firstly, AI does not really “see” the video the way humans do - given only a text description, its accuracy is highly dependent on the completeness and accuracy of the description. If there are aspects of quality that are missing from the description, the AI cannot assess them. Secondly, AI may lack understanding of subjective nuances and cultural context in content aesthetics (Hivo, 2023). What is considered appealing may vary across cultures or audience segments, while AI makes judgments based on generalizations of its training data. For example, AI may judge a video “less appealing” because there is no music, whereas for certain audience segments, content without music is considered more serious and professional. Therefore, AI output should be seen as an initial indicator that may need to be further calibrated by humans who understand the specific context. Third, AI models carry the potential for algorithmic bias depending on the training data (Hivo, 2023). If the training data under-represents a variety of content styles, AI judgments can be skewed towards certain tastes. For example, a model trained heavily on Western ad scripts may have a bias towards certain ad styles being more effective, when in the local Indonesian context it could be different. Fourth, prompt sensitivity - results are highly dependent on how the prompt is formulated. A slight change in the wording of the prompt can affect the AI's answer, especially if the criteria are not clear enough. This requires careful design and testing of the prompts until they are stable. In conclusion, the AI prompt-based automated scoring system offers an innovative way to quickly assess the quality of promotional videos. By utilizing the capabilities of GPT-4 (or similar models), this research seeks to provide an AI “evaluative eye” trained from general marketing and aesthetic knowledge. The theoretical foundation comes from the concept of few-shot/zero-shot learning in LLM, where AI performs a new task based on instruction alone without task-specific training. The next chapter will describe how this framework is implemented in the research.

2.7 Promotional Video Quality Evaluation Approach

The TikTok/Reels video quality evaluation approach in this study is based on key indicators derived from previous theories and best practices in digital content marketing. Some of the main dimensions used as quality benchmarks are: visual aspects, audio aspects, use of effects and text, duration and structure of content, as well as overall aesthetics and creativity.

- **Visual Quality:** Includes image clarity (resolution, focus), lighting, shot composition, and general visual appeal. A good promotional video should be visually clear - not blurry or dark except for certain artistic effects. Frame composition is also important; the use of the right angle and framing can enhance aesthetics. AI is capable of evaluating visual components such as composition, color, and lighting in videos. For example, the rule of thirds, brand color alignment, or the presence of key visual elements (logos, products) in the video are taken into consideration. A stable (non-shaky) video with vivid colors usually attracts more attention from the audience. If the video features a product (e.g. a car for rent), the product should be clearly visible and attractive. Visuals also include graphic overlays such as text or stickers: is the design attractive and legible, and is the placement not distracting.
- **Audio Quality:** Audio elements include background music, narration/voice-over, and sound effects. Audio should be clear and balanced in volume. Background music should match the mood and not overshadow the narration voice if any. The use of trending music or viral sound on TikTok can be a plus because it increases audience recognition (Chloe West, 2025). However, the appropriateness of the music to the content needs to be maintained (e.g. a car rental promotional video may be suitable with upbeat music to depict the adventure of traveling). If there is dialog or voice-over, the diction and intonation need to be clear. AI can consider whether the audio is engaging and syncs with the visuals - e.g. the beat of the music matches the video transitions. Simple indicators: no distracting noise, good recording quality, and the audio supports the message (e.g. using horn sound effects to emphasize car features can be engaging if not overdone).
- **Visual and Text Effects:** TikTok and Reels provide a variety of filters, transition effects, and templates through apps like CapCut. The use of visual effects (e.g. glitch, zoom, slow-motion) can add dynamics to the video. Attractive promotional videos usually utilize several transitions or text animations to avoid monotony

(Natsir et al., n.d.). However, effects should be used proportionally and relevantly. Too many effects can make the video look amateurish or distract from the main message. Text elements in the video (such as in-video captions, titles, or subtitles) are also assessed: whether the text helps comprehension (e.g. highlighting service benefits, listing promo prices, or CTAs such as “Contact us now”) and is easy to read by design (clear font, large enough size, color contrast with the background). CapCut for example provides dynamic text features and creative text templates - the use of these features can improve quality if contextualized (Riche et al., 2025). Another indicator is the presence of a brand logo or business identity in the video (corner of the screen or end of the video), which can be a plus in terms of branding.

- **Duration and Content Structure (Hook-Content-CTA):** As discussed in the engagement theory, duration needs to be customized. The quality evaluation will consider whether the video is too long or too short for the message. TikTok/Reels videos are generally optimized for under 60 seconds; if the content is simple but the video is much longer, there may be ineffective parts. In addition to the total duration, the internal structure is important: does the video have a strong opening (hook), clear main content, and a closing with a call to action (CTA). AI through prompts will assess the presence of a hook at the beginning - e.g. an interesting opening sentence or striking visuals in the first 1-2 seconds (Sprout Social, 2023). It then assesses the flow: whether the video narrative is coherent or jumpy. Then at the end, is there a clear CTA (either spoken or text). For example, the CTA could be an invitation to follow, visit the website, use a voucher code, etc. Effective promotional videos usually follow the proven “Hook-Story-CTA” framework that drives views and engagement (Chloe West, 2025). If this structure is met, the quality of the video in delivering the message is likely to be better.
- **Aesthetics and Creativity:** This aspect assesses the overall impression of the video whether it looks professional or perfunctory, whether it has a unique appeal, and how the style matches the target audience. Aesthetics include visual and audio harmony: brand colors are consistent, fonts and graphics fit the theme, and the vibe of the video matches the message (e.g. if the market segment is young, the aesthetic might be upbeat, energetic; if targeting executives, it might be more elegant and informative). Creativity is seen in how unique the video concept is compared to most. Is the video just a standard montage, or are there creative ideas (e.g. mini

storylines, use of influencers, unexpected angles). Creative and aesthetically pleasing videos tend to get higher engagement because they stand out in the feed (Hivo, 2023). AI can make subjective judgments here, for example: “This video is aesthetically pleasing with a balanced composition and warm color tones that are appealing” or conversely “The visuals seem crowded and unfocused so the aesthetics are lacking”. Although aesthetics is subjective, there are some general benchmarks such as frame balance, design consistency, and editing quality (neat cutting, synchronization between audio and visual). Even the smoothness of editing (smooth transition between scenes) is one of the quality indicators - this has also been used as a variable in previous models of technological determinism (Hivo, 2023).

In practice, this video quality evaluation approach is operationalized into an AI scoring framework. The prompts will ask the AI to examine the five dimensions above and provide a score or qualitative evaluation. For example, the AI is asked to rate each aspect on a scale of 1-5 and then explain. Thus, improvement recommendations can be generated per aspect (example: “visuals are not bright enough, you should add lighting; duration is too long, cut repetitive parts; there is no music, you can add upbeat background music”). This is also what the literature reveals: if engagement is low, evaluation should include examining visual/audio quality, message clarity, format selection, publication timing, and content relevance. This comprehensive approach ensures that video quality evaluation is not merely subjective, but based on concrete indicators that have been proven to be important in digital content performance.

To illustrate, the indicators above align with evaluation guidelines put forward by practitioners. A content checklist from a previous study included: (a) Is the video visually appealing and technically adequate? (b) Does the audio/music support the message? (c) Is the promotional message clearly conveyed? (d) Is the video format/template platform-appropriate? (e) Is it posted at the optimal time? and (f) Is the content on-trend and of interest to the audience. All these points are embedded in our assessment dimensions. With this structured evaluation approach, it is hoped that the AI assessment output will provide actionable insights to improve the quality of CapCut's promotional videos before (or after) they are uploaded to TikTok/Reels.

2.8 Research Conceptual Framework

Based on the theories and indicators that have been described, a conceptual framework can be built that explains the relationship between input variables, evaluation processes, and

outputs in the development of this promotional video quality automatic assessment system. Broadly speaking, the conceptual framework consists of three components: Input (Independent Variable), Process (AI Evaluation Mechanism), and Output (Dependent Variable in the form of Quality Rating).

- **Input - Video Content Elements:** This covers the various elements that make up a promotional video (video content features). Based on the previous discussion, key input elements include: Visual aspects (clarity, lighting, composition, visual effects, etc.), Audio aspects (background music, sound quality, audio effects), Text in the video (title, subtitles, written CTA, promo information), Video duration, and Content structure (presence or absence of hook at the beginning, storyline, closing with CTA). Input elements can also include the level of relevance of the content to trends (e.g. use of viral songs) and suitability to the target audience. In the research framework, these elements act as independent variables that vary across videos - for example, one video may be 15 seconds long (optimal), another 60 seconds long (slightly longer); one video uses a question hook, another does not; and so on. It is these elemental variations that are expected to affect the quality assessment results.
- **Process - AI Analysis via Prompt:** The middle part of the framework is the process by which the AI system analyzes the input. This process is mediated by prompts that have been designed to evaluate each element of the input. In other words, the AI is instructed to check the visual quality, audio, text, duration, structure, etc., and then integrate its judgment. This AI process can be viewed as an intelligent black box that performs judgment just as an expert evaluates a video based on its knowledge and criteria. Conceptually, the theory of technological determinism and marketing theory provide the basis for why this process is important: AI technology here becomes an agent that “quantifies” the quality of content, which in turn is expected to correlate with real performance on social media. This AI process is also influenced by the knowledge base model (which is implied by the engagement and aesthetic theories that the AI has mastered during training) as well as the rules in the prompt (based on the theory that we explicitly provide). So the conceptual framework shows that the video content input is interpreted through the AI “lens”, resulting in a judgment.
- **Output - Video Quality or Eligibility Score:** The end result of the AI process is an assessment output in the form of a promotional video quality score or eligibility

category. This is the dependent variable in the study. The output can be a numerical score (e.g. 1-10 scale) or a qualitative label (e.g. “good”, “fair”, “poor”). In our framework, this output represents the level of quality or effectiveness of the promotional video according to the AI system. Conceptually, this output is expected to be related to tangible outcomes such as the potential engagement or success of the content on social media. This means that a video with a high quality score (output) should have good input characteristics (visuals are okay, there is a hook, etc.), which in theory will tend to generate high engagement when uploaded. Conversely, a low score indicates that the video may not be worthy of being used as promotional content due to many weaknesses in its elements.

The relationship between the components in this framework can be explained as follows: Input variables (video elements) influence the output (quality score) through the AI analysis process. Video elements that meet best practice rules (e.g. visually appealing, clear audio, good structure) will be recognized by AI and given a positive assessment weight, resulting in an increased output score. Conversely, weaknesses in elements (e.g. dark video, no CTA) will be detected and reduce the output score. The framework also shows that the AI system is positioned as a formal evaluator of the relationship - it tries to map inputs to outputs as per marketing science (like a function $f: \text{content elements} \rightarrow \text{quality score}$).

Diagrammatically, the conceptual framework of this research can be depicted with arrows input $\rightarrow$ process $\rightarrow$ output. The inputs are X1: Visual Quality, X2: Audio Quality, X3: Duration, X4: Content Structure (Hook & CTA), X5: Text Elements & Effects, X6: Aesthetics/Trends, and so on. All these $X_1 \dots X_n$ go into the AI Analysis Process (Prompt-based LLM), which then produces Y Output: Promotional Video Quality Score/Predicate. This framework is in line with the content evaluation model in several previous studies, where content features (cognitive & emotional features) are used as predictors to measure quality and engagement potential (Pu, 2024).

With this conceptual framework in place, the research had a clear reference of what was being measured and how they were related. This framework also helps to formulate the evaluation instrument (i.e. AI prompts that cover all input elements) and how the results will be interpreted (e.g. a video is considered “upload-worthy” if it scores above a certain threshold). Furthermore, in the Methodology Chapter, this framework will be used as the basis for developing implementation scenarios for AI systems as well as validating AI assessment results against human evaluation or real engagement metrics.

2.9 Review of Previous Research Literature

Several previous studies have touched on topics related to digital content evaluation using AI as well as video promotion strategies on social media:

- **Use of CapCut to Increase Engagement:** Developed a promotional content model using the CapCut application for vehicle rental businesses in Yogyakarta. The method used was R&D with the ADDIE model, including the creation of promotional video templates and testing on TikTok/Reels. The results showed that the use of the CapCut application can significantly increase user engagement by producing more attractive and efficient promotional content. The content model developed proved to be effective in increasing user interaction (reflected in the increase in likes, comments, etc.), so it was concluded that CapCut templates could help MSMEs promote their products more creatively and cost-effectively (Hivo, 2023). This finding is relevant to our research, as it confirms that the quality of video content (in terms of the creativity and visual appeal that CapCut features can facilitate) is directly proportional to the level of engagement. The study lays the groundwork that content evaluation and improvement efforts (such as what AI will do in this study) have the potential to have a real impact on marketing performance.
- **AI for Video Content Quality Evaluation:** A recent study in healthcare by Suarez Lledo et al. (2025) explored the use of LLM GPT-4 to assess the quality of medical content on YouTube. The study, published in *Scientific Reports*, highlighted that GPT-4 was able to evaluate medical information videos with a high degree of agreement with expert judgment, particularly in terms of source accuracy and information completeness (Khalil et al., 2025). They formulated prompts based on DISCERN standards (15 health content criteria) and tested over 20 LLM models. As a result, GPT-4 stood out the most in providing consistent scoring and listing relevant references as human experts would also do. In addition, literature in the field of education shows that LLM can be utilized for automatic grading. For example, several studies (Zhu, 2023; Patel, 2024) reported LLMs provide feedback and scores on student essays with a fairly high correlation to teacher scores (Khalil et al., 2025). While it is noted that accuracy decreases for highly specific tasks or those requiring detailed factual knowledge, the initial consensus is that AI has great potential as a content evaluation assistant. These studies inform our research approach: that prompt-based AI is feasible for assessing the quality of marketing

videos, provided that the assessment criteria are clear and the AI output may need to be verified. There are not many studies that directly examine AI assessing marketing videos, so this research will be one of the novel attempts to apply it in the digital marketing realm.

- **Content Quality and Consumer Behavior:** Luo et al. (2025) examined the impact of short video content quality on consumer trust and purchase intention on social media (using the SOR model) (Luo et al., 2025). Video content is assessed from the aspects of usefulness, ease of use, and entertainment. The results show that the more useful, easy-to-understand, and entertaining the video content is, the higher consumers' trust in the brand and ultimately drives purchase intention. This finding reinforces the importance of quality evaluation: quality promotional videos (both informative and engaging) not only increase short-term engagement, but also build trust that leads to sales conversions. This is in line with the objectives of our automated scoring system, where indicators such as message clarity (usefulness) and entertainment appeal are part of the assessment.
- **Video Content Features that Influence Engagement:** Pu et al. (2024) conducted in-depth research on UGC (user-generated content) video content features and their influence on user engagement behavior (like, share, save, tip) (Pu, 2024). They developed a very detailed feature framework covering cognitive (e.g. richness of content details, frequency of scene transitions) and emotional (e.g. emotions displayed by characters, emotions in viewer comments) dimensions. With regression analysis, several significant factors were found, for example: high scene transition frequency increases tipping (indicating videos with many scene changes feel more dynamic), while video duration that is too long and displays too many characterless frames reduces users' willingness to like or save videos (Pu, 2024). Also, user interaction in the comment section (bullet chat) was found to have a positive effect on other users' decision to like/share. While Pu's research focuses on video platforms in China and includes highly technical variables, the results are in line with common assumptions: short video content needs to be dynamic, concise, and trigger interaction for high engagement. Our research absorbs this insight by including video pacing (whether transitions between clips feel smooth and frequent enough to maintain attention) as part of the aesthetics/dynamics evaluation. It is

also worth noting that the AI evaluation output can include suggestions such as “the video is too static, add more scenes or cuts to break the monotony”.

Overall, the literature review above shows that: (1) Creative promotional content creation (e.g., with CapCut) has been shown to increase engagement - hence the importance of assessing and improving content for MSMEs; (2) Generative AI with the ability to assess non-visual content (text, audio, etc.) has been applied in several domains with promising results, supporting the idea of using GPT-4 for video marketing evaluation; (3) Video content quality (in its various aspects) clearly has a significant impact on consumer behavior, both at the initial engagement stage and all the way to purchase intention - so research that helps measure/improve content quality has a real practical contribution; (4) There are various specific content factors identified that affect engagement, which we can integrate as parameters in AI scoring systems. With the foundation of these previous studies, our research is expected to fill the gap by combining AI approaches and local marketing context (Yogyakarta MSMEs) to produce an innovative video content rating system.

2.10 Practical Relevance of Theory to MSMEs and Vehicle Rental Promotion

The discussion of the above theories has strong practical implications, especially for MSME players in promoting vehicle rental services in the digital era. Here are some key relevances:

- **Technology Adaptation for Competitiveness (Technological Determinism):** For vehicle rental MSMEs, understanding the theory of technological determinism means realizing that the adoption of new technologies is no longer an optional choice, but a necessity to survive and excel. For example, using video editing applications such as CapCut and utilizing the TikTok/Reels platform for promotion is a form of adaptation to current digital technological advancements. Technology has “dictated” the direction of modern marketing to video content; therefore, MSMEs that are quick to adopt tend to be better able to attract millennial/Gen-Z customers whose daily lives are attached to short video formats. The practical relevance is that MSME players in Yogyakarta can utilize the ease of CapCut's features (templates, instant effects, etc.) to create quality advertising materials without the need to hire expensive design experts. In other words, technology provides leverage for those willing to use it: MSMEs with limited resources can still produce professional-looking promo content. This research, which developed an AI-based evaluation system, is also an example of utilizing the latest technology

(AI) to help MSMEs in the spirit of technological determinism that technology drives new business practices.

- **Effective Digital and Social Media Marketing Strategies:** Digital & social marketing theory provides practical guidelines for MSMEs on channels and ways to advertise. Instead of spending their budget on print media or physical banners, car rental MSMEs in Yogyakarta can focus on digital marketing that is more affordable and targeted. For example, create a TikTok account for the brand, then regularly upload promo and educational video content (travel tips, Jogja tourist destinations, etc. with car rental promotions inserted). Social media offers free exposure through viral mechanisms. Social media marketing theory underlines the importance of engagement, so MSMEs must actively interact: reply to comments, create small challenges (e.g. video competitions for road trip experiences with rental cars). In practice, this has been proven to work shows that CapCut's engaging content can increase the level of interaction on vehicle rental accounts on TikTok/Reels. In addition, social media marketing allows MSMEs to tap into local online communities: city Facebook groups, the Instagram hashtag #rentalmobilJogja, or collaboration with local influencers. All of these are direct implementations of digital & social marketing theory.
- **Engagement-Oriented Content Design:** The theory of engagement and user behavior is very relevant to guide MSMEs in creating content. Knowing that users easily scroll through uninteresting content at the beginning, MSMEs can ensure that each promotional video starts with a strong hook - for example, showing a beautiful view of the tourist destination or opening with the question "Vacation in Jogja but confused about transportation?" that immediately hits the audience. Knowing that CTAs are important, they will always add an invitation (e.g. "Click the link in bio for today's rental discount promo"). Similarly, the realization that duration needs to be short means that MSMEs don't need to push for long videos; 30 seconds is enough with the core message. By following these principles, MSMEs can significantly increase the effectiveness of their content. Another relevance is in service: knowing that users like authentic content, MSMEs can feature real customer testimonials in their videos to build trust. User behavior theory also reminds us to be sensitive to trends - MSMEs are advised to keep up with viral trends on TikTok/Reels, then adapt them in the context of their business

(e.g. following a booming challenge but associated with rental cars). This makes the content more discoverable and favorable to the young target market. In essence, engagement theory provides a practical checklist for MSMEs so that their content is not just ready-made, but is designed to be appealing in accordance with the media consumption habits of today's audiences.

- **Application of AI as a Tool for MSMEs:** The use of AI for content evaluation, although it seems sophisticated, is actually very beneficial in practice for MSMEs. Many MSMEs do not have a team of marketing experts to assess whether their creatives are good or not. With an automated system (such as the one built in this study), MSMEs can get instant feedback on the videos they create. For example, before uploading a video to TikTok, they can run it through this AI system and see the score or suggestions for improvement. If the AI highlights “poor lighting, video is a bit dark”, MSME players can decide to re-record with better lighting. Or if the AI suggests “no CTA, add a call to action at the end”, they can re-edit to add CTA text. It's like having a virtual marketing consultant without the huge cost. This is especially relevant because MSMEs generally have limited resources for trial-and-error - having an evaluation tool helps produce quality content more consistently. In addition, this AI can be integrated into MSME workflows for example through a simple app: imagine a feature in CapCut in the future that scores “Your video is 8/10 for promotion, here are tips to improve it to 10/10”. That would be very convenient. Another relevance is that AI can reduce bias and blind spots: sometimes business owners feel that their videos are okay but from the consumer's point of view, they are less attractive - a neutral AI opinion can open their minds.
- **Efficiency and Effectiveness of Promotion:** The incorporation of all the above theories in MSME practices has the ultimate goal of improving promotional outcomes with the most efficient efforts possible. Digital & social marketing provides cost efficiency and wide reach, engagement theory ensures that content is executed effectively to attract audiences, technological determinism encourages the use of the latest tools (CapCut, TikTok) for optimal results, and AI evaluation ensures quality before launch. For vehicle rental businesses, this comprehensive approach means: they can reach local and out-of-town travelers through social media, educate them about their services in an engaging manner, build trust via quality content, and ultimately drive more rental orders. All at a relatively low cost

(just need a smartphone, creativity, and internet access) compared to conventional advertising. Even these theories help MSMEs avoid common mistakes - for example, without guidance, MSMEs might make videos that are too long and boring and therefore ineffective; but with knowledge, they now know to keep it short and interesting. Similarly, without AI evaluation, they might upload “just-so” content that could reflect poorly; but with evaluation, they can ensure the content is appropriate and represents the professionalism of the business.

In the specific context of Yogyakarta, the city is known as a cultural and natural tourist destination, so competition for vehicle rental services is quite high. MSMEs in this sector need to stand out. The application of digital marketing theory & engagement through creative content (e.g. videos showing the ease of renting a car to explore the Borobudur sunrise temple, etc.) has the potential to attract millennial tourists who plan trips through social media. Practices in the field have shown that some rentals in Jogja have gone viral on TikTok because of their unique content (e.g. the driver is friendly and gives a short tour in the video). This means that these theories do have a real impact if implemented.

In short, the practical relevance of the above theories for vehicle rental MSMEs is like providing a map and compass in the digital marketing landscape: the theory becomes the directional guide, and tools such as AI become the compass of quality pointing, so that they can navigate online promotions with more confidence and on target. Ultimately, this contributes to the empowerment of local MSMEs to compete and grow in the digital economy.

2.11 Strengths and Limitations of the Theoretical Framework

The theoretical frameworks used in this research offer various advantages, but each also has its limitations. The following summarizes the strengths and limitations of the underlying theories, in the context of the research:

- **Theory of Technological Determinism: Power:** Clearly explains how technological advancements (video platforms, editing apps, AI) are driving changes in promotional strategies. The theory emphasizes the importance of technology adoption for businesses to stay relevant. In this case, technological determinism helps rationalize the use of AI and social media as inevitable in the evolution of marketing. **Limitations:** Tends to reduce the role of human and social factors. Not all businesses automatically change just because new technologies emerge - creativity, organizational culture, and consumer preferences also factor in. Critics say that technology does not fully “control” society, as humans still have choices

in adopting technology (Patrick Trusto Jati Wibowo, 2021). So this theory may be oversimplified if used alone; it needs to be combined with perspectives that recognize social dynamics and human agency.

- **Digital Marketing Theory & Social Media: Power:** Provides a strong practical foundation - the theory is directly connected to real tools and metrics (reach, engagement, conversion). Relevant for MSMEs as it emphasizes the advantages of low cost and precise targeting. Also explains new phenomena such as two-way engagement, online communities, which are not covered in traditional marketing. Limitations: The spectrum of digital marketing is vast and dynamic, so the theory is rapidly evolving. There is a risk of lag between theoretical concepts and the latest practices (e.g. new platforms appear, algorithms change, etc.). In addition, digital marketing is highly dependent on technological infrastructure and internet access; for some market segments that are clueless, this theory is less applicable. For MSMEs, even though it is cheap, digital marketing still requires technical expertise that they may not have; otherwise, the results can be suboptimal. So the challenge is that this theory needs to be accompanied by an increase in the digital literacy of MSME players.
- **Engagement Theory & Social Media User Behavior: Power:** This theory is highly applicable to content creation - providing clear guidance on optimal duration, importance of hooks & CTAs, visual/auditorial preferences of users (Chloe West, 2025). With this theory, content can be designed more scientifically based on user psychology rather than trial and error. This increases the chances of content success in the field. Limitations: Social media user behavior can change quickly and is also influenced by momentary trends that are difficult for theory to predict. For example, TikTok's algorithm may suddenly promote longer-form content, contrary to previous habits. Also, high engagement does not necessarily mean business effectiveness (funny entertainment content may get a lot of likes but no customers). So, an excessive focus on engagement metrics can be misleading if not linked to business objectives (vanity metrics issue). This theory is also generally general; in certain niches the behavior may deviate (e.g. educational content may be longer in duration but the audience still engages because they need info). Hence, flexibility is needed in its application.

- **Prompt-based AI Automated Scoring System:** Power: Innovative and efficient utilizing the latest AI technology with extensive training, avoiding the need for new large datasets. Provides fast and consistent results, helping to standardize assessments (Hivo, 2023). For MSMEs, this is a great strength as it opens up access to “virtual experts” that can be used at any time. Also, being prompt-based, the system is flexible to change the criteria as needed. Limitations: As described, AI has limitations of subjective context understanding and can be biased depending on the training data (Hivo, 2023). The quality of the evaluation is highly dependent on the quality of the prompts; meaning it takes initial trial & error to get the best prompt formula. In addition, large language models such as GPT-4 are black boxes in decision-making - it is difficult to transparently ascertain the reasoning behind the scores except from the explanations provided (which may be hallucinated). There are also technical limitations: needing an internet connection, API fees, and possible rate limits from AI service providers. In terms of accuracy, AI is not necessarily 100% aligned with human judgment or the actual success of the content. So it should be seen as a tool, not an absolute determinant. There should be verification or at least an understanding of AI recommendations before implementation.

Overall, the theoretical framework is comprehensive - covering aspects of technology, marketing strategy, to audience behavior and evaluation tools. This multi-theoretical combination is its strength, complementing each other: technological determinism provides a macro perspective (the importance of technology), digital & social marketing provides the context of the business environment, engagement theory provides micro prescriptions for content, and AI systems bridge implementation. However, researchers should still be aware of the limitations of each and anticipate them. For example, overcoming AI bias with human oversight, or applying engagement theory flexibly according to actual analytics data. Thus, we can maximize the benefits of this theoretical framework as a research foundation, while mitigating its shortcomings through proper research design.

CHAPTER III

RESEARCH METODOLOGY

3.1 Research Type and Approach

This research is a Research and Development (R&D) study that aims to develop digital promotional media in the form of video content using the CapCut application, which is then distributed through the TikTok and Instagram Reels platforms. Furthermore, the main focus of this research is on the development of an artificial intelligence (AI)-based system that can assess the quality of promotional videos for vehicle rental services produced using the CapCut application and published on both social media platforms.

The R&D approach was used because this research not only aims to explore the phenomenon, but also to produce an innovative product in the form of an automated assessment system that can be implemented directly by businesses. The system model was developed by considering the real needs in the field, and validated for effectiveness through a process of live trials and feedback from actual users.

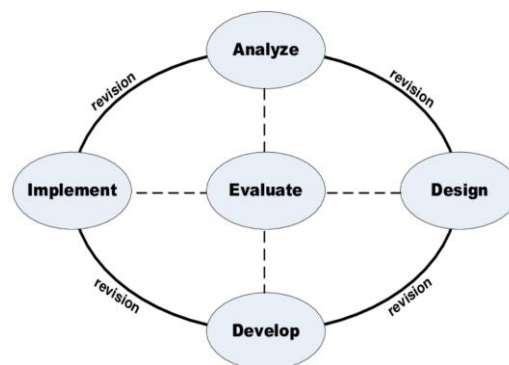


Figure 3. 1 ADDIE Diagram

In order for product development to run systematically and structured, this research uses the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation). The ADDIE diagram can be seen in the Figure 3.1 above. The ADDIE model was chosen because it is able to provide an integrated framework that includes the process of needs analysis, concept and feature design, system development, implementation to actual users, and evaluation of the effectiveness of the resulting digital products. Validation of the effectiveness of the system is carried out through a direct trial process and collection of feedback from respondents and business people, so as to ensure that the developed automated assessment system really suits the needs and has a real impact on improving the quality of digital promotion.

The ADDIE approach was chosen because this model is not only suitable for the development of educational and training systems, but also effectively used in the design of technology-based systems, especially those that rely on user experience and data-based evaluation. Each stage in the ADDIE model provides a clear structure for iteration and continuous improvement of the system.

By using this approach, the research is expected to produce a promotional video scoring system that is accurate, efficient, and applicable, and can be a real solution for MSME players in improving the quality of their digital promotions through attractive and on-trend short video content.

3.2 Location and Time of Research

This research was conducted in Yogyakarta City and involved two-wheeled and four-wheeled vehicle rental businesses that utilize social media as a means of promotion. The whole series of research took place from May to June 2025, including the collection of needs, system development, implementation on actual users, to the evaluation process of the developed automatic assessment system.

3.3 Population and Sample

3.3.1 Population

The population in this study includes two main groups that have a significant role in the digital promotion ecosystem in Yogyakarta, namely:

1. Active Users of TikTok and Instagram

This group consists of individuals who regularly access, interact with, and consume short video content on the TikTok and Instagram Reels platforms. They represent the target audience that is the main target of digital promotion of vehicle rental MSMEs in Yogyakarta.

2. Vehicle Rental Business Actors (Two and Four Wheelers) in Yogyakarta

This group includes vehicle rental business owners or managers who actively promote through social media. These business owners have a real need for a more effective, efficient and data-driven marketing strategy, especially in improving the quality of promotional video content.

3.3.2 Sample

The sampling technique used in this study was purposive sampling, which is a method of selecting samples based on certain considerations and criteria in accordance with the research objectives. The inclusion criteria set in this study include:

1. Age between 18-40 years old

This age range was chosen because it represents the productive age group that demographically most actively uses social media and has a high adoption of digital technology.

2. Actively using Tiktok and/or Instagram platforms

Only respondents who have an active habit of accessing, creating or interacting with short video content on these platforms can provide relevant feedback on the quality of promotional videos.

3. Have lived or are currently living in Yogyakarta

Respondents are prioritized to have geographical attachment to Yogyakarta City, either as permanent residents, students, workers, or temporary tourists..

4. 4. Willing to participate in the automated video grading system trial

Active participation in the testing process is essential to obtain empirical data on user experience and effectiveness of the developed system.

In conducting the research, the researcher ensured that the selected sample truly represented the target population and was relevant to the issues raised. Through purposive sampling, this research can explore more in-depth and specific insights according to the context of using an automated assessment system in the digital environment of vehicle rental MSMEs in Yogyakarta.

With this approach, the data obtained is believed to have high validity and relevance to support the analysis of the effectiveness and reliability of the system developed, while making a real contribution to improving the quality of video-based digital promotion in the local MSME sector.

3.4 Data Collection Technique

Data collection in this study was conducted using multi-methods to gain a comprehensive understanding of the effectiveness of AI-based automated scoring systems on the quality of vehicle rental service promotional videos. The three main techniques used were :

1. Questioner

The questionnaire was used as the main instrument to obtain data related to user perceptions and interest in the promotional content developed in this study. The instrument was designed to explore important aspects that influence audience interest in promotional videos for vehicle rental services created using CapCut and distributed through the TikTok and Instagram Reels platforms. The questionnaire questions were designed on a Likert scale, allowing for statistical analysis. The following are the questions in the questionnaire.

Table 3. 1 User Interest Survey Questionnaire Questions

No	Question	Objective
1	How interested are you in content that starts with a hook at the beginning of the video?	Assess the user's level of interest in the content style starting with attention-grabbing appeal.
2	How much do you like content with a relaxed, non-rigid style?	Measuring the extent to which casual style in content attracts users.
3	What do you think of the short video duration (less than 1 minute)?	Find out if the short duration of the video can increase users' interest in watching until the end.
4	How attractive is content that has interesting visualizations and the use of dynamic visual effects?	Assess whether attractive visual elements contribute to the level of user interest in the content.
5	Are you more interested in Entertainment content than more educational content?	Menilai preferensi pengguna untuk jenis konten humor/hiburan vs. konten edukatif.
6	Sejauh mana Anda tertarik dengan konten informatif/edukatif?	Measures the level of user interest in content that provides information or education.

7	Are you more interested in vlogs or content that focuses on personal experiences or travel?	Identify whether vlog-type content is more engaging than other types of content such as tutorials or education.
8	Would you be interested in seeing other content if it has a different style or approach?	Assess whether variations in content approach such as visual type or delivery style can increase interest.

Table 3.1 lists the questionnaire questions and their objectives, which were used to gauge users' perceptions and interest in various characteristics of promotional video content. Each question is designed to explore important aspects such as hook, delivery style, video duration, visualization, content type preference (entertainment, education, vlog), and interest in different content styles or approaches.

2. In-depth Interview

The interview technique was conducted to vehicle rental business actors who became partners in this study. The purpose of this interview was to obtain information about the promotional strategies used previously. Some of the questions asked in the questionnaire include:

Table 3. 2 Promotion Strategy Interview Questions

No	Question	Destination
1	How difficult is it to create a compelling promotional video for your business?	Measure the level of difficulty businesses face in creating engaging promotional videos.
2	Do you feel like you have limited time to create promotional content?	Estimate how much time is an issue in creating promotional content.
3	Do you find your lack of video editing skills a barrier to creating effective promotions?	Measure whether video editing skills are an issue in the creation of promotional content.

Table 3.2 contains three interview questions aimed at exploring the main obstacles faced by businesses in creating promotional video content. The questions focused on the difficulty in creating engaging videos, time constraints in creating content, and skill barriers in video editing.

3. Social Media Data Analysis

The secondary data in this study was collected through an analysis of the engagement levels of promotional videos uploaded to the TikTok and Instagram Reels platforms. Secondary data collection was carried out by monitoring and recording a number of key metrics, namely the number of likes, shares, comments, and views obtained by each promotional video during a certain period of time after it was uploaded.

The combination of the three techniques above ensures that the research does not rely solely on subjective perception data, but also takes into account objective evidence through digital engagement metrics. Thus, the validity of the research results can be accounted for scientifically and empirically.

3.5 ADDIE Development Model

The development model used is ADDIE (Analysis, Design, Development, Implementation, Evaluation), which provides a systematic and iterative framework for building, testing, and refining AI-based automated assessment systems. The explanation of each stage is as follows:

3.5.1 Analysis

The analysis stage aims to understand user needs, audience characteristics, and the actual conditions of promotional media used by vehicle rental businesses in Yogyakarta. The analysis is conducted as an initial basis in formulating system specifications, video quality assessment indicators, and content design strategies that are relevant to market needs and the development of digital technology. The steps in this analysis stage include:

1. Promotion Needs Analysis

Identification was made of the problems of conventional promotions that have been relying on static media such as photos and brochures. The research highlighted the urgent need for short video-based promotional content that is more interactive and able to attract digital audiences, especially on the TikTok and Instagram Reels platforms. The problems and opportunities identified became the main foothold in developing a more effective digital media-based solution.

2. Audience Analysis

Determining the characteristics of social media users who are targeted for promotion is done by taking into account age, interests, digital behavior, and content consumption preferences. Literature studies, surveys, and in-depth interviews with businesses and social media users were conducted to explore the most potential audience segmentation

as customers of vehicle rental services. With this analysis, content design can be more targeted, in accordance with communication styles and user expectations in the digital era.

3. Platform Analysis

An in-depth review was conducted on the characteristics and content distribution algorithms of TikTok and Instagram Reels. Aspects examined include the optimal video format (ratio, duration), virality mechanisms, as well as elements that affect engagement such as the use of music, visual effects, and storytelling techniques (e.g. Hook-Is-CTA structure). The results of this platform analysis serve as a guideline in determining the type and style of content that is relevant and easily accepted by audiences on both platforms.

An in-depth review was conducted on the characteristics and content distribution algorithms of TikTok and Instagram Reels. Aspects examined include the optimal video format (ratio, duration), virality mechanisms, as well as elements that affect engagement such as the use of music, visual effects, and storytelling techniques (e.g. Hook-Is-CTA structure). The results of this platform analysis serve as a guideline in determining the type and style of content that is relevant and easily accepted by audiences on both platforms.

3.5.2 Design

Based on the results of the needs analysis, the design stage was carried out to design the concept of promotional content as well as an automated scoring system that would be developed using the CapCut application and integrated on a web platform. At this stage, the researcher developed a UI/UX prototype design of the automated scoring web system, a promotional video storyboard (with a Hook-Message-CTA structure according to digital marketing best practices), and a system flowchart. The steps in this design stage include:

1. Storyboarding

The arrangement of the visualization sequence of the promotional video to be created, including the opening, content, and closing. This storyboard is designed to ensure that each video has a flow that is interesting, effective, and in accordance with the objectives of digital promotion.

2. Selection of Content Elements

Penentuan elemen-elemen visual utama seperti teks, logo, musik latar, efek visual, transisi, dan narasi yang akan digunakan. Elemen-elemen ini dipilih untuk

memperkuat pesan promosi dan meningkatkan daya tarik visual sesuai dengan karakteristik audiens TikTok dan Instagram Reels.

3. Promotional Message Design

Designing core messages that will be delivered to the audience, such as rental prices, business location, service speed, and discount information. The messaging is short, concise, and easy to understand in order to effectively drive action (Call to Action/CTA).

4. Video Structure Design

Adjusted video duration (maximum 60 seconds) and internal video structure to meet the standards and content distribution algorithms on TikTok and InstagramReels platforms. Format adjustments were also made to the video dimensions, resolution and aspect ratio (e.g. 9:16) to optimize the content on both platforms.

5. Design of Automated Grading System

Technical design of UI/UX prototype of user-friendly web system for MSME players, including system flowchart, use case diagram, and sequence diagram. The entire design not only considers the technical aspects and functionality of the system, but also the ease of use and actual needs in the field.

- Flowchart System

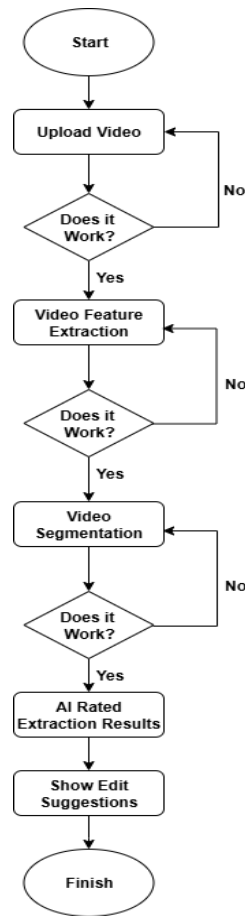


Figure 3. 2 Flowchart System

The diagram illustrates the workflow of the AI-based promotional video auto-scoring system. The process starts with uploading a video, then video feature extraction, followed by video segmentation. After each stage, the system checks whether the process is running properly (if not, return to the previous process). If all processes are successful, the extraction results will be assessed by AI, then the system will display suggestions for improvement before the process is declared complete.

- Usecase Diagram

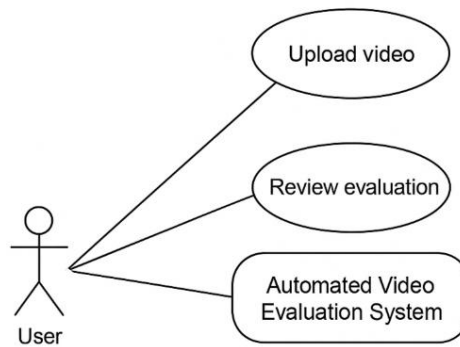


Figure 3. 3 Use Case Diagram

The use case diagram illustrates the interaction between the user and the System. In this system, the user has two main activities, namely uploading videos and viewing the evaluation results generated automatically by the video evaluation system. This diagram emphasizes the central role of the user in utilizing the main features of the system in a direct and simple way.

- Sequence Diagram

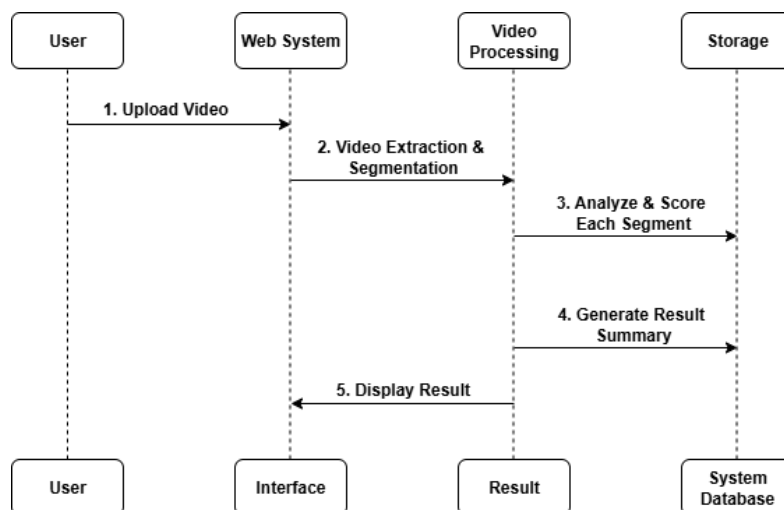


Figure 3. 4 Sequence Diagram

The diagram illustrates the process flow of the video automatic rating system. The process starts when a user uploads a video to the web system. The system then performs video extraction and segmentation followed by video

processing. Next, each video segment is analyzed and scored (analyze & score each segment), then a summary of the evaluation results is generated (generate result summary) which is stored in the storage/system database. Finally, the evaluation results are displayed back to the user through the web interface (display results). This diagram shows the sequence of interaction and processing between system components in a structured manner from start to finish.

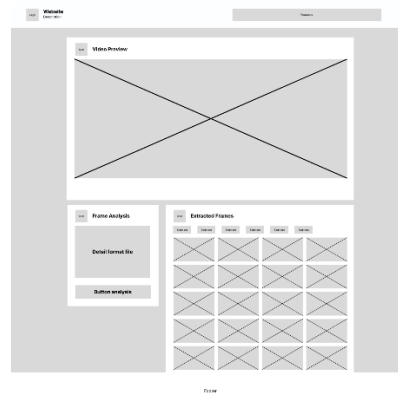


Figure 3. 5 Wireframe Upload Video

Figure 3.5 is a wireframe of the video upload page in an automated scoring system. At the top, there is a video preview area to display the uploaded video. Below that, there are several analysis buttons and detailed file information on the left side, and the right side displays a collection of video extraction frames in a grid. This design makes it easy for users to preview the video, perform analysis, and visually monitor the results of frame segmentation before proceeding to the next stage of evaluation.

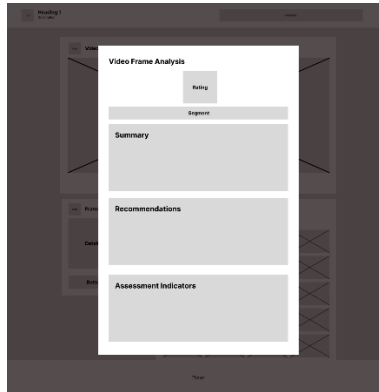


Figure 3. 6 Wire Frame Analysis

Figure 3.6 is a wireframe of the video analysis page of the automated rating system. This view consists of several main sections, namely “Video Frame Analysis” at the top, followed by the ‘Rating’ and “Segment” tabs or buttons. Below that are three main panels: Summary for a summary of the analysis results, Recommendations for video improvement suggestions, and Assessment Indicators that displays the assessment indicators used. This design makes it easy for users to view the video evaluation results in a structured manner, from the summary, recommendations, to the details of the assessment indicators.

6. Video Assessment Prompt Design

During the system development stage, automatic assessment of promotional video quality was carried out using prompt-based AI. Prompts were designed according to the video structure (opening, setup, main, climax, closing) and generated JSON output containing recommendations and assessment indicators.

The following is the prompt design used in the study:

a. Prompt for Opening Segment

This prompt focuses on the hook or initial appeal of the video.

You are analyzing the OPENING part of a promotional video for a vehicle rental business.

Focus only on the first few seconds.

Frames: [attach frame URLs of opening]

Transcript: [attach opening transcript]

Assessment Indicators (assess only if relevant to the opening):

- Engaging Hook (does it grab attention within 1-3 seconds?)
- Uniqueness/Visual Attraction (any strong visuals, music, or effects?)
- Relevance of Opening (does it relate to vehicle rental context?)
- Clarity of Initial Info (is the message easy to understand immediately?)

Return a JSON with:

```
{
  "recommendations": [{ "point": "string",
    "example": "string" }],
  "assessmentIndicators": [{ "name": "Engaging
    Hook", "value": true/false }, ...]
}
```

b. Prompt for Setup Segment

This prompt assesses the context of service introduction.

You are analyzing the SETUP part of a promotional video for a vehicle rental business.

Focus on how the product/service is introduced after the hook.

Frames: [attach frame URLs of setup]

Transcript: [attach setup transcript]

Assessment Indicators:

- Background/Problem Introduction (is the audience's need clear?)
- Narrative/Visual Clarity (is the product/service shown understandably?)
- Smooth Transition (from opening to setup, is it natural?)

- Relevance to Audience Needs

Return a JSON with recommendations and indicators.

c. Prompt for Main Segment

You are analyzing the MAIN part of a promotional video for a vehicle rental business.

This part should explain the solution, product, or service in detail.

Frames: [attach frame URLs of main]

Transcript: [attach main transcript]

Assessment Indicators:

- Solution/Product Presentation (are features/services shown?)
- Visualization of Advantages (are benefits or unique selling points visible?)
- Text Clarity (prices, promos, benefits - easy to read?)
- Interaction Element (any engagement cues like questions, polls, or reactions?)

Return a JSON with recommendations and indicators.

d. Prompt for the Climax Segment

Focus on the peak of the promotion.

You are analyzing the CLIMAX part of a promotional video for a vehicle rental business.

Focus on the peak moment designed to excite or persuade the audience.

Frames: [attach frame URLs of climax]

Transcript: [attach climax transcript]

```

Assessment Indicators:
- Peak Moment / Wow Factor (is there an exciting highlight?)
- Promo Emphasis / Key Benefits (are main offers strongly reinforced?)
- Visual & Audio Effects (do they support the climax?)
- Emotional Appeal (does it trigger desire to try?)

Return a JSON with recommendations and indicators.

```

e. Prompt for Closing Segment

Assessing the effectiveness of CTAs (Call To Action).

```

You are analyzing the CLOSING part of a promotional video for a vehicle rental business.

Focus on the ending and call-to-action.
Frames: [attach frame URLs of closing]
Transcript: [attach closing transcript]

Assessment Indicators:
- Effective Call to Action (clear CTA like "Book now", "Click link in bio")
- Key Message Recap (does it reinforce the promo/brand?)
- Branding Presence (logo, contact, identity shown?)
- Smooth Ending (is it a natural closure, not abrupt?)

Return a JSON with recommendations and indicators.

```

f. Summary Prompt

Used to summarize the entire video.

You are analyzing the entire promotional video for a vehicle rental business. Focus on providing an overall evaluation that combines all segments (Opening, Setup, Main, Climax, Closing).

Assessment Indicators:

Visual Clarity (resolution, lighting, framing, aesthetics)

Audio Quality (sound clarity, music/narration balance, synchronization)

Narrative Flow (is the storyline smooth and coherent across all segments?)

Duration & Information Density (is the video concise, under 60s, not repetitive?)

Aesthetics & Creativity (does it look professional, unique, and aligned with audience expectations?)

Format Appropriateness (vertical 9:16, optimized for TikTok/Reels)

Overall Relevance (is the video clearly aligned with rental service promotion?)

By designing structured prompts for each section of the video, the system can perform more objective and consistent assessments. The output results in JSON format facilitate integration with databases and further analysis.

This design stage ensures that every aspect of the product-both the promotional video content and the automated web scoring system-is completely structured, effective, and compliant with today's digital promotion standards.

3.5.3 Development

The development stage is the process of realizing the creation of promotional content and implementing an automated scoring system in accordance with the design that has been designed in the previous stage. At this stage, the CapCut application is used as the main tool in video production, while the development of AI-based systems is carried out with node.js programming and API integration. The development steps include:

1. Content Material Retrieval

Collection and shooting of vehicle operations, services, and vehicle rental business activities as the main material for making promotional videos. All footage was recorded by paying attention to the angle that supports visual appeal and the message to be conveyed.

2. Editing Using CapCut

- Import videos/photos into the CapCut app.
- Add various visual effects and transitions to make the video look dynamic and eye-catching.
- Insert clear and persuasive promotional text and call to action (CTA).
- Incorporate background music that is trending on TikTok/Instagram to increase audience engagement.
- Insertion of business logo or business contact to strengthen branding and consumer accessibility..

3. Use of CapCut Templates

Utilize CapCut's built-in templates or other creator-made templates to save time, ensure visual style consistency, and increase content appeal.

4. Creation of Multiple Content Versions

Create multiple variations of the video (A/B Testing) to test the effectiveness of the content and choose the version that is most optimal in increasing audience engagement.

5. Automatic Grading System Feature Creation

In addition to the creation of video content, the development also includes the implementation of the main features of the next js-based automated assessment system, namely:

- Extraction of visual (frames per second) and audio (using ffmpeg libraries such as moviepy) features from the created video.
- Automatic segmentation of the video structure based on the narrative sequence (opening, setup, main, climax, closing) to ensure each aspect is systematically measured.
- System integration with OpenAI API as a scoring engine, where evaluation is done through structured prompts to measure the quality of visual, audio, duration, text, and aesthetic aspects of video content.

The entire development process was carried out iteratively, ensuring that the resulting video content and automated scoring system met user needs as well as digital promotion standards on the TikTok and Instagram Reels platforms.

3.5.4 Implementation

The implementation phase was conducted to test the effectiveness of the promotional video content and automated scoring system that had been developed directly on the TikTok and Instagram Reels platforms. At this stage, MSME actors and active social media users were involved as trial respondents to obtain real data on audience response and system performance in the field.

The developed system was tested by MSME players and active social media users. This process includes uploading videos, receiving automatic ratings, and applying revision suggestions provided by the AI system. The results of evaluation and revision are measured based on the improvement of content performance on social media platforms. The following are the implementation steps :

1. Publication Scheduling

Determine the optimal time to upload promotional videos based on analysis of active audience behavior, for example, between 18:00 and 21:00. This scheduling aims to maximize engagement opportunities and content reach.

2. Platform Uploading

The developed video content was uploaded to the official social media accounts of the vehicle rental business on the TikTok and Instagram Reels platforms. This process is a direct test of the effectiveness of the content design that has been created with CapCut.

3. Content Upload

After the content was published, the interaction data obtained from each video was observed and recorded, including the number of likes, views, comments, and shares. These data serve as early indicators of the effectiveness of the content and the automated scoring system implemented.

4. Interaction Data Logging

Researchers actively monitored users' direct responses through comments, feedback and other interaction patterns that emerged on each video. These responses were used to assess the extent to which the content captured the attention and encouraged audience interaction..

5. Acceptance of Automated Assessment and Application of Revision Suggestions

Each uploaded video is also evaluated using an AI-based automated scoring system. The evaluation results in the form of quality scores and revision suggestions are then used as a reference for iterative content improvement.

6. Performance Improvement Measurement

The final results of the implementation phase are evaluated based on the improvement of content performance on social media platforms, both in terms of engagement rates and perceptions of users and businesses.

This implementation stage ensures that the systems and content developed are actually tested in the field and have a significant impact on the digital promotion efforts of MSMEs.

3.5.5 Evaluation

The evaluation phase was conducted to assess the effectiveness of the promotional video content and automated scoring system that had been implemented on the TikTok and Instagram Reels platforms, and formulate corrective measures if needed. The evaluation was conducted thoroughly through quantitative and qualitative approaches, to ensure that every aspect of the development has met the actual needs in the field.

The evaluation was conducted by comparing the AI's automated assessment scores with actual engagement data (likes, comments, shares, views) on social media, as well as analyzing feedback from questionnaires and interview results. If there is a significant difference between AI scoring and audience response, AI prompts and system features will be iteratively refined until optimal and consistent results are obtained. Evaluation steps include :

1. Engagement Data Analysis

Using the engagement rate formula to measure the effectiveness of each published content. Here is the formula :

$$\text{Engagement Rate} = \left(\frac{\text{Like} + \text{Comment} + \text{Share}}{\text{Total Views}} \right) \times 100\%$$

The following are the rate categories.

Table 3. 3 Engagement Rate Assessment Categorization

Rate Assessment	Percentage
Very High	>10%
High	7-10%
Medium	4-6.9%
Low	<4%

The table above shows the engagement rate assessment categories by percentage. The “Very High” category applies to engagement rates above 10%, “High” for 7-10%, ‘Medium’ for 4-6.9%, and “Low” for below 4%. This table is used to classify how high an audience's engagement rate is with a piece of content on social media.

The engagement data includes the number of likes, comments, shares, and views, which are then compared with the AI system's auto-scoring scores. This analysis aims to identify the extent to which the automated scoring results are relevant to actual performance on social media.

2. User Perception Analysis

A questionnaire was conducted to find out the audience's response, interest, and perception of the promotional video content that had been displayed. The data from this questionnaire is also used to assess user satisfaction and find insights for future content improvements.

3. Business Feedback

Evaluations with business owners or entrepreneurs are conducted to determine whether the content developed has a direct impact on increasing customer interest, orders, or the general business image. Feedback from business owners is used as one of the indicators of the success of the implemented solution.

4. Content Revision

If there is low engagement or a significant difference between the AI assessment and the audience response, revisions are made to visual elements, text, music tempo, or video duration to make the content more engaging and effective. This process also includes iterative refinement of AI prompts and system features until optimal and consistent evaluation results are obtained.

3.6 Indicators of Success

The success of the research and development of this AI-based automated scoring system is measured through several key indicators that are quantitative and qualitative in nature. These indicators are used to assess the extent to which the system developed is able to have a real impact in improving the quality of digital promotion of vehicle rental MSMEs in Yogyakarta. The success indicators used include :

1. Increased Digital Content Engagement

The main indicator of the system's success is a significant increase in the engagement rate (number of likes, comments, shares, and views) of promotional videos after revisions based on AI system recommendations. This analysis is done by comparing the statistical data of content performance before and after the implementation of improvement suggestions. The success of the system can be seen if there is a spike in engagement, which indicates that the content has become more interesting and relevant to the audience.

2. Increase in Perceived Content Quality Based on User Survey

In addition to measuring digital metrics, the study also relied on survey results to measure user perceptions of content quality. Questionnaires were distributed to social media users who were the target audience, to assess aspects such as message clarity, visual appeal, presence of CTA (Call to Action), and ease of understanding the content. The success indicator was achieved if there was an increase in the perceived quality score after the content was revised according to the AI assessment output.

3. Positive Feedback from Business Actors

Feedback from vehicle rental MSMEs is an important indicator in assessing the practical benefits of the system. The success of the research is shown through positive feedback, such as the ease of the evaluation process, increased understanding of the strengths and weaknesses of the content, and the motivation to actively improve digital promotion strategies. This feedback was obtained through structured interviews and observations of system implementation in the field.

Through measurements on these three indicators, the validity and effectiveness of the automated scoring system can be evaluated holistically. The combination of quantitative and qualitative data not only ensures that the system works technically, but also that it really has a real and applicable impact on improving the competitiveness of MSMEs in the digital economy era.

CHAPTER IV

RESULTS AND DISCUSSION

4.1 Overview of the Implementation of Promotional Video Quality Rating System

This research departs from the reality in the field, where MSME players in the vehicle rental sector in Yogyakarta have begun to adopt social media, especially TikTok and Instagram Reels, as the main promotional tool. However, they still face major challenges, especially in producing promotional content that is not only visually appealing, but also effective in increasing customer engagement and conversion.

The use of the CapCut app in the early stages of the research proved to be able to help MSMEs produce promotional videos with better visual and narrative quality. The practical editing process, choice of templates, visual effects, and ease of access are solutions to skill and time constraints.

However, the process of evaluating content quality at this stage is still manual-relying on the subjective assessment of businesses or limited feedback from customers through engagement data (likes, comments, shares, views). This manual evaluation has proven to be prone to bias, inconsistent, and not always able to identify specific aspects that need improvement from a promotional video.

To address the need for an objective, consistent, and replicable evaluation process, this research developed an automated assessment system based on Artificial Intelligence (AI). The system is designed to be able to comprehensively assess video quality and provide data-based recommendations for improvement, so that MSME players are not only assisted in content production, but also in optimizing its quality.

4.2 Analysis Phase Results

The analysis phase in the ADDIE model serves as the initial step, focusing on identifying and understanding user requirements, the characteristics of the target audience, and the real challenges encountered during the promotional process. The findings from this stage form a crucial foundation for developing more optimal promotional strategies utilizing digital media.

4.2.1 Promotion Needs Analysis

Interviews were conducted with 4 owners and 8 employees of vehicle rental businesses in Yogyakarta City to understand the problems they face in promotion. The results show that:

Table 4. 1 Percentage of Problems Faced by Business Owners and Employees

Promotion Issues	Percentage
Difficulties In Creating Compelling Promotional Videos	91.67%
No Free Time	91.67%
Lack of Skills in Video Editing	83.33%

These findings indicate that most business owners encounter challenges related to time constraints, limited skills, and a lack of creative ideas for producing engaging promotional content on social media. This situation highlights the importance of practical, quick, and visually appealing promotional solutions, such as utilizing video templates available in the CapCut application.

4.2.2 Target Audience Analysis

This study involved 30 participants who are active social media users in Yogyakarta, aged between 18 and 40 years old. The survey findings reveal the audience's preferences for several types of promotional content as follows:

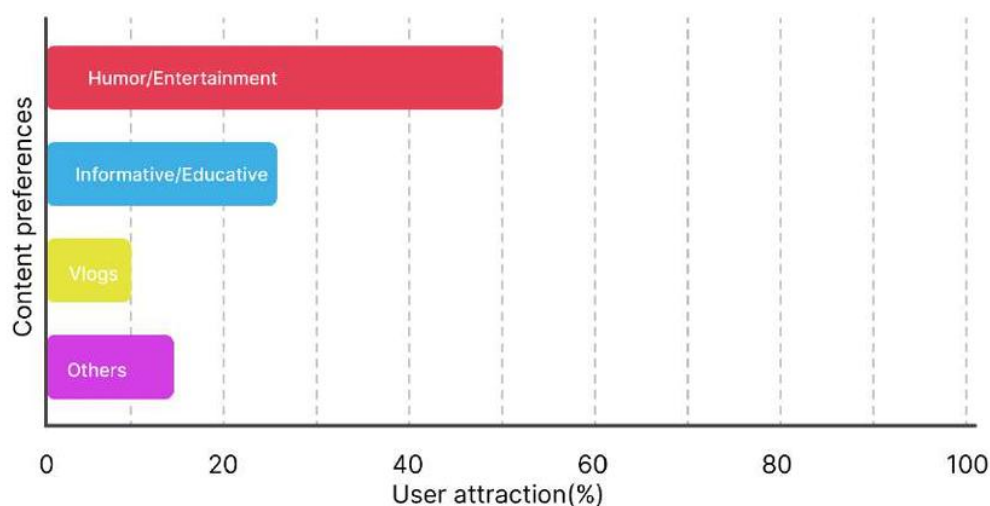


Figure 4. 1 Graph of Users' Interest Level in Types of Content on Social Media

The graph shows the level of user interest (%) in different types of content on social media, based on the following content categories :

- a. Humor/Entertainment
 2. Has the highest interest, around 50%.
 3. This shows that most social media users prefer entertaining and funny content.

4. This kind of content is usually easier to go viral because it is light and fun.
- b. Informative/Educative
 1. It comes in second, with about 25% interest.
 2. It shows that there are still many users who value content that provides useful information or learning.
- c. Vlog
 1. Accounted for about 10% of the attraction.
 2. This suggests that although visual elements such as clean editing, vibrant colors, transitions, and effects do contribute to capturing viewers' attention, vlog content tends to be less appealing than entertainment and educational categories.
- d. More
 1. Has the lowest interest, at around 15%.
 2. This can include content that does not fit into the three main categories, such as opinion content, personal documentation, or content that is too specific.

This data shows that users are more interested in content that is short, visual and engaging at the start, and less formal

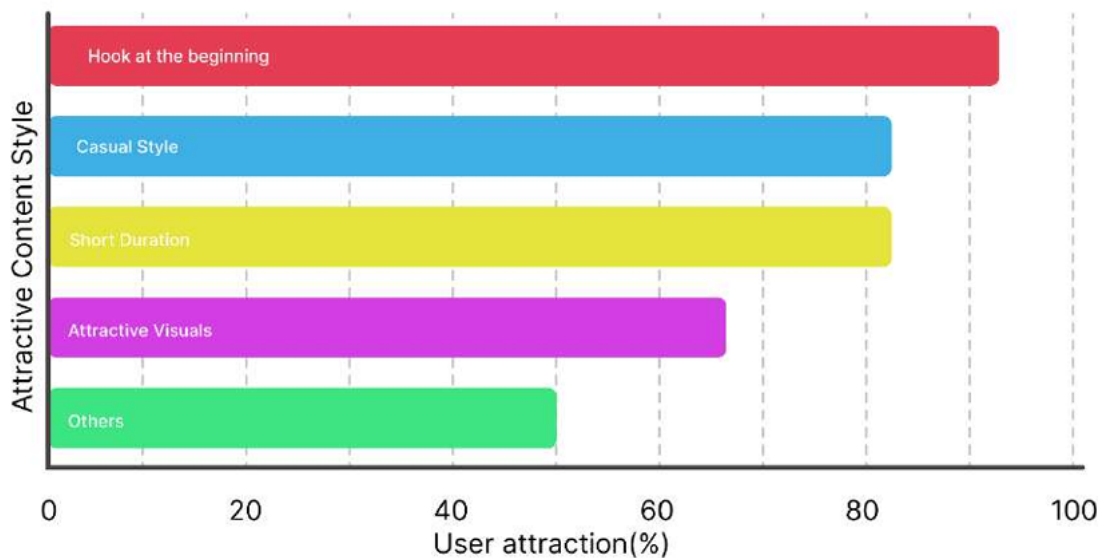


Figure 4. 2 Graph of Preference for Content Styles that Attract User Attention

The illustration above presents the findings of an analysis regarding content style preferences that most effectively capture user attention on social media, especially for short promotional videos like those found on TikTok and Instagram Reels.

a. Hook at the Start ($\pm 91.77\%$)

Content formats that utilize an engaging “hook” at the beginning of the video are the most preferred by viewers. These hooks often take the form of provocative questions, surprising facts, or brief statements designed to immediately capture the audience’s curiosity and encourage them to watch the entire video. This underscores the critical role of the initial three seconds in capturing attention and reducing the likelihood that users will skip the content.

b. Casual Style ($\pm 83.33\%$)

Viewers also show a strong preference for content that is delivered in a casual, informal, and personal manner. This approach fosters a sense of familiarity and relatability, making the audience feel more at ease and willing to watch the content through to the end.

c. Short Duration ($\pm 83.33\%$)

Short-form videos (less than one minute) are increasingly favored due to their practicality and ease of consumption. This trend aligns with users’ fast-scrolling behavior on social media, where audiences tend to prefer content that is brief, concise, and straight to the point.

d. Visually Appealing ($\pm 63.99\%$)

Content featuring dynamic visuals, creative effects, seamless transitions, and vibrant colors plays a significant role in maintaining audience attention. Appealing visual elements not only strengthen storytelling but also create a sense of professionalism, even when the video is produced with simple tools like CapCut.

e. Others ($\pm 50\%$)

This category also encompasses other types of content, such as formal styles, in-depth narratives, or experimental concepts, which generally appeal to a narrower audience and are less popular compared to the previously mentioned styles.

4.2.3 Platform Analysis

The two main platforms analyzed are TikTok and Instagram Reels, with the following characteristics :

Table 4. 2 Comparison of Characteristics of TikTok and Instagram Reels Platforms

Aspects	TikTok	Instagram Reels
Algorithm	Very strong in virality	More stable & connected with follow
Ideal Duration	15-60 seconds	15-60 seconds
Content Type	More freedom, creativity, & viral speed	More branding & visual aesthetics
Hashtag	Important for trends	Important for aesthetics & search
Interaction	High comments & shares	Save & Like high

Both platforms have great potential for promotion, but the content approach must be customized. Based on observations, interviews, and surveys:

- a. There is a real need from businesses for video-based promotional content that is engaging, concise and easy to create.
- b. The target audience has a preference for content that is light, visual, and uses a strong "hook" at the beginning.
- c. TikTok and Instagram Reels are the most potential platforms for distributing content.
- d. CapCut templates can be a relevant and applicable solution in this digital promotion context.

This analysis stage provides a strong foundation to proceed to the design stage in developing a video-based promotional strategy using the CapCut application.

4.3 Design Stage Results

The design phase is the second step in the ADDIE model, which aims to develop the concepts, structure, and key elements to be applied in creating promotional videos, including implementing SEO optimization on profiles to enhance content visibility and engagement. The findings from the analysis phase serve as the primary foundation in this process, ensuring that the resulting design aligns with user needs and the unique characteristics of each social media platform.

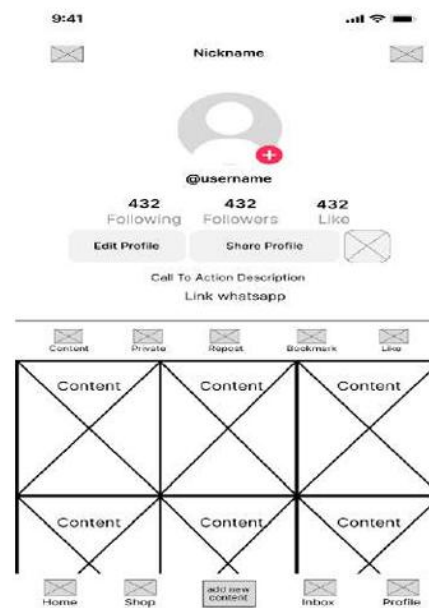


Figure 4. 3 Wireframe Elements Profile

When it comes to SEO on TikTok, each profile element such as username, bio, hashtags, and CTA links can have a huge impact on the visibility and engagement of your content. The following is an explanation of the influence of each of these elements in the context of SEO on TikTok:

a. Username (@username)

Role in SEO: The username plays a significant role in TikTok SEO, as it is the first element noticed by viewers and is also included in your profile URL. Choosing a relevant and memorable username is crucial for boosting your profile's visibility in TikTok search results as well as on other search engines.

1. If the username contains keywords that are relevant to your niche or product (for example, @sewamotorjogja for motorcycle rental services in Jogja), then your profile will be more easily found by audiences searching for related topics or services.
2. A unique username that is consistent with your branding or business name will strengthen your identity on TikTok, making it more recognizable and memorable to your audience.

b. Profile Bio

SEO Role: The bio section on your TikTok profile is a limited but important space to provide a brief description of yourself or your business. Although the character count

is restricted, incorporating relevant keywords into your bio plays a key role in optimizing SEO.

1. The importance of keywords: Using keywords in your bio that relate to your business or niche (for example, "vehicle rental in Jogja" or "cheap motorbike rental in Yogyakarta") helps TikTok understand your profile and show content to relevant audiences.
2. Search optimization: TikTok, like other search engines, uses the keywords in your bio to assess your profile's relevance to searches. By including the right keywords, you increase the likelihood of your profile appearing in search results or the For You feed (FYP) when users search for appropriate topics.

c. Hashtag

Influence in SEO: Hashtags on TikTok are a key search tool that helps connect content with the right audience. Relevant and popular hashtags can influence your profile's SEO, helping your videos to be more easily found by audiences interested in similar topics.

1. Relevant hashtags: Using the right hashtags in your video (for example, #sewamotor, #traveljogja, or #promoTikTok) can increase the reach of your video to audiences who are searching for or interested in the same topic.
2. Hashtags in bio: While using hashtags in bio is not as effective as in video captions, adding some relevant hashtags in bio (especially if you have a frequently searched service) can also help your profile get found in searches.

d. CTA (Call to Action) Link and WhatsApp Link

Effect on SEO: Adding CTA links to your TikTok profile—such as links to WhatsApp or your business website—can help boost conversion rates and simplify the process for audiences to take the next step, like reaching out to your business or making a purchase. Although these links do not have a direct impact on TikTok's SEO, higher engagement and conversion rates can influence how your videos and profile are ranked within TikTok's algorithm.

1. WhatsApp link: Adding a WhatsApp link in your profile allows your audience to easily contact your business, which can increase engagement and interaction beyond the TikTok app.
2. Increased interaction: Higher interactions (e.g., direct messages or link clicks) indicate to TikTok's algorithm that your content is interesting and relevant to the

audience, which can increase the likelihood of your videos appearing in the For You (FYP) feed.

e. Relevant and Quality Content

SEO Impact: Accounts that regularly post high-quality content tend to achieve higher engagement rates, sending favorable signals to TikTok's algorithm. The platform's algorithm evaluates how users interact with content such as through likes, comments, shares, and watch duration to assess its relevance and overall quality..

1. Relevance of content to profile: The more relevant the content you upload to the keywords in your bio or username, the easier your profile will be found by audiences interested in similar topics. For example, if your profile is related to vehicle rental, then uploading content related to motorcycle rental or travel tips in Jogja can increase your visibility.

f. User Interaction and Engagement

Impact on SEO: TikTok's algorithm places great importance on user engagement as a determining factor in displaying content in the For You (FYP) feed. The more interactions (likes, shares, comments), the higher the likelihood of your content being seen by more people, which impacts profile visibility and ranking on the platform.

1. Content optimization: Users who optimize their content with the use of keywords, hashtags, as well as clear CTAs, encourage further interaction with their audience. This increases the engagement rate, which in turn influences the algorithm to show the content more frequently.

In addition, at the design stage, an effective promotional video storyboard was designed from the results of the analysis, using the CapCut application as follows:

Table 4. 3 Storyboard of Promotional Video Design Using CapCut Application

Duration	Visual	Text	Description
0-3s	B-roll of motorcycle/car in parking lot, clear morning sky	"You went to Jogja and..." <i>(text appears quickly)</i>	Use large fonts & fast tempo (the first 2 seconds are crucial)
3-6s	Cut to Malioboro street from above (drone/stabilizer shot)	"...confused about the vehicle?"	Install a tick-tock sound or 'glitch' effect as an attractor
6-10s	Close-up of ready-to-use matic motorcycle (side sliding camera)	"MOTORCYCLE RENTAL FROM 70K/DAY"	'Pop-up' animated text, add notification sound or ding
10-15s	Brio city car on Jogja ringroad (without actor)	"CAR READY. FULL AC. CLEAN."	Use cinematic effects + bold full caps text
15-20s	Montage of vehicles used at tourist sites	"💧 MARCH PROMO! 20% off 🚗 💧 "	Text + countdown sticker combination
20-23	Brand logo, WA number, and text: "Click the link in bio now!"	"LIMITED UNITS! BOOK NOW."	Animated logo outro + fade out music

This storyboard design was developed for:

- Increase audience retention.
- Provides information in a concise yet informative manner.
- Explicitly increase the call-to-action at the end of the video.

4.3.1 Selection of Content Design Elements

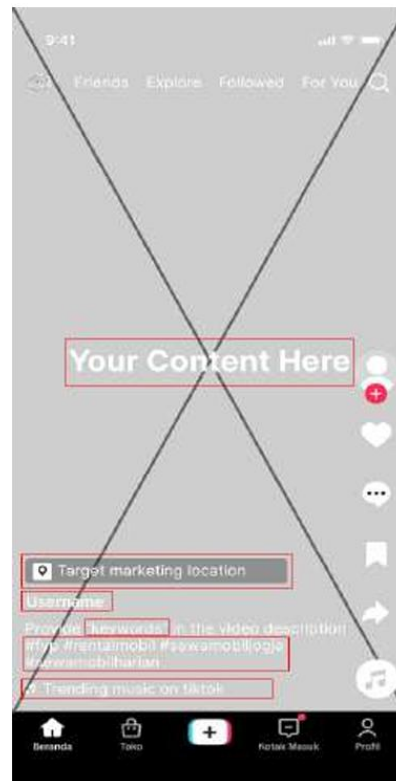


Figure 4. 4 Wireframe of Content Design Element Selection for Social Media Promotion

The design elements used in the creation of promotional videos are carefully selected by considering their compatibility with the unique characteristics of the TikTok and Instagram Reels platforms, such as vertical video format, short duration, and a preference for dynamic visuals. In addition, the selection of these design elements also refers to popular content trends currently developing on both platforms, including the use of trending music, attractive visual effects, smooth transitions, and the addition of clear text or call-to-action (CTA) elements (Ardiyono et al., 2024).

Table 4. 4 Design Elements of CapCut Promotional Content

Elements	Description
Hook	Interesting hook at the beginning of the video
Music	TikTok trending songs
Visual Effects	Bright filter, aesthetic effect
Text/CTA	Special discount, attractive CTA (Order Now)
Format	9:16 ratio, Duration ≤ 60 seconds
Hashtag	Use multiple Hashtags for easy search

4.3.2 Promotional Message Design

The design of promotional messages aims to convey clear and interesting information to the audience, taking into account the communication style that suits the characteristics of the target market. In this case, the message is structured with a relaxed and straight-to-the-point approach to make it more relatable to the young audience. Messages are also not made too long to ensure the audience stays focused on the key information. Some important elements that are always included in the message design are price, location, service advantages, ongoing promos, and call to action (CTA).

An example of a text script in a promotional video is as follows:

- a. Hook: "Are you traveling to Jogja and can't find a ride?"
- b. Promo: "Motorcycle rental starts at 70k/day. Car ready full AC."
- c. CTA: "Click the link in bio now. Limited units!"

This kind of message is designed to grab the audience's attention, provide information directly, and encourage the desired action, such as visiting a link to place an order.

4.3.3 Format and Algorithm Adjustments

At this point, promotional videos are tailored to match the formats and algorithms specific to the platforms where they will be shared, such as TikTok and Instagram. Each platform has its own requirements regarding aspect ratio, optimal video length, and other criteria that can impact video performance. As a result, adhering to each platform's guidelines is essential to maximize audience reach and achieve the highest possible engagement.

Here are the format and algorithm adjustments for each platform:

Table 4. 5 Comparison of TikTok and Instagram Platform

Platform	Ratio	Ideal Duration	Essential Algorithm
TikTok	9:16	15-60 seconds	Quick hooks, popular music, and relevant hashtags
Instagram	9:16	15-60 seconds	Visual aesthetics, cinematic effects, interesting captions

The table above compares key characteristics between the TikTok and Instagram platforms for video content. Both platforms use a 9:16 ratio with an ideal video duration of 15-60 seconds. The difference lies in the algorithms that are considered important: TikTok emphasizes the use of catchy hooks at the beginning, popular music, and relevant hashtags, while Instagram focuses more on visual aesthetics, cinematic effects, and interesting captions.

4.3.4 Design of AI-based Automated Assessment System

- a. System Architecture and Main Modules

The developed automated assessment system consists of several integrated modules:

1. **Video Upload Module:** Users upload CapCut edited promotional videos to the web platform.
2. **Visual and Audio Feature Extraction Module:** The system extracts keyframes, audio quality analysis, music synchronization, text presence, visual effects, and transitions.
3. **Video Structure Segmentation Module:** The video is automatically divided into Opening (hook), Setup, Main, Climax, and Closing (CTA) sections, so that the assessment is done contextually and proportionally according to the narrative structure.
4. **AI Analysis Module (OpenAI API):** The extracted data is sent to an AI that analyzes aspects of visual quality, audio, content structure, clarity/existence of text, and appropriateness of duration using custom prompts.
5. **Assessment and Recommendation Output Module:** The system generates an evaluation report containing the numerical score of each aspect, the total score, and specific actionable improvement recommendations for MSME players.

The integration of these modules supports an automated, objective, and evidence-based assessment process. Thus, businesses can immediately take revision actions on content before re-uploading to social media.

b. UI/UX Design of AI-based Automated Assessment System

1. Preview & Upload

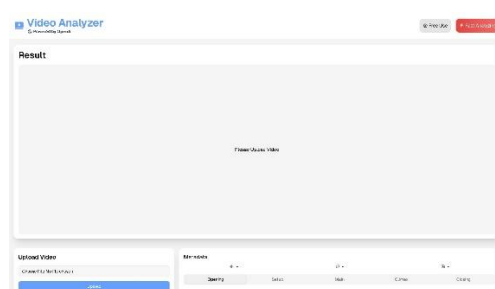


Figure 4. 5 Preview and Upload

Once the video is uploaded, users can preview the video complete with duration, resolution, file size, and format information. The “Upload Different Video” feature makes it easy for users to change videos without having to reload the page. There

is information on the number of frames and duration of the video before the extraction process.

2. Frame Extraction & Analysis

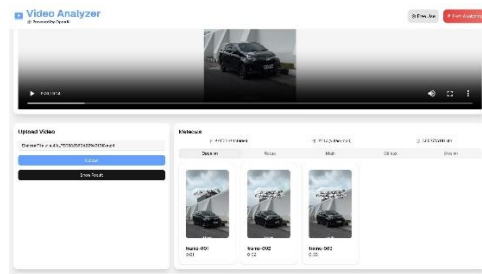


Figure 4. 6 Frame Extraction & Analysis

The system automatically calculates the estimated number of frames and duration, and provides an “Extract Frames” button. After the extraction process, the system displays the video frames in chronological order and can be sorted by narration segments: Opening, Setup, Main, Climax, and Closing. In addition to visual frames, audio is extracted and can be played separately to support sound quality analysis. The tab/category feature (Opening, Main, etc.) makes it easy to analyze the segmentation of promotional video structures according to research needs.

3. Analisis dan Penilaian AI

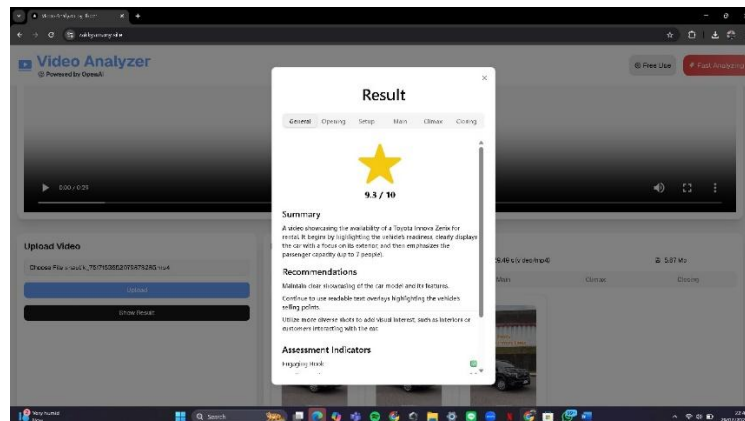


Figure 4. 7 Result Pop Up

After the frame is analyzed, the system displays the AI assessment results comprehensively in a pop-up.:

- **Overall Rating:** Total score (e.g. 9.3/10).
- **Video Summary:** A video showcasing the availability of a Toyota Innova Zenix for rental. It begins by highlighting the vehicle’s readiness, clearly

displays the car with a focus on its exterior, and then emphasizes the passenger capacity (up to 7 people).

- **Recommendations:** Maintain clear showcasing of the car model and its features. Continue to use readable text overlays highlighting the vehicle's selling points. Utilize more diverse shots to add visual interest, such as interiors or customers interacting with the car.
- **Assessment Indicators:** Assessment indicators for each segment (Opening, Setup, etc.) can be accessed for detailed analysis per section.

The UI/UX of the system is designed to be friendly to MSMEs and non-technical users, speed up the video evaluation process automatically, and provide clear, actionable, and easy-to-understand feedback. Each stage, from upload, preview, frame extraction, to AI analysis, is visualized in a structured manner to encourage efficient and professional improvement of promotional content.

4.4 Development

The development stage is the third phase in the ADDIE model that focuses on the process of creating promotional content in accordance with the previously developed design. At this stage, the CapCut application is used as the main tool in producing promotional videos that will be published on the TikTok and Instagram Reels platforms.

4.4.1 Content Realization

The visual materials used for the creation of the promotional content were collected through direct documentation in the field, which included several important elements, namely:

a. Vehicle footage

Images of motorcycles and cars are taken from various angles to show the products more clearly and attractively.

b. Business premises condition

Taking pictures of the parking area, waiting room, and promotional banners around the business location to provide an overview of the facilities provided.

c. Digital assets

Including the business logo, contact number, and promotional hashtags are used to enhance branding and make it easier for the audience to access the service.

All of this footage was recorded using a smartphone camera equipped with a simple stabilizer. This approach makes it easy for MSME players to create promotional content with easily accessible and cost-effective equipment, so it can be directly emulated by those who want to produce similar content.

4.4.2 Content Editing Process with Capcut

Editing is done by following the storyboard and visual storytelling principles. Here are the steps used in CapCut:

a. Import Footage



Figure 4. 8 Import Footage

Before starting the editing process, the first step is to prepare all the necessary visual materials as shown in figure 4.8. After that:

1. The prepared videos and images are then imported and organized in the CapCut timeline to begin the editing process.
2. All the materials that have been collected are carefully arranged to follow the sequence that has been designed in the storyboard, ensuring a clear and structured storyline.
3. Once the timeline setup is complete, the next step is to add visual elements such as effects, transitions, and text to enrich the quality of the video and ensure the promotional message can be delivered more effectively.

b. Adding Effects and Transitions

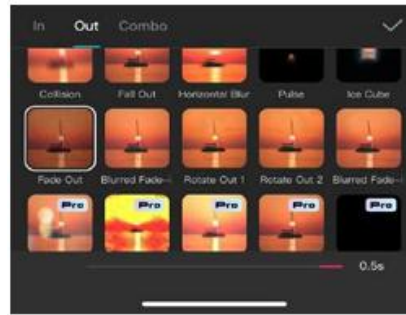


Figure 4. 9 Adding Effects and Transitions

After importing the materials and arranging them in order, the next step is to embellish the video visuals to enhance the appeal as shown in Figure 4.9. At this stage:

1. Transition effects such as fade-in, glitch and fade-out are used to provide smooth and dynamic transitions between scenes, creating a professional feel to the video.
2. Bright filters were added to give a more modern and cheerful feel, so that the video feels fresher and more appealing to the audience.
3. In addition, cinematic visual effects were added to the promo highlights section to highlight important information, such as offers and discounts, in a more dramatic and attention-grabbing way.

c. Promotional Text



Figure 4. 10 Promotional Text

After adding visual effects, the next step is to reinforce the message with compelling text elements. At this stage :

1. Bold fonts and contrasting colors such as yellow, white and red are used to ensure the text remains clearly visible and catches the viewer's attention.

2. Text animations such as pop-ups, slide-ins and typing effects are applied to make the text more dynamic, give an interactive feel and liven up the video display.
 3. Call-to-actions (CTAs) are prominently displayed, with messages such as 'Book Now!' and 'Click Link in Bio', to encourage the audience to take immediate action.
- d. Music and Sound Effects



Figure 4. 11 Music and Sound Effects

Furthermore, to reinforce the audiovisual experience, the audio elements were also carefully considered. At this stage:

1. Trending TikTok songs were carefully selected to match the local nuances, creating an atmosphere that is closer to the audience, such as that of Jogja.
2. Additional sound effects, such as pop, ding and woosh, are used to emphasize important visual elements, adding dynamics and reinforcing the message.

e. Logo & Contact Insertion

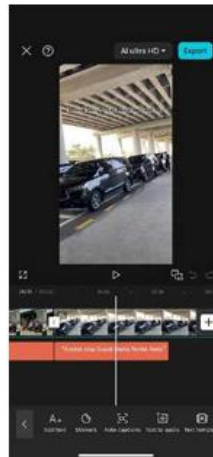


Figure 4. 12 Logo and Contact Insertion

In the final editing stage, branding elements and contact information were added to make it easier for the audience to access the service. The following are the steps taken:

1. The business logo is prominently displayed at the beginning and end of the video, to reinforce branding and increase brand recognition by the audience.
2. In the last frame, contact information such as WhatsApp/Instagram and business location are clearly written, making it easy for the audience to contact or visit the promoted service.

4.4.3 Creation of Multiple Content Versions

To test the effectiveness of the promotional content, three versions of the video were developed, each with a specific main focus and variations to appeal to different audiences. Each version had a customized approach to gauge audience response to different content styles:

Table 4. 6 Comparison of Multiple Versions of Promotional Content

Version	Main Focus	Variations
Version A	Price promotion & Cheap package	Text Domination & Fast Music
Version B	Entertainment (Comedy and Fun)	Slow motion + Tone aesthetic
Version C	Direct invitation + Storytelling	Light narration + Long text

Each video version is produced with a maximum duration of 60 seconds, in line with the content consumption habits on TikTok and Instagram platforms, which tend to prefer short, compact videos.

4.4.4 Ready-to-use CapCut Templates

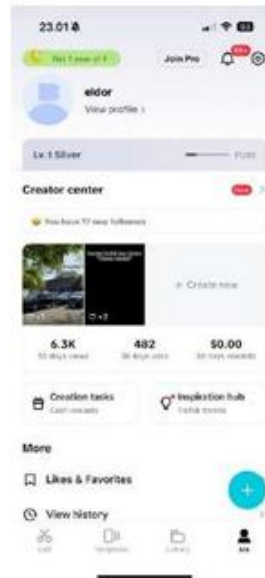


Figure 4. 13 Ready-made CapCut Templates

The CapCut template that was developed for use by other businesses can be further developed with the addition of features that are more customizable and more user-friendly. Here are the details of further development for each section of the template:

- a. Basic Structure of Promotional Video:
 1. This template sets up a video structure that has been proven to be effective, from an interesting hook at the beginning of the video, to clear promotional information, to a call-to-action (CTA) that leads the audience to take immediate action.
 2. This structure uses a video format suitable for platforms such as TikTok and Instagram Reels, with a maximum duration of 60 seconds and a 9:16 ratio that is optimal for content consumption on mobile devices.
- b. Placeholder for Photo/Video

Users can simply replace the placeholder with a photo or video of their product or service. This allows businesses to quickly replace visual elements without the need for advanced editing skills. These placeholders can be customized to suit different business needs, such as the vehicle being rented out, the location, or the ambiance they want to portray.
- c. Text Edit area for Promo, Price, and CTA
 1. The template provides an easily editable text area to display promotional information such as prices, discounts, and product features. The text is designed to

be instantly eye-catching, using text animations such as pop-up, slide-in, or typing effects to give it a dynamic feel.

2. Call-to-Action (CTA) is also included, for example with text such as "Book Now!" or "Click Link in Bio", which is placed at the end of the video to encourage the audience to take action.
- d. Customized Effects, Music, and Transitions
1. Visual effects and transitions are set up to make the video content look professional without the need for in-depth editing skills. Effects such as fade in, glitch and cinematics are used to give the video a dynamic look, while trending music is selected to enhance audience appeal and engagement.
 2. The template also includes a selection of visual effects and music that are relevant to young audiences active on social media platforms, making it easier to grab their attention.

With these pre-made templates, businesses only need to change the visual content and text according to their needs. The process of creating promotional videos becomes more efficient, allowing small and medium-sized businesses to stay competitive in the digital market without the need for high technical knowledge. The template can also be further customized to better suit the different types of products or services being promoted.

4.4.5 Development of AI-based Automated Assessment System

In the development stage, the development of the AI-based automated assessment system is focused on the implementation of the main features at the core of the system architecture. Each feature is designed modularly so that the promotional video evaluation process runs effectively, efficiently, and can be easily accessed by businesses.

The development steps at this stage include:

- a. Implementation of Video Upload Feature through Web Platform

The first stage developed was a video upload feature integrated in an interactive web platform. This feature allows users, especially MSME players, to upload their promotional videos directly to the system in a simple and intuitive way. The upload process is designed to be responsive, supports various popular video formats, and includes validation of file size and duration to meet the standards of the TikTok and Instagram Reels platforms. Thus, users can start the rating process without any technical barriers.

- b. Visual, Audio Feature Extraction and Automatic Segmentation of Video Structure

After the video is successfully uploaded, the system automatically performs visual and audio feature extraction using a powerful ffmpeg library. At this stage, the system processes the video to generate frames per second (fps) as the main visual representation, and extracts audio files to analyze the quality of clarity, synchronization, and the presence of background music. In addition, the system includes an automatic segmentation module that divides the video into five main narrative structures, namely Opening (opener/hook), Setup, Main, Climax, and Closing (CTA). This segmentation is essential to ensure that every aspect of the video can be evaluated proportionally and contextually, according to its role in attracting attention and building the promotional message.

c. Integration of AI as a Prompt-based Automated Assessment Engine

The next stage is the integration of the Artificial Intelligence-based assessment engine, the OpenAI API. All extracted data - visual, audio, and segmentation results - are sent to the AI for in-depth analysis. The assessment is done using a prompt-based evaluation approach, where the AI system is asked to evaluate the video based on criteria that have been determined in the research, including:

1. Visual quality (lighting, resolution, composition, aesthetics)
2. Audio quality (sound clarity, music quality, synchronization)
3. Video structure (narrative flow, presence of hooks and CTAs)
4. Clarity and placement of text (promotional information, subtitles)
5. Video duration (compliance with platform standards)
6. Overall aesthetic aspect

AI produces an assessment in the form of numerical scores for each aspect as well as qualitative insights in the form of improvement recommendations that are specific, objective, and easy to implement by businesses.

With the development of a structured system at this stage, the process of assessing the quality of promotional videos becomes much more efficient and evidence-based. The system not only helps businesses detect content weaknesses in detail, but also provides a strong foundation for the continuous revision and optimization of digital content.

The following is an example of implementation code

a. Video Upload Feature

Import/Dependencies (Backend):

```
import multer from "multer";
import { v2 as cloudinary } from "cloudinary";
```

Import/Dependencies (Frontend):

```
import axios, { AxiosError } from "axios";
import { Input } from "@components/ui/input"
```

Implementation Code (Backend):

```
//config multer(middleware untuk req file)
const upload = multer({ dest: "./uploads" });

//route(url/method) untuk penilaian video
app.post("/", upload.single("video"), async (req, res) => {
  try {
    if (!req.file) {
      return res.status(400).json({ message: "No file
uploaded." });
    }
    if (req.file.mimetype !== "video/mp4") {
      return res.status(400).json({ message: "Invalid
file type. Only MP4 files are allowed." });
    }
    // ... rest of implementation
  }
});
```

Implementation Code (Frontend):

```
const [file, setFile] = useState<File | null>(null)
async function onUpload() {
  try {
    if (file === null) {
      toast("Please Upload Video", {
        duration: 2000,
      })
      return
    }
    const formData = new FormData()
    formData.append("video", file)
```

```

const response = await
axios.post(process.env.NEXT_PUBLIC_API_URL!, formData)
      setData(response.data.data)
    } catch (error) {
      // error handling
    }
  }
}

```

Explanation: The file upload feature in this system utilizes Multer on the backend to handle file uploads, and FormData on the frontend to send video files from users to the server. The system automatically validates that only MP4 files are accepted. Validation is performed both on the frontend—by displaying a warning if the selected file is not in the correct format—and on the backend through Multer’s configuration, which only allows files with the MP4 extension and MIME type. This approach ensures that all uploaded files are safe, meet the required standards, and are ready for further processing by the AI-based automatic assessment system.

b. Frame Feature Extraction (image/fps)

Import/Dependencies (Backend):

```

import ffmpegPath from "ffmpeg-static";
import Ffmpeg from "fluent-ffmpeg";
import path from "path"
import fs from "fs"

```

Implementation Code (Backend) :

```

const framedirectory = path.join("frames", `frame-
${Date.now()}`)

if (!fs.existsSync(framedirectory)) {
  fs.mkdirSync(framedirectory)
}

const framepattern = path.join(framedirectory, `frame-
%03d.jpeg`)

await new Promise((resolve, reject) => {
  Ffmpeg(req.file.path)
    .outputOptions(["-vf", "fps=1/1"])
    .output(framepattern)
    .on("end", resolve)

```

```

        .on("error", reject)

        .run()

    })

    const frames = fs.readdirSync(framedirectory)

```

Explanation: This feature utilizes FFmpeg to perform automated frame extraction from uploaded video files. The extraction process is configured to capture frames at a fixed interval of 1 frame per second (fps=1/1), ensuring a representative sampling of the video's visual content throughout its duration. Each extracted frame is saved in high-quality JPEG format to balance clarity and storage efficiency. To facilitate efficient data management and downstream processing, the system organizes the extracted frames into directories according to their corresponding timestamps. Each folder is named based on the second or time marker in the original video from which the frame was taken. This structured organization not only simplifies the retrieval and analysis of frames for further processing (such as segmenting or AI-based evaluation), but also supports traceability and reproducibility in the research workflow. By using FFmpeg for frame extraction, the system ensures compatibility with a wide range of video formats and delivers reliable, automated processing. This approach enables the system to quickly generate datasets of visual frames that are critical for feature extraction, content analysis, and the subsequent stages of AI-based video assessment.

c. Audio Extraction Features

Import/Dependencies (Backend):

```

import Ffmpeg from "fluent-ffmpeg";
import ffprobe from "ffprobe-static"

```

Implementation Code (Backend):

```

const audiofilename = `audio-${Date.now()}.wav`
const audiopath = path.join("audio", audiofilename)
await new Promise((resolve, reject) => {
    Ffmpeg(req.file.path)
        .noVideo()
        .audioCodec("pcm_s16le")
        .format("wav")
        .save(audiopath)

```

```

        .on("end", resolve)
        .on("error", reject)
    })

    const metaAudio = await new Promise((resolve, reject)
=> {
        Ffmpeg.ffprobe(audiopath, (error, data) => {
            if (error) {
                reject(error)
            } else {
                resolve(data)
            }
        })
    })

    const audiostreamdata = metaAudio.streams.find((item)
=> {
        return item.codec_type === "audio"
    })

    const samplerate = audiostreamdata?.sample_rate
    const channels = audiostreamdata?.channels
    const channellayout = channels == 2 ? "stereo" : "mono"

```

Explanation: This feature enables audio extraction from video files using FFmpeg, employing the PCM codec and producing output in the WAV format to ensure high audio fidelity. In addition to extracting the raw audio, the system also retrieves key metadata such as sample rate and channel layout, which are essential for further processing and standardization across different video sources. The combination of high-quality audio extraction and comprehensive metadata collection supports a wide range of downstream tasks, including speech-to-text transcription, acoustic analysis, and AI-based video assessment, while also ensuring that the audio data is well-organized and ready for efficient analysis.

d. Video Segmentation Feature

Implementation Code (Backend):

```
const sectionsettings = [
  {
    name: "opening",
    percent: 10
  },
  {
    name: "setup",
    percent: 20
  },
  {
    name: "main",
    percent: 60
  },
  {
    name: "climax",
    percent: 90
  },
  {
    name: "closing",
    percent: 100
  }
]

const filteredFrames = uploadFrames.map((item, index)
=> {
  return {
    url: item.secure_url,
    name: item.original_filename,
    timestamp: index + 1
  }
})
```

```

const categorizedFrames = {
  opening: [],
  setup: [],
  main: [],
  climax: [],
  closing: [],
}

filteredFrames.forEach((frame, index) => {
  const section = sectionsettings.find((s) => {
    return s.percent > (index /
filteredFrames.length) * 100
  })

  categorizedFrames[section.name].push(frame)
})

```

Explanation: This feature implements an automatic segmentation of video content into five distinct structural parts: opening (10%), setup (20%), main (60%), climax (90%), and closing (100%), with each segment determined based on the percentage of total video duration. The segmentation process operates by calculating the exact frame boundaries corresponding to these temporal milestones, ensuring that each part of the video is proportionally represented according to its narrative function. Frames extracted during the earlier portion of the video are grouped into the opening and setup segments, while frames captured in the subsequent intervals are allocated to the main, climax, and closing sections, respectively. By organizing frames in this manner, the system facilitates detailed analysis of each narrative phase, allowing for more granular AI-driven evaluation of visual quality, storytelling structure, and audience engagement elements present in each segment. This temporal segmentation is essential for both quantitative and qualitative assessments, as it supports focused analysis on how content is introduced, developed, and concluded within the promotional video.

e. Frame Analysis Features

Import/Dependencies (Backend):

```
import axios, { AxiosError } from "axios"
import { v2 as cloudinary } from "cloudinary";
```

Implementation Code (Backend):

```
const openingPrompt = buildPrompt("opening", fullAudio,
categorizedFrames.opening?.slice(0, 2))

const setupPrompt = buildPrompt("setup", fullAudio,
categorizedFrames.setup?.slice(0, 2))

const mainPrompt = buildPrompt("main", fullAudio,
categorizedFrames.main?.slice(0, 3))

const climaxPrompt = buildPrompt("climax", fullAudio,
categorizedFrames.climax?.slice(0, 3))

const closingPrompt = buildPrompt("closing", fullAudio,
categorizedFrames.closing?.slice(0, 2))

const [openingResult, setupResult, mainResult,
climaxResult, closingResult] = await Promise.all([
    chatGPT(openingPrompt,
categorizedFrames.opening.map((item) => item.url)),
    chatGPT(setupPrompt,
categorizedFrames.setup.map((item) => item.url)),
    chatGPT(mainPrompt,
categorizedFrames.main.map((item) => item.url)),
    chatGPT(climaxPrompt,
categorizedFrames.climax.map((item) => item.url)),
    chatGPT(closingPrompt,
categorizedFrames.closing.map((item) => item.url)),
])
```

Explanation: This feature is responsible for uploading the extracted video frames to the Cloudinary cloud storage platform, which provides secure, scalable, and easily accessible hosting for large sets of image data. Once the frames are stored and their URLs are obtained, the system proceeds to analyze them using the GPT-4 Vision API. The analysis is conducted segment-by-segment, following the narrative structure previously determined during video segmentation (opening, setup, main, climax, and closing). For each segment, a dedicated prompt is crafted and submitted to the GPT-4 Vision API, ensuring that the evaluation criteria are contextually relevant to the unique characteristics and objectives of that section. By employing targeted prompts for each

part of the video, the system is able to extract detailed insights—such as visual quality, composition, emotional tone, or effectiveness of key messaging—specific to each narrative phase. This approach not only enhances the granularity and accuracy of the AI-powered assessment, but also supports a more comprehensive understanding of the strengths and weaknesses of the promotional video at every stage of its storyline.

f. Tuning Feature

Import/Dependencies (Backend):

```
import axios, { AxiosError } from "axios"
import FormData from "form-data";
```

Implementation Code (Backend):

```
async function chatGPT(messages, images = []) {
  const allContentPrompt = [
    {
      type: "text",
      text: messages
    }
  ]
  const imagePrompt = images.map((image) => {
    return {
      type: "image_url",
      image_url: {
        url: image
      }
    }
  })
  if(imagePrompt.length > 0){
    allContentPrompt.push(...imagePrompt)
  }
  const response = await
  axios.post("https://api.openai.com/v1/chat/completions"
    , {
      model: "gpt-4.1",
```

```

        messages: [
            {
                role: "system",
                content: "you re proffesional video
analyzer"
            }, {
                role: "user",
                content: allContentPrompt
            }
        ],
        response_format: { type: "json_object" }
    }, {
        headers: {
            Authorization: `Bearer
${process.env.OPENAI_API_KEY}`
        }
    })
    return response.data
}

function buildPrompt(segmentName, transcribeAudio,
segmentFrames) {
    return `
You are reviewing a promotional video segment for a
vehicle rental business, as if you were a typical
TikTok or Reels viewer.

Segment: "${segmentName}"
Frames: ${segmentFrames?.map((s) => s.url)?.join(", ")}
Transcript: ${transcribeAudio}

Use the following assessment indicators – but ONLY
assess the ones that apply to this specific segment.

**Do NOT assess indicators that do not logically belong
in this segment. For example, only assess "Effective

```

Call to Action" in the closing segment, and "Engaging Hook" in the opening segment.**

Assessment Indicators:

- Engaging Hook (**only in opening**)
- Effective Call to Action (**only in closing**)
- Rental Activity Footage (**only in main**)
- Trending Music (**assess whole video**)
- Visual Clarity (**whole video**)
- Proper Video Format (vertical, under 60s) (**whole video**)
- Content Relevance (e.g., rental visuals, cars, customers) (**whole video**)
- Local Context (e.g., local language, setting) (**whole video**)

****IMPORTANT:****

- Set "value": true by default unless there is clear evidence it is missing or poorly executed.
- If unsure or partially present, still set to true.
- Only use "value": false if it's definitely absent.

Return ONLY a JSON object like this:

```
{
  "recommendations": [
    {
      "point": "string",
      "example": "string"
    }
  ],
  "assessmentIndicators": [
    { "name": "<indicator_name>", "value": true/false
  },
  ...
}
```

```

    ]
  }
  `;
}

async function audioGPT(audioPath) {
  const form = new FormData()
  form.append("file", fs.createReadStream(audioPath))
  form.append("model", "whisper-1")

  const response = await
  axios.post("https://api.openai.com/v1/audio/transcripti
ons", form, {
    headers: {
      Authorization: `Bearer
${process.env.OPENAI_API_KEY}`,
    }
  })

  return response.data
}

```

Explanation: This feature leverages advanced prompt engineering techniques to enable in-depth and segment-specific analysis of promotional videos. Each segment of the video—such as opening, setup, main content, climax, and closing—is evaluated using customized prompts, where the scoring indicators are meticulously adapted to capture the unique narrative, visual, and auditory elements relevant to that particular section. The system integrates multiple AI-powered APIs to achieve a holistic assessment: the Whisper API is employed for automatic audio transcription, converting spoken content into accurate text for further evaluation, while GPT-4 Vision is utilized to perform sophisticated visual analysis, extracting insights on composition, clarity, aesthetics, and brand representation. The scoring framework itself is designed to comprehensively cover all critical aspects of video quality for the car rental business context, including visual appeal (e.g., lighting, framing, color), audio clarity and appropriateness (e.g., background music, narration), and the effectiveness of promotional messaging (e.g., call-to-action, service information). By orchestrating these advanced AI tools and targeted prompt strategies, the system is able to deliver nuanced, data-driven evaluations that help creators optimize content specifically for high-engagement

platforms like TikTok and Instagram Reels, ultimately enhancing both the impact and professionalism of digital promotional efforts.

4.5 Implementation



Figure 4. 14 Implementation of Testing Promotional Content on Social Media

The implementation stage is the fourth phase of the ADDIE model, where the results of content development are tested directly by publishing to social media. The goal is to find out how the promotional content performs on the TikTok and Instagram Reels platforms and observe real user engagement.



Figure 4. 15 Application Trial on Car Rental Business Owners

The photo above documents the application trial activities conducted directly with several car rental business owners in Yogyakarta. This activity was carried out as part of the

implementation and system validation stage, in which the business owners were given the opportunity to use and evaluate the available features of the application, particularly in terms of ease of use, the accuracy of the automated assessment, and the relevance of the generated recommendations.

4.5.1 Implementation Strategy

Based on the results of audience analysis and social media user behavior, a promotional content implementation strategy has been developed to maximize audience engagement on the TikTok and Instagram Reels platforms. This strategy includes several important aspects, namely:

Table 4. 7 Implementation Strategy of Promotional Content on TikTok and Instagram Reels

Aspects	Strategy
Platform	TikTok & Instagram Reels
Posting Hours	18.00-21.00 (Audience active hours)
Content Version	Version A, B, C (Results of previous development)
Hashtag	#RentalJogja #RentalMurah #PromoCapCut #TikTokTravel

4.5.2 Content Upload Schedule

To organize content distribution effectively, the following upload schedule has been drawn up:

Table 4. 8 Content Upload Schedule for Distribution on TikTok and Instagram Reels

Day	Date	Platform	Time	Content Version
Monday	June 10, 2024	TikTok & Reels	7:00 PM	Version A
Tuesday	June 11, 2024	TikTok & Reels	7:00 PM	Version B
Wednesday	June 12, 2024	TikTok & Reels	7:00 PM	Version C

4.5.3 User Interaction Results

After the content was published according to the schedule, the performance of each content version on both platforms was analyzed. The following are the results of the interaction analysis based on engagement data:

a. TikTok

Table 4. 9 Results of User Interaction on TikTok Based on Content Version

Version	Views	Likes	Comment	Share	Engagement Rate
A	12.100	740	220	190	9,2%
B	11.400	750	230	200	9,6%
C	10.950	600	180	150	8,5%

b. Instagram Reels

Table 4. 10 Results of User Interaction on Instagram Reels Based on Content Version

Version	Views	Likes	Comment	Share	Engagement Rate
A	11.200	700	210	160	9,0%
B	10.500	710	240	180	9,5%
C	12.300	620	190	140	7,8%

The results of this analysis provide a snapshot of how each content version performed across both platforms, with Version A and B showing higher engagement rates compared to Version C. The entertainment-focused Version B managed to register a higher engagement rate, especially on Instagram Reels.

4.5.4 Implementation Result Analysis



Figure 4. 16 Result Analysis of the Implementation of Promotional Content on Social Media

- a. Version A continues to perform well, mainly because it features real-time price information and discounts, supported by a fast tempo and popular music-suitable for audiences who like short, engaging information.
- b. However, Version B was the best on both platforms. Its comedic approach and fun style attracted wider attention, making it viral and driving the highest engagement, especially on Instagram Reels and TikTok.
- c. Version C had lower engagement, possibly due to the storytelling style being less effective for short durations, where audiences are more interested in more direct information and visuals that quickly grab attention.

4.5.5 Testing the Assessment Results

To test the sensitivity of the system to the presence of opening, setup, main, climax, and closing elements, an experiment was conducted by comparing the results of the analysis between:

- a. Deletion of the opening video

The previously tested promotional video was re-edited by removing the opening section (the first 10% of the duration).

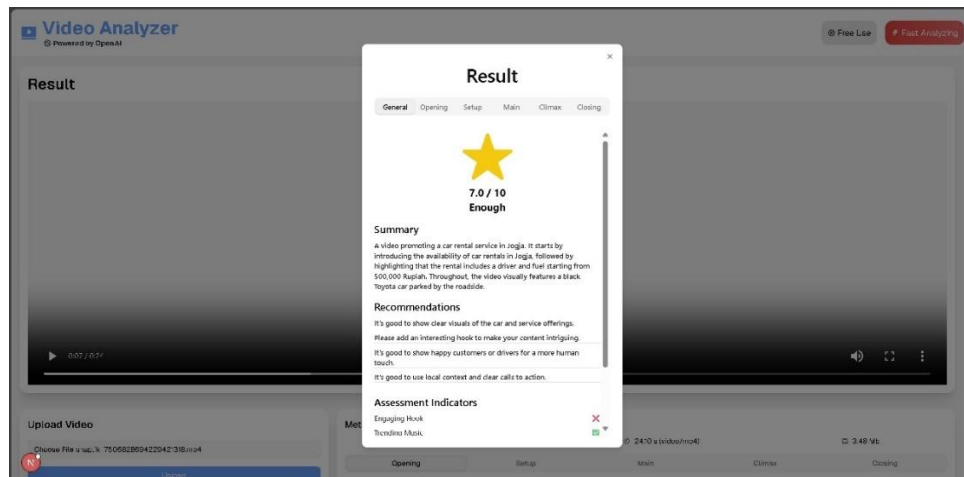


Figure 4. 17 Video Opening Deletion Analysis Result

From the results of the experiment, it can be seen that removing the opening section had a significant impact on the assessment results:

- The Engaging Hook indicator was not met, so the system assessed the video as less interesting at the beginning.
- The positive score decreased by 17 points from the previous score of 87 points.
- The recommendations that appeared from the system tended to suggest adding stronger opening elements to attract the audience's attention.

These results demonstrate that the opening plays a crucial role in enhancing initial viewer engagement, so it is strongly recommended to always include a relevant hook in vehicle rental promotions.

b. Deletion of setup videos

The previously tested promotional video was re-edited by removing the opening section (10-20% of the duration).

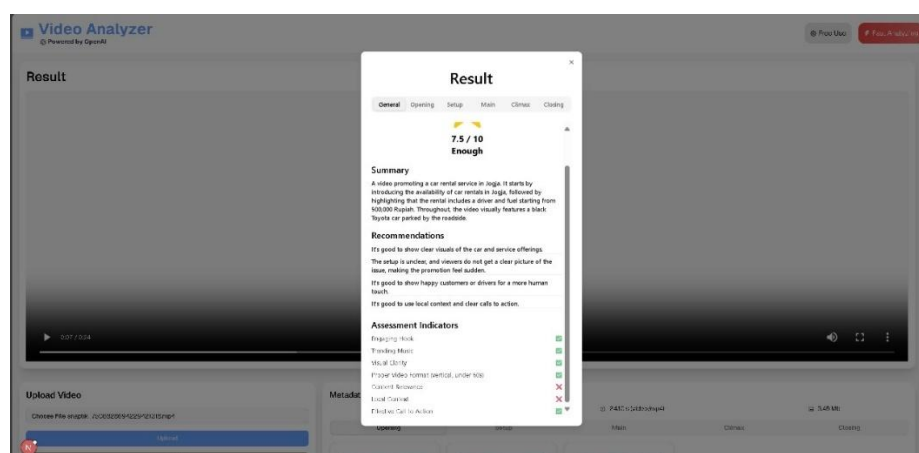


Figure 4. 18 Video Setup Deletion Analysis Result

From the results of the experiment, it can be seen that removing the setup section has an impact on:

- The loss of context transition from the opening to the main content, making the storyline feel less natural.
- Some Content Relevance and Local Context indicators decreased because the system did not find enough information to connect the video with the rental service.
- The positive value decreased by 12 points from the previous 87 points to 75 points.

This indicates that the setup helps establish a logical transition before the core promotion is displayed.

c. Deletion of main video

The previously tested promotional video was re-edited by removing the opening section (20-60% of the duration).

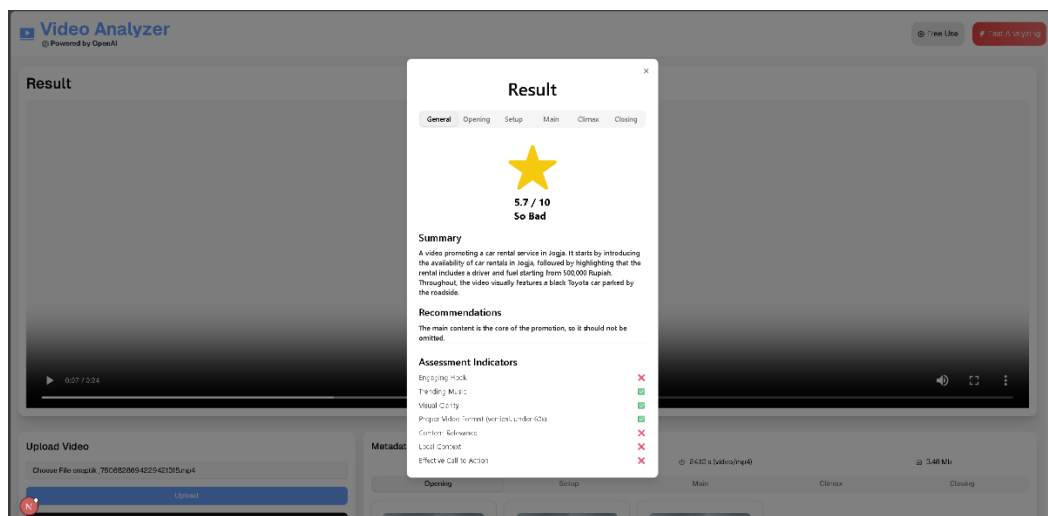


Figure 4. 19 Video Main Deletion Analysis Result

From the results of the experiment, it can be seen that removing the main section had the greatest impact on the assessment results:

- The Rental Activity Footage indicator was not met at all.
- The system marked the video as irrelevant to vehicle rental promotions.
- The positive score dropped dramatically by 30 points, from 87 to 57.
- The system's recommendations emphasize the importance of displaying visuals of the vehicle, customers, or rental activities to maintain relevance.

These results prove that the main content is the core of the promotion and should not be removed.

d. Removal of the climax video

The previously tested promotional video was re-edited by removing the opening section (60-90% of the duration).

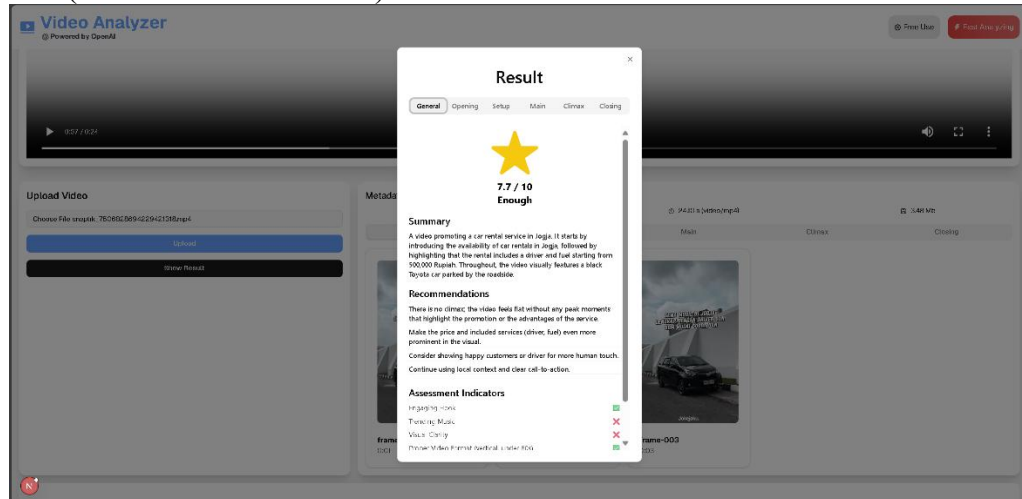


Figure 4. 20 Video Climax Deletion Analysis Result

From the results of the experiment, it can be seen that removing the climax has an impact on:

- The loss of the visual/audio peak that should be the highlight before the closing.
- The Visual Clarity and Trending Music indicators are not met, but the system assesses the plot structure as flat without emotional emphasis.
- The positive score decreases by 10 points, from 87 to 77.

This indicates that the climax serves as an emotional amplifier for the audience before directing them toward the closing and call to action.

e. Deletion of closing video

The previously tested promotional video was re-edited by removing the opening section (90-100% of the duration).

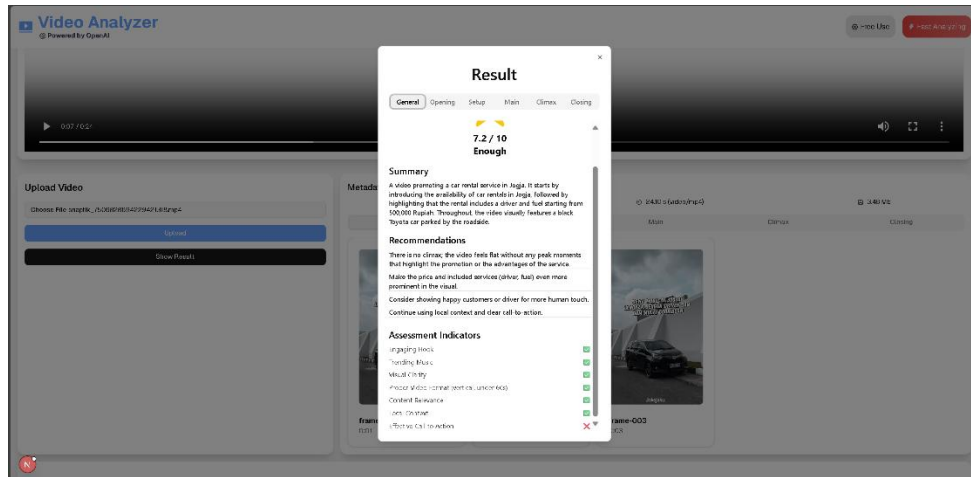


Figure 4. 21 Video Closing Deletion Analysis Result

From the results of the experiment, it can be seen that removing the closing section had an impact on:

- The Effective Call to Action indicator was not met.
- The system assessed that the video did not provide a clear invitation to rent a vehicle.
- The positive score decreased by 15 points, from 87 to 72.
- The system's recommendations emphasize the need for explicit calls to action such as “Rent now” or “Contact via WhatsApp.”

This indicates that the closing is crucial in providing the final push for viewers to take action.

4.5.6 High Engagement Video Trial

In addition to testing several vehicle rental promotional videos, this study also added trials on videos that were proven to have high engagement. The purpose of this addition was to see whether the assessment system that was built was able to recognize the quality of videos that had been proven to be liked by audiences on social media.

a. Video Selection



Figure 4. 22 Video Selection with high engagement

The videos used in this test were promotional content for vehicle rentals on TikTok/Instagram that had high engagement metrics (e.g., number of views, likes, comments, and shares well above average).

b. System Assessment Results with Real Engagement

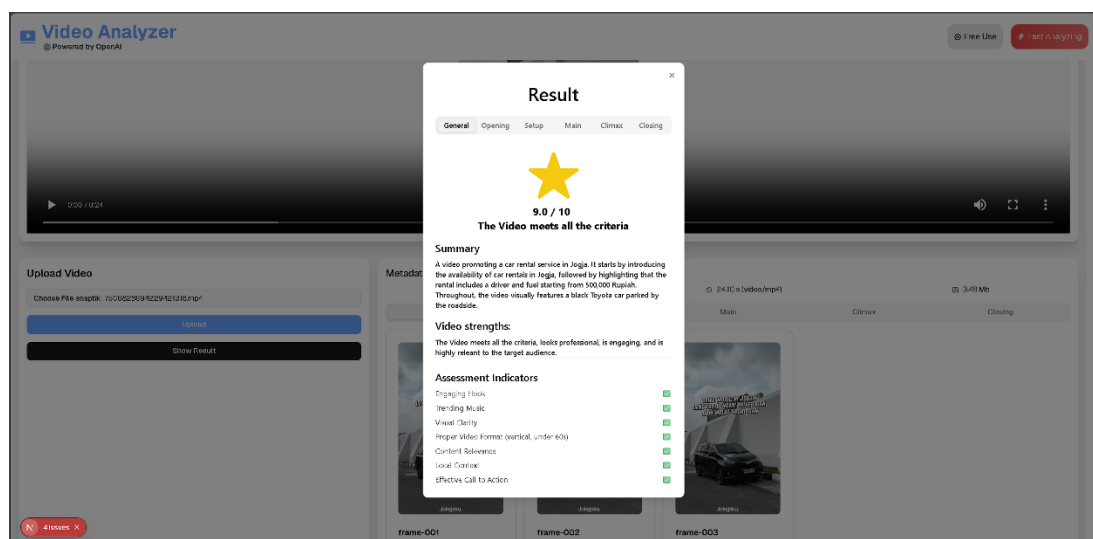


Figure 4. 23 Video Assesment Analysis Result with Real engagement

The assessment results show that the video meets almost all content quality indicators. This is consistent with the video's performance on the platform, which has proven to

have high engagement. Thus, the assessment system is able to validate that these factors contribute to the success of a vehicle rental promotional video.

c. Opening Analysis Results with Real Engagement

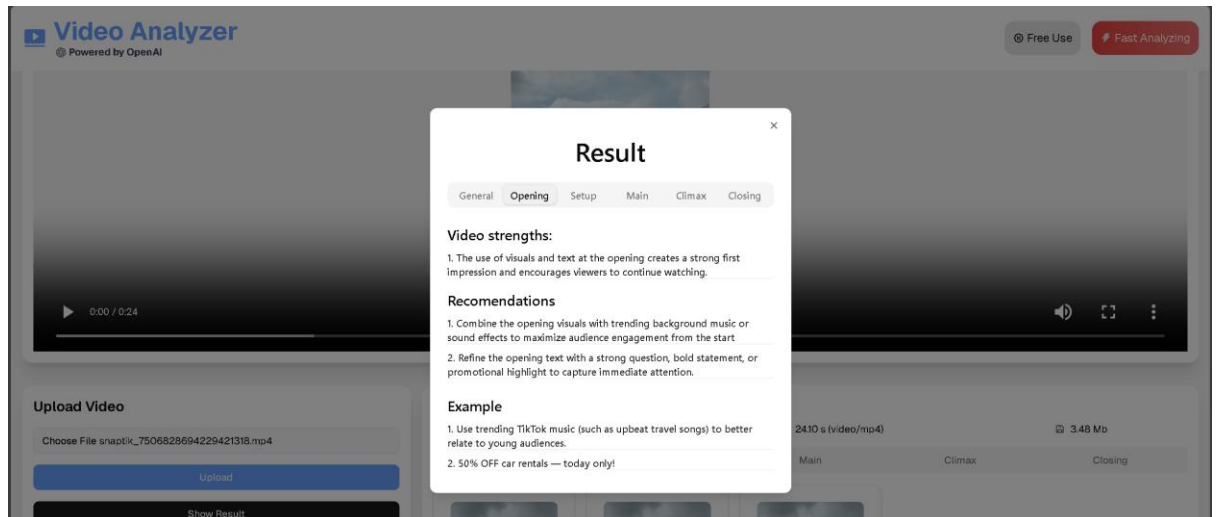


Figure 4. 24 Opening Analysis Results with Real Engagement

In the Opening section, the rating system notes that the use of visuals and text at the beginning of the video is effective in creating a strong first impression. This encourages the audience to continue watching the video.

Strengths:

The visuals and text in the opening give a clear and interesting impression, successfully sparking curiosity and maintaining the audience's attention in the opening seconds.

Recommendations:

Combine the opening visuals with trending background music or additional sound effects to maximize audience engagement from the start.

Strengthen the opening text with interesting questions, bold statements, or promotional highlights so that the audience's attention is immediately captured.

Example Implementation:

Use popular TikTok music, especially songs with a travel or upbeat feel, to be more relevant to a young audience.

Add promotional highlights such as: “50% OFF car rentals — today only!” to increase urgency and appeal from the beginning of the video.

In conclusion, the video opening is good but can be improved by adding more engaging audio elements and more prominent promotional text. This aligns with digital content

theory, which states that the first 3 seconds of a video are crucial in determining whether viewers will continue watching or not.

4.5.7 Comparison Before and After CapCut Promotion

To evaluate the impact of utilizing the CapCut application for promotional content creation, a comparative analysis was performed on promotional performance metrics before and after CapCut was adopted. The analysis covered user engagement indicators (such as impressions, likes, comments, and shares) as well as the number of bookings received by the vehicle rental company.

Prior to adopting CapCut for promotional efforts, the content mainly consisted of static images accompanied by simple text, and occasionally amateur video clips with minimal editing. According to interviews and business documentation, audience engagement during this period was relatively low to moderate, with engagement rates ranging between 2% and 4%. The average number of monthly orders before the introduction of CapCut video promotions was around 40–50.

Following the use of CapCut for creating promotional videos, both user engagement and booking figures showed a marked improvement. Below is a summary comparing user interaction data before and after implementing CapCut:

Table 4. 11 Comparison of Social Media Performance Before and After Using CapCut

Indicator	Before CapCut	After CapCut
Number of Impressions	4041	5.5 million
Number of Likes	62	327,100
Number of Comments	2	1518

The following figure is a real visualization of the comparison of content quality and user interaction on the TikTok platform before and after the implementation of the CapCut application.



Figure 4. 25 Comparison of Social Media Performance Before and After Using CapCut

The image above illustrates a notable rise in likes, comments, and shares following the adoption of CapCut, indicating a substantial boost in user engagement with the promotional content. This visual provides clear evidence of how the use of the CapCut application has enhanced the effectiveness of business promotions on social media platforms.



Figure 4. 26 Number of impressions before and after

The image on the left shows an example of content before the use of CapCut with simple visual quality and about 4,000 views. While the right image shows the content after the application of CapCut, with a significant improvement in visual quality and the number of impressions reaching 5.5 million views.

4.5.8 Testing the Video Rating API via Postman

To ensure that the video rating system is accessible and usable, testing was conducted using Postman. Postman was chosen because it is a commonly used application for testing APIs and displaying responses in an easy-to-analyze JSON format.

The testing was conducted using the following steps:

1. Upload Video

The promotional video file is uploaded via the POST API endpoint with form-data parameters using the video key and value in the form of an .mp4 file.

2. JSON response from the system

If the video has already been analyzed, the system will respond with a status of 200 and the message “Video Already Analyzed.” The JSON response displays several important components, namely:

- a. metadataVideo → contains the duration, file size, resolution, and video URL.
- b. metadataAudio → contains audio information such as sample rate, channels, layout, and audio URL.
- c. frames → video frames grouped into segments: opening, setup, main, climax, and closing.
- d. analyze → analysis results for each segment, including improvement recommendations and evaluation indicators (true/false).
- e. review → summary of the number of positive/negative indicators and their percentages.
- f. summary → conclusion of the video content and detection of relevance to the context of vehicle rental promotion..

3. Example of Response Results

Here is one of the responses from the system (abridged):

```
{
  "message": "Video Already Analyzed",
  "data": {
    "metadataVideo": {
      "url":
"https://res.cloudinary.com/.../mwk5kreqwnbbmugwqhee.mp4",
      "size": 2505460,
      "width": 720,
      "format": "video/mp4",
      "height": 1280,
      "duration": 24.52
    },
    "frames": {
      "opening": [
        {
```

```

        "url":      "https://res.cloudinary.com/.../frame-
001.jpg",
        "timestamp": 1
    },
    ...
],
"main": [...],
"closing": [...]
},
"analyze": {
    "opening": {
        "recommendations": [
            {
                "point": "Strengthen vehicle/rental visuals in
the hook",
                "example": "Show the car or rental logo in the
first second."
            }
        ],
        "assessmentIndicators": [
            { "name": "Engaging Hook", "value": true },
            { "name": "Content Relevance", "value": false }
        ]
    },
    "closing": {
        "recommendations": [
            {
                "point": "Use a specific Call To Action",
                "example": "Invite the audience to book a
vehicle or visit the website."
            }
        ],
        "assessmentIndicators": [
            { "name": "Effective Call to Action", "value":
true }
        ]
    }
}

```

```

    }
  },
  "summary": {
    "summary": "The video discusses a meme, not relevant
to vehicle rental.",
    "irrelevant": true
  }
}
}

```

4. Interpretation of Results

From the results above, it can be seen that the system is capable of:

- a. Grouping videos based on segments (opening, setup, main, climax, closing).
- b. Providing specific recommendations for each segment (e.g., hook is not relevant, CTA needs to be directed to booking).
- c. Concluding whether the video is relevant to the context of vehicle rental promotion.

The results of this Postman testing demonstrate that the system built can provide structured feedback and serve as a basis for revising promotional video content.

4.5.9 Test Results of Automated Scoring System

The AI-based automated scoring system was comprehensively tested on a number of promotional videos that had been curated with vehicle rental businesses and involved active social media users as evaluation respondents. Each promotional video tested went through a structured series of system processes, starting from the video upload stage into the platform, followed by an automatic process of extracting visual frames and audio features to identify the technical quality and main characteristics of the content. Next, the system automatically segmented the video into five main narrative sections-Opening, Setup, Main, Climax, and Closing-so that each aspect could be assessed proportionally and contextually. The extracted and segmented data is then analyzed in-depth by the integrated AI module, using assessment criteria that include visual quality, audio, narrative structure, text clarity, and duration aspects. The final result of this process is a quality score output for each aspect as well as specific and actionable suggestions for improvement, so that businesses get objective, relevant, and immediately implementable feedback to improve the quality of promotional videos before uploading them to social media.

Each assessment segment certainly has different assessment indicators, the following are the assessment criteria for each segment:

1. Opening

- Hook Power: Does the opening grab attention within the first 1-3 seconds?
- Uniqueness/Visual Attraction: Any visuals/music/effects that keep the audience from skipping?
- Relevance of Opening: The opening fits the context of the audience's needs.
- Clarity: The initial information is easy to understand.

2. Setup

- Introduction of Background/Problem: Audience understands the problem/need being addressed.
- Narrative/Visual: The introduction of the product/service is done clearly.
- Smooth Transition: The move from opening to setup is not abrupt.
- Relevance: Setup matches the needs of the target audience.

3. Main

- Solution/Product presentation: The product/service is described in an informative manner.
- Visualization of Advantages: Key features/advantages are clearly shown.
- Text Clarity: Price info, promos, benefits are easy to read.
- Interaction: There is a call for engagement (e.g. question, poll, etc.).

4. Climax

- Peak Moment: There is a “wow factor”/scene that gets the audience excited.
- Promo Emphasis/Key Benefits: Key CTAs, special offers, or value proposition highlights.
- Visual & Audio Effects: Visual/music effects support the climax.
- Emotional Appeal: Moves the audience (emotion/desire to try).

5. Closing

- CTA Presence: There is a clear call to action (e.g. “Click link in bio”, “Order now!”).
- Key Message Recap: Reaffirmation of the value/promo.
- Branding: Logo, contact, or business identity appears at the end.
- Closing Flexibility: No abrupt closure, smooth transition out.

The scoring system for each segment is that AI will give a score of 1-10 or 1-5 for each indicator. In addition to the assessment of each segment, the video will also be assessed as a whole, of course this assessment has other indicators that are different from the indicators in each segment. The following are the assessment indicators in the general assessment:

1. Visual Clarity
 - Video resolution, lighting, image stability
 - Composition and framing according to aesthetics
2. Audio Quality
 - Sound clarity, music-narration balance
 - Audio-visual synchronization
3. Aesthetics and Creativity
 - Color harmony, theme consistency
 - Creative ideas, uniqueness of concept
4. Duration & Information Density
 - Effective duration (<60 seconds), not long-winded
 - The message is conveyed briefly and clearly
5. Format Appropriateness
 - 9:16 ratio, use of text/logo is not distracting
 - Format and style fit the platform (TikTok/Reels)

The following table is an example of the AI scoring results on the three promotional videos tested in this study :

Table 4. 12 AI Scoring Result

Video	General	Opening	Setup	Main	Climax	Closing
TikTok_A	8	Add an interesting hook/text in the first 3 seconds.	Clarify the product/service at the beginning, display the logo	Showcase advantages & promotions briefly, use	Emphasize promotion s/urgency with text or sound effects.	Close with a clear CTA (e.g., “Click the link in bio!”), display your

				dynamic transitions		contact information & logo.
Reels_ B	9	Use more engaging visuals/questions at the beginning.	Add a short explanation or testimonial.	Shorten the duration, increase the visual variety.	Display promotions with large text and bold colors.	Explicit CTA, use logo/contact animation at the end
TikTok_ C	7	Add sound effects and text that attract attention.	Show activities/services more clearly.	Storytelling is neater, avoid monotonous scenes.	Promos are more prominent, fonts and colors are bolder.	Clear CTA, smooth closing animation, easy to access contacts.

The table shows the results of automatic assessment of promotional videos by AI based on several aspects, namely Opening, Setup, Main, Climax, Closing, as well as the final score and suggestions for improvement. Each video (TikTok_A, Reels_B, TikTok_C) is scored in each section, and then the average score is calculated. In addition to the score, the table also includes specific suggestions for improvement, such as adding clearer CTAs, improving opening transitions, or improving lighting quality. This table is used to provide a structured evaluation and concrete recommendations for content creators.

The total score is calculated by taking the average of all key aspect scores, so that the evaluation results reflect the video quality in a holistic and proportional manner. Meanwhile, the AI suggestions provided are always based on specific findings from the analysis, for example: adding a more explicit CTA at the end of the video, improving the opening transition to make it more dynamic, or improving the lighting quality in the initial frames.

Table 4. 13 Comparison Between AI Scoring Results and Expert Scoring

Video	AI Scoring	Expert 1	Expert 2	Expert 3	Expert 4
TikTok_A	8	7	7	7,6	8
Reels_B	9	8	8,8	9	9
TikTok_C	7	7	7,4	7	6,9

This assessment proves that the automated scoring system is not only capable of providing objective and quantitative assessments, but also insights that are applicable and relevant to the needs of businesses. Thus, the system can be relied upon as an evaluation tool for digital promotional content, as well as a key reference in the process of revising and improving videos to improve performance on social media platforms.

4.5.10 Calculation of Score

The automated scoring system generated assessment results for each segment of the promotional videos (Opening, Setup, Main, Climax, and Closing). Each segment was evaluated based on specific indicators such as *Engaging Hook*, *Clarity of Information*, *Product Presentation*, *Call to Action*, and *Audio-Visual Quality*. The scoring procedure was carried out using a consistent rubric where every indicator was rated on a numerical scale (1–10), and then averaged to form the score of each segment.

1. Calculation of Segment Scores

```
"review": {
    "totalReview": 20,
    "positiveReview": 18,
    "positivePercentage": 90
},
```

For each video, the AI system first provided individual scores for every indicator within a segment. These values were aggregated using a mean calculation to obtain the **segment score**. For instance, in the Opening segment, three indicators were assessed: *Engaging Hook* (8), *Visual Attraction* (7), and *Clarity of Initial Information* (9). The resulting average was 8.0, representing the Opening score.

2. Calculation of Final Score

The final video score was determined by averaging all segment scores using the following formula:

$$Final\ Score = \frac{ScoreOpening + ScoreSetup + ScoreMain + ScoreClimax + ScoreClosing}{5}$$

The use of this calculation method ensures that the scoring system captures a holistic evaluation of video quality. By aggregating the values from all segments, the final score reflects not only the strength of individual parts but also their balance. For example, a video with a weak Opening but a strong Climax and Main section can still obtain a competitive final score, showing that the message delivery was effective overall.

Moreover, presenting the indicator-level results before recommendations allowed researchers to identify which specific aspects influenced the outcome. For instance, when the *Engaging Hook* indicator was scored as “False,” the AI then recommended improvements such as adding a question or striking visual at the beginning. This sequential presentation—from indicators to final score to recommendations—ensures that businesses not only receive a numerical evaluation but also a clear diagnostic of what to improve.

In summary, the calculation of scores through segmented averaging provides an objective, transparent, and replicable method of evaluating video quality. This method strengthens the credibility of the automated scoring system and ensures that recommendations are firmly grounded in measurable results rather than subjective impressions.

4.6 Evaluation

The evaluation stage serves as the concluding step in the ADDIE model, focusing on measuring the effectiveness and suitability of the promotional content that has been created and deployed. This assessment utilizes two methods—expert validation and field testing—to obtain a thorough understanding of the content’s quality from both technical and user experience standpoints.

4.6.1 Expert Evaluation

A total of 4 expert validators (digital marketing practitioners) were asked to assess the quality of CapCut templates used in content development. The assessment was based on 5 aspects:

Table 4. 14 Results of Expert Evaluation of CapCut Template Quality

Aspects	Results	Follow-up
Functionality (Does the content make promotion easy?)	Valid (Facilitates the digital promotion process)	Retained
Service (Can anyone use the template?)	Valid (Can be accessed freely by MSME actors)	Retained
Features (Does the content save time?)	Valid (Very efficient compared to manual editing)	Retained
Design (Is it customizable?)	Valid (Can be edited according to the needs of each business)	Retained
Convenience (Is it easy to use on HP/PC?)	Valid (User-friendly on two devices)	Retained

All validators gave a positive assessment of the template's feasibility, indicating that the use of CapCut as a promotional content creation tool is very suitable for MSMEs that need a quick and easy solution.

4.6.2 Audience Engagement Analysis

Once the promotional content was released, an analysis of audience engagement was conducted to determine how effectively the material captured attention and prompted user interaction. Engagement levels were assessed using several main metrics, including the number of likes, comments, shares, and views received by each version of the promotional video uploaded to TikTok and Instagram Reels. The data gathered throughout the evaluation period revealed differences in engagement across the various video versions. Each version was classified according to its engagement rate, and the principal insights from this analysis are summarized below:

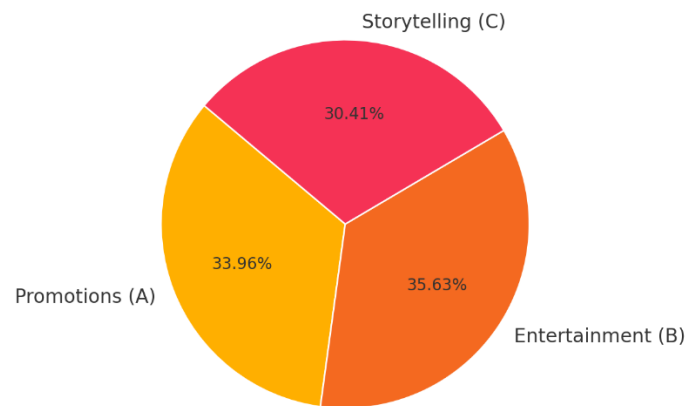


Figure 4. 27 Analysis of Audience Engagement Based on Promotional Content Version

In general, the engagement analysis indicates that promotional content featuring compelling visuals, clear messaging, and entertaining elements is more effective at capturing audience interest and driving interaction. Version A, which highlights promotional information through a fast-paced and energetic format, recorded higher engagement rates. Similarly, Version B, which focused more on entertainment value, also achieved strong results due to its entertaining nature and its capacity to foster increased user interaction.

4.6.3 Engagement Data Analysis

After the AI-based automated scoring system provides scores and improvement suggestions for each promotional video, businesses actively revise the content based on the recommendations provided. The revised videos were then re-uploaded to the TikTok and Instagram Reels platforms, with the aim of observing the real impact of the improvements made on content performance on social media.

The monitoring process was conducted over a period of time (e.g. 7 days after the re-upload) to obtain representative data. The engagement indicators observed include the number of likes, comments, shares, and views obtained by each video before and after the AI intervention. This data is then analyzed quantitatively to assess the effectiveness of the system in increasing interaction and attractiveness of promotional videos.

The following table presents the results of the comparison of engagement on three promotional videos before and after revisions were made based on the AI system recommendations:

Table 4. 15 Engagement Comparison

Number	Video	Engagement Before	Engagement After	Description
1	TikTok_A	1200	2100	Engagement increased by 75% after CTA revision
2	Reels_B	850	1300	Increase influenced by improved opening and transition
3	TikTok_C	1500	1900	Visual improvements enhance share and save

The results of the analysis showed a significant increase in engagement rates for all revised videos. In the case of the TikTok_A video, revisions to the Call to Action (CTA) element increased engagement by 75%. Similarly, in the Reels_B video, the addition of a more dynamic transition in the opening proved to be able to attract the attention of the audience, increasing the number of interactions. While in the TikTok_C video, the improvement in visual quality directly contributed to the increase in the number of shares and saves, which is an indicator that the content is considered more worthy of being shared or saved by users.

This consistent increase in engagement proves that AI recommendations are not just theoretical, but actually have an impact on audience behavior on social media. This shows the effectiveness of the system in helping businesses improve and optimize promotional content, so that the videos produced not only meet technical standards, but also better match the preferences and expectations of the target market.

In addition, this finding reinforces the hypothesis that there is a positive correlation between the AI-assessed quality score and the actual performance of the video on digital platforms. Thus, AI-based automated scoring systems can be a strategic tool for MSMEs to improve competitiveness in the era of short video-based digital marketing.

4.6.4 Business feedback

In addition to expert-conducted evaluations and audience engagement analysis, it is important to collect feedback from business owners to assess the extent to which the promotional content generated can influence increased customer interest or orders.



Figure 4. 28 Business Feedback on the Impact of Promotion on Orders

Feedback from the business owner indicates that the promotional content had a substantial effect on boosting customer orders. Prior to the campaign in the first month, the business received 50 orders. After launching the promotional content, orders rose sharply to 80 in the second month and reached 120 in the third month. These findings demonstrate that the promotional materials effectively engaged the audience and led to a notable rise in demand for vehicle rental services following the promotion.

4.7 Discussion of Results

The results of the implementation and testing of an AI-based automated scoring system on MSME promotional videos on the TikTok and Instagram Reels platforms show a real impact on improving content quality and audience engagement. This system succeeds in presenting an evaluation process that is not only objective and measurable, but also adaptive to the real needs of business actors in the field.

Recommendations generated by AI have proven to be practical and easy to adopt. MSME businesses can immediately follow up on the suggestions provided, such as clarifying the Call to Action (CTA), improving the opening transition, or improving the lighting quality in certain frames. The implementation of these suggestions does not require high technical expertise, making it very relevant for MSMEs that generally have limited resources. The effectiveness of these recommendations is reflected in the consistent increase in engagement after the content is revised as directed by the AI system.

The integration of in-depth technical analysis covering visual aspects, audio, narrative structure, text clarity, as well as duration optimization with AI-based suggestions, has proven to help businesses produce more effective videos. The revised promotional videos are not only more aesthetically appealing, but also more communicative in delivering messages and driving

user action. This is in line with digital marketing theory that emphasizes the importance of strong visuals, coherent narratives, and clear CTAs in building brand engagement and increasing conversions.

The increase in engagement, as measured by the like, comment, share, and view metrics after revision, further reinforces the positive correlation between the video quality score generated by the AI system and the actual performance of the content on social media. This finding supports previous research that visual quality, narrative structure, and message clarity in digital promotional videos are key factors in attracting attention, building trust, and driving consumer decisions.

Thus, it can be concluded that the AI-based automated scoring system developed in this research is not only relevant from a technical and scientific perspective, but also provides practical and strategic benefits for MSMEs. This system is able to be an innovative solution in improving business competitiveness in the era of short video-based digital marketing, as well as strengthening the digital content literacy of business actors to be more adaptive to the development of social media trends and algorithms.

4.8 Limitations and Suggestions for Further Development

Although the results of this study show very positive achievements in terms of improving the quality of content and engagement of AI-based promotional videos, there are several limitations that need to be observed as material for evaluation and improvement in subsequent studies.

First, the scope of the test data used is still limited to MSMEs in the vehicle rental sector in the Yogyakarta area. This focus on one sector and one geographic area certainly limits the generalizability of the research results. Market dynamics, audience preferences, and business characteristics in other cities or sectors are very likely to be different, so the effectiveness of the system needs to be further validated in a broader and more diverse context.

Secondly, the AI scoring process in this study still relies on descriptive inputs generated by the system from manual extraction of video features, such as visual, text, or audio descriptions, which are then analyzed using prompts in the AI model. The system does not yet perform automatic and comprehensive feature extraction directly from the raw video end-to-end. As a result, the possibility of bias or error in the interpretation of video features can still occur if the descriptive input is less accurate or detailed.

Third, the AI models used are not yet fully capable of taking into account viral trends, algorithm changes, or the rapidly changing dynamics of platform ecosystems such as TikTok

and Instagram Reels. Content serving algorithms on social media are dynamic and highly influenced by external factors such as trending sounds, challenges, or algorithmic preferences that can change at any time. The system developed in this research focuses more on the intrinsic quality of the video (visual, audio, structure, and text), so adaptability to viral trends is still limited.

Based on the above limitations, development suggestions for future research and implementation are as follows:

1. Expand the scope of the research to various types of MSMEs in other sectors (e.g. culinary, fashion, tourism services, etc.) as well as in other cities in Indonesia, to get a more comprehensive picture of the effectiveness of the system across different business contexts and demographics.
2. Integration of more specialized machine learning technologies, such as the use of Convolutional Neural Network (CNN) for automatic visual feature extraction from video frames, as well as the implementation of speech-to-text for real-time narration and audio analysis. Thus, the system can perform end-to-end analysis without reliance on manual descriptive input, thereby improving the accuracy and objectivity of the assessment.
3. Development of AI models that are adaptive to social media trends and algorithms, for example by integrating big data analysis related to trending content, hashtags, and viral patterns on TikTok and Instagram Reels platforms. With this approach, the system's recommendations will be more relevant and contextualized according to the highly dynamic development of the digital ecosystem.

By paying attention to and following up on the suggestions above, it is hoped that this AI-based automated scoring system can continue to be developed into an increasingly sophisticated, relevant, and applicable tool, so as to help MSMEs in various sectors to adapt and compete effectively in the ever-evolving digital marketing landscape.

CHAPTER V

CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

Based on the results of the research and discussion that has been carried out, it can be concluded as follows:

a. Use of CapCut Application in Creating Promotional Content

The CapCut application has demonstrated its effectiveness in enabling vehicle rental businesses in Yogyakarta to produce attractive promotional videos, even for those without advanced video editing expertise. CapCut offers a comprehensive set of tools—such as pre-designed templates, visual effects, music, and transitions—that simplify the editing process and are well-suited for platforms like TikTok and Instagram Reels. This makes CapCut a practical promotional solution for micro, small, and medium-sized enterprises (MSMEs) looking to enhance their digital marketing efforts.

b. ADDIE Development Model in Promotional Content Development

The ADDIE development model which consists of Analysis, Design, Development, Implementation, and Evaluation was effectively utilized in this research, providing a structured framework for every phase of promotional video content creation. Each phase played a crucial role in ensuring the content was tailored to both the target audience and the chosen platform. The findings demonstrate that employing the ADDIE model in content development leads to promotional materials that successfully enhance user engagement on social media.

c. Effectiveness of Promotional Content in Increasing User Engagement

The pilot testing and implementation indicate that promotional content created with CapCut effectively captures audience attention and boosts engagement on TikTok and Instagram Reels. Content variations, particularly those presenting rapid, dynamic promotional messages and entertainment-focused styles, achieved higher engagement levels. These results confirm that compelling promotional content can enhance user interest in vehicle rental services.

d. Feasibility of CapCut Template for MSME Use

The developed CapCut template has been evaluated by experts and businesses, with the results showing that this template is very useful for MSMEs. The template can be used flexibly, simplifying the process of creating promotional content without

requiring high technical skills. The template provides a basic video structure, placeholders for visual content, text areas for promos, and customized effects and music, allowing users to instantly change the content to suit their needs.

e. **Implementation of AI-based Automated Assessment System**

Based on the results of the research conducted, it can be concluded that the development of an Artificial Intelligence (AI)-based automated scoring system to assess the quality of CapCut promotional videos on vehicle rental services on TikTok and Instagram Reels in Yogyakarta has proven effective in improving the quality and engagement of MSME digital promotional content. The system is able to automatically provide objective evaluations of visual, audio, content structure, text, and video duration aspects, and produce recommendations for improvement that are applicable and easily adopted by businesses. Validation through a pilot test on actual promotional videos shows that content revisions based on AI suggestions can significantly increase engagement rates, which is supported by quantitative data as well as user and business perception evaluations. The majority of respondents rated the revised videos as more attractive, informative, and effective in driving interest in vehicle rental services, while businesses rated the system as very helpful in the process of evaluating and improving content quality efficiently and consistently. Thus, the use of an AI-based automated scoring system not only provides a more objective and scalable evaluation solution for MSMEs, but also contributes significantly to strengthening the competitiveness and effectiveness of digital promotion in an increasingly competitive and dynamic social media era.

5.2 Advice

Based on the findings and conclusions of this study, some suggestions that can be given are as follows:

a. **For Vehicle Rental Business Actors**

Businesses are advised to utilize short video-based promotional content using the CapCut application as a means to increase audience appeal and engagement on social media. By using CapCut, businesses can produce fast, efficient and professional promotional content, even without technical expertise in video editing. The provided templates allow them to easily replace visual and text elements according to their promotional needs.

b. **For Content Developers and Digital Marketing Professionals**

It is recommended that content creators and digital marketing specialists keep expanding the range of available templates to accommodate different product types and target markets. Offering a broader selection of templates enables businesses to better align their content's style and tone with their brand identity, thus allowing them to engage a wider and more varied audience.

c. For Future Researchers

It is suggested that future researchers broaden the focus of their studies to include other categories of MSMEs and conduct a deeper investigation into the mechanisms behind content distribution algorithms on social media. Further studies might analyze additional analytics data from platforms like TikTok and Instagram to gain a clearer understanding of how algorithmic processes and user engagement influence the effectiveness of promotional campaigns. Moreover, examining the impact of video content within digital marketing strategies across various industries could yield valuable new insights.

d. For Educational Institutions and Digital Marketing Community

Academic institutions and digital marketing communities are encouraged to hold training sessions or workshops focused on utilizing user-friendly video editing tools like CapCut for MSMEs. Such programs can enhance the digital competencies of business owners, better equipping them to address the challenges of marketing in today's digital landscape.

By putting these recommendations into practice, the adoption of CapCut for promotional content creation is expected to further contribute to the development of MSME businesses—particularly in the vehicle rental sector—and enhance audience engagement across social media platforms..

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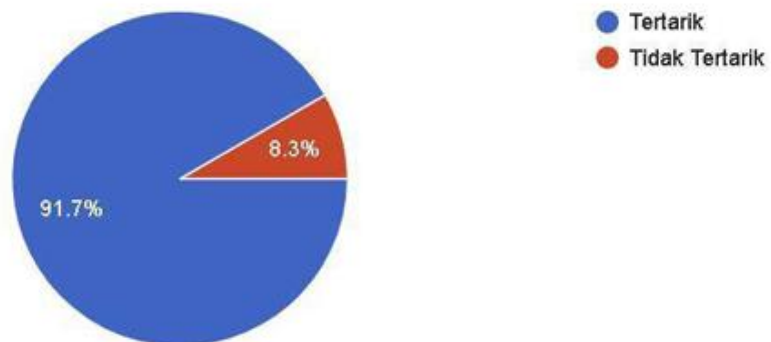
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APENDIX

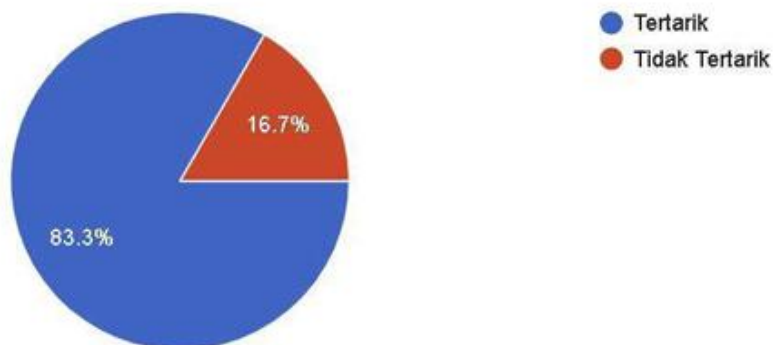
Sejauh mana Anda tertarik dengan konten yang dimulai dengan "hook" atau pancingan di awal video?

36 responses



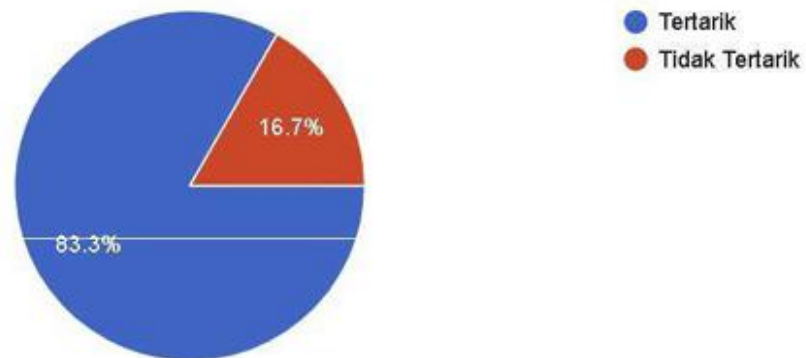
Seberapa besar Anda menyukai konten dengan gaya santai dan tidak kaku?

36 responses



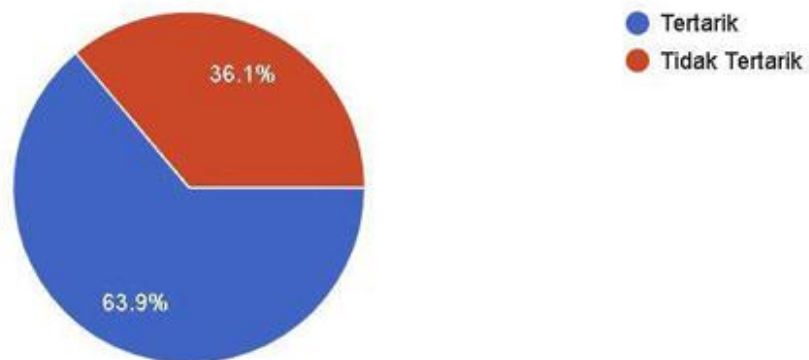
Bagaimana pandangan Anda tentang durasi video yang singkat (kurang dari 1 menit)?

36 responses



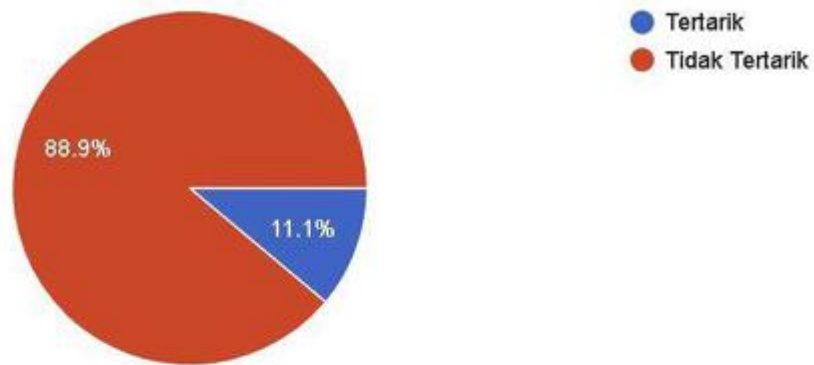
Seberapa menarik konten yang memiliki visual menarik dan penggunaan efek visual yang dinamis?

36 responses



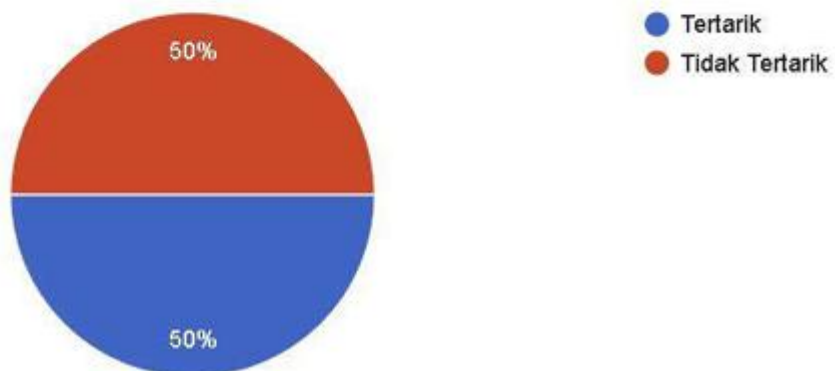
Apakah Anda lebih tertarik pada vlog atau konten yang berfokus pada pengalaman pribadi atau perjalanan?

36 responses



Apakah Anda tertarik untuk melihat konten lain jika memiliki gaya atau pendekatan yang berbeda?

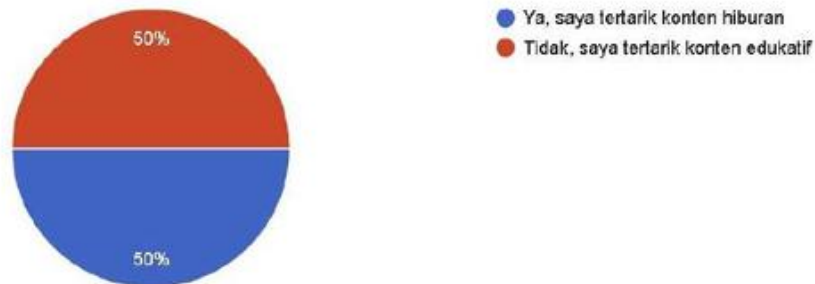
36 responses



Apakah Anda lebih tertarik pada konten Humor/Hiburan dibandingkan dengan konten yang lebih edukatif?

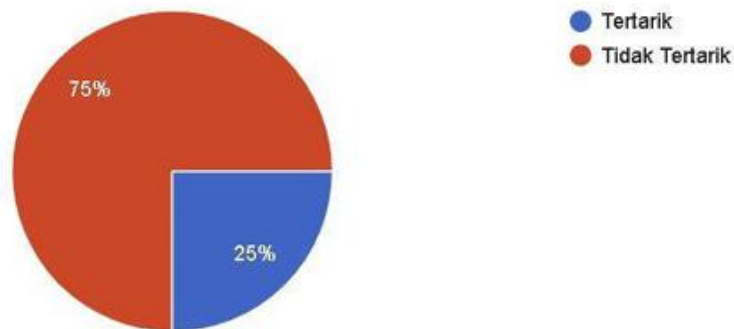
 Copy c

36 responses



Sejauh mana Anda tertarik dengan konten yang bersifat informatif/edukatif?

36 responses



a. Prompt for Opening Segment

This prompt focuses on the hook or initial appeal of the video.

You are analyzing the OPENING part of a promotional video for a vehicle rental business.

Focus only on the first few seconds.

Frames: [attach frame URLs of opening]

Transcript: [attach opening transcript]

Assessment Indicators (assess only if relevant to the opening):

- Engaging Hook (does it grab attention within 1-3 seconds?)

- Uniqueness/Visual Attraction (any strong visuals, music, or effects?)
- Relevance of Opening (does it relate to vehicle rental context?)
- Clarity of Initial Info (is the message easy to understand immediately?)

Return a JSON with:

```
{  
  "recommendations": [{ "point": "string", "example": "string"  
}],  
  "assessmentIndicators": [{ "name": "Engaging Hook", "value":  
true/false }, ...]  
}
```

b. Prompt for Setup Segment

This prompt assesses the context of service introduction.

You are analyzing the SETUP part of a promotional video for a vehicle rental business.

Focus on how the product/service is introduced after the hook.

Frames: [attach frame URLs of setup]

Transcript: [attach setup transcript]

Assessment Indicators:

- Background/Problem Introduction (is the audience's need clear?)
- Narrative/Visual Clarity (is the product/service shown understandably?)
- Smooth Transition (from opening to setup, is it natural?)
- Relevance to Audience Needs

Return a JSON with recommendations and indicators.

c. Prompt for Main Segment

You are analyzing the MAIN part of a promotional video for a vehicle rental business.

This part should explain the solution, product, or service in detail.

Frames: [attach frame URLs of main]

Transcript: [attach main transcript]

Assessment Indicators:

- Solution/Product Presentation (are features/services shown?)
- Visualization of Advantages (are benefits or unique selling points visible?)
- Text Clarity (prices, promos, benefits - easy to read?)
- Interaction Element (any engagement cues like questions, polls, or reactions?)

Return a JSON with recommendations and indicators.

d. Prompt for the Climax Segment

Focus on the peak of the promotion.

You are analyzing the CLIMAX part of a promotional video for a vehicle rental business.

Focus on the peak moment designed to excite or persuade the audience.

Frames: [attach frame URLs of climax]

Transcript: [attach climax transcript]

Assessment Indicators:

- Peak Moment / Wow Factor (is there an exciting highlight?)
- Promo Emphasis / Key Benefits (are main offers strongly reinforced?)
- Visual & Audio Effects (do they support the climax?)
- Emotional Appeal (does it trigger desire to try?)

Return a JSON with recommendations and indicators.

e. Prompt for Closing Segment

Assessing the effectiveness of CTAs (Call To Action).

You are analyzing the CLOSING part of a promotional video for a vehicle rental business.

Focus on the ending and call-to-action.

Frames: [attach frame URLs of closing]

Transcript: [attach closing transcript]

Assessment Indicators:

- Effective Call to Action (clear CTA like "Book now", "Click link in bio")
- Key Message Recap (does it reinforce the promo/brand?)
- Branding Presence (logo, contact, identity shown?)
- Smooth Ending (is it a natural closure, not abrupt?)

Return a JSON with recommendations and indicators.

f. Summary Prompt

Used to summarize the entire video.

You are analyzing the entire promotional video for a vehicle rental business.

Focus on providing an overall evaluation that combines all segments (Opening, Setup, Main, Climax, Closing).

Assessment Indicators:

Visual Clarity (resolution, lighting, framing, aesthetics)

Audio Quality (sound clarity, music/narration balance, synchronization)

Narrative Flow (is the storyline smooth and coherent across all segments?)

Duration & Information Density (is the video concise, under 60s, not repetitive?)

Aesthetics & Creativity (does it look professional, unique, and aligned with audience expectations?)

Format Appropriateness (vertical 9:16, optimized for TikTok/Reels)

Overall Relevance (is the video clearly aligned with rental service promotion?)