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Efficiency and Creativity in The Creative Industry Through the Utilization of Machine Learning (Case Study at CV. Maxiidea Arta Sukses, Surabaya)

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Abstract: The creative industry in Indonesia is a key contributor to economic growth, and technology, particularly Machine Learning, is playing a crucial role in its transformation. This research focuses on the impact of Machine Learning implementation in the creative industry, specifically at CV. Maxiidea Arta Sukses in Surabaya, and aims to understand its effects on efficiency and creativity. By using qualitative methods such as observation, interviews, and literature study, the research examines the improvements in efficiency for social media specialists, the impact on creativity in digital marketing, and the potential barriers to implementation. The findings provide valuable insights into employee perceptions of Machine Learning technology and its potential contribution to performance. Ultimately, this research sheds light on the evolving role of technology in the creative industry and its implications for businesses in Indonesia.

Keywords: Creative Industry; Machine Learning; Digital Marketing; Social Media Specialist.

1. Introduction

The creative industry represents a rapidly burgeoning economic sector, encompassing a diverse array of activities that generate products and services infused with artistic or creative value. This multifaceted sector spans domains such as graphic design, visual arts, advertising, architecture, film, music, video games, and numerous others. Beyond the mere production of physical goods, creative industries underscore the profound significance of creativity, innovation, and cultural expression. This definition aligns seamlessly with the perspective of Indonesia's Creative Economy Agency (BEKRAF), which characterizes the creative industry as an economic domain that amalgamates creativity, technology, and culture to yield substantial economic value [10].

In the Indonesian context, the creative industries have assumed a pivotal role, contributing approximately 7% to the nation's GDP by the year 2022. This sector's evolution is intricately intertwined with technological advancements, most notably in the realm of machine learning, which serves as a catalyst for transformative change [4]. Machine learning, endowed with the capacity to enhance efficiency and elevate the customer experience, has found application in diverse sectors, including graphic design, content management, and digital marketing.

For instance, consider the research study "Dynamics of Creativity in 21st Century Learning" [9], which delves into the concept and practical implementation of creativity within the educational context in Indonesia. This study furnishes an overarching perspective on how creativity can be seamlessly integrated into the educational process, culminating in the cultivation of graduates with a penchant for innovative and imaginative thinking. Given the relentless expansion of the creative economy, it becomes increasingly imperative to unravel the manifold ways in which machine learning can invigorate efficiency and spur creativity.

Against this backdrop, this qualitative research endeavor aspires to dissect the utilization of machine learning by social media specialists operating within the realm of CV. Maxiidea Arta Sukses. The investigation's primary objectives encompass the identification of efficiency enhancements, a meticulous analysis of the impact on creativity within the domain of digital marketing [7], and a comprehensive evaluation of the barriers impeding seamless implementation. Furthermore, this study will delve into the perceptions held by employees, with a specific focus on social media specialists, regarding the integration of machine learning into their work processes. The anticipated outcomes hold the potential to furnish invaluable insights for companies operating within the creative industries, paving the way for the adoption of analogous technologies to bolster the performance of their social media specialists. Worth noting is the abundance of references from Indonesian research dedicated to the exploration of creativity, disseminated across numerous scientific publications.

2. Research Method

This research utilizes a qualitative method based on the approach described by Bogdan and Tylor [1], which produces descriptive data in the form of written or spoken words and observable behavior. The focus of the research is to deeply understand the efficiency and creativity that arise from the application of machine learning in the creative industry, especially in the role of social media specialist at CV Maxiidea Arta Sukses, Surabaya. In the overall approach, this research applies qualitative methods, techniques, and tools in accordance with research procedures. Data collection techniques [2], for example, are considered as strategic steps to obtain data, involving observation, interviews, and literature study. The research was conducted at CV Maxiidea Arta Sukses, Surabaya, focusing on the operational process of content creation. The interviewees were selected through purposive sampling [6], including six people, including the creative director, two employees, and three clients of CV. Maxiidea Arta Sukses Surabaya, in accordance with Eisenhardt's [3] recommendation of 4-8 interviewees in qualitative research. Data collection involved observations, interviews, and literature study to provide a detailed understanding of the efficiency and creativity in utilizing Machine Learning at CV Maxiidea Arta Sukses, Surabaya.

1) Observation
   Conducted directly at the company to evaluate the effectiveness of Machine Learning utilization and identify individuals who have competencies related to the research. The observation approach was non-systematic, without standardized guidelines, focusing on operational activities and individuals in the company.
2) Interviews
   Conducted with six interviewees, including the creative director, employees, and clients of CV Maxiidea Arta Sukses. The aim was to obtain valid data on the efficiency and creativity in the utilization of Machine Learning and to understand the employees' perceptions of its implementation. The entire interview process was conducted by the researcher with the guidance of the research theme.
3) Literature Study
   Used to evaluate and interpret written information from various sources. The literature study method became a descriptive-analytic research strategy, assisting in the collection, selection, and analysis of data to support the research topic [5].

Operational definitions provided a concrete basis for measuring and observing abstract concepts within the research framework. Data analysis was conducted through three coding stages: open coding, axial coding, and selective coding, using MS. Excel 2010. The results provide an overview of the tendency of answers from each source related to the 7 themes of the research focus.

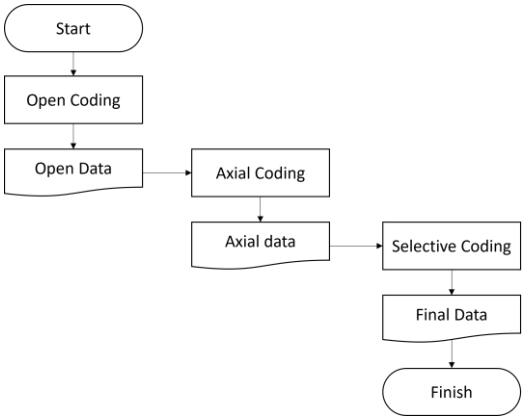

Figure 1. Coding Process

Data validity tests were conducted to ensure that this research meets the standards of scientific research, including credibility, transferability, dependability, and confirmability [2].

1) Credibility: Ensuring trust in the research results as a reliable scientific work.
2) Transferability (External Validity): Assessing the extent to which the research results can be applied to populations beyond the sample.
3) Dependability: Measures the consistency of research results in repeated trials.
4) Confirmability: Assessing the agreement of research results by many people, ensuring that the results are the result of a consistent research process.

By following these procedures, the validity of this research data can be accounted for in accordance with scientific research standards [2].

3. Result and Discussion

3.1 Results

3.1. Profile of Resource Persons

The profiles of the six interviewees are presented in the following table, including their gender, employment status, educational history, work experience, and work unit.

Tabel 1. Profile of resource persons

Interviewee	Gender	Status	Education History	Work Experience	Work Unit
Interviewee-1	Male	Non-Civil Servant	S1	12 Years	Production CV. Maxiidea Arta Sukses
Interviewee-2	Male	Non-Civil Servant	S1	4 Years	Production CV. Maxiidea Arta Sukses
Interviewee-3	Male	Non-Civil Servant	S1	2 Years	Production CV. Maxiidea Arta Sukses
Interviewee-4	Male	Non-Civil Servant	S1	5 Years	A Company CLient
Interviewee-5	Female	Non-Civil Servant	S1	3 Years	B Company Client
Interviewee-6	Female	Non-Civil Servant	S1	4 Years	C Company CLient

The profiles show that all six individuals, both male and female, work as non-civil servants and have an undergraduate educational background with a focus on production at CV Maxiidea Arta Sukses. Their work experience varies from 2 to 12 years, with the first three interviewees having experience in the production unit of CV Maxiidea Arta Sukses, the fourth interviewee working as a client of company A, and the fifth and sixth interviewees representing clients from companies B and C, respectively. This diversity of work experience is expected to provide a rich perspective in the analysis of efficiency and creativity through the utilization of Machine Learning in the creative industry.

3.1.2. Results Analysis and Interpretation

The findings from the six interviewees who participated in the interviews show a variety of views related to several key themes:

1) Theme 1: The Impact of Machine Learning Implementation on Operational Efficiency
   The interviews revealed differing views on the impact of Machine Learning implementation on operational efficiency at CV Maxiidea Arta Sukses. Further evaluation is required to holistically understand the impact.
2) Theme 2: Innovation in Digital Marketing Strategy
   The six interviewees had diverse opinions on innovation in digital marketing strategies. While one interviewee suggested the need for "out of the box" innovation, the other five interviewees recognized the positive impact of such innovation in improving customer responsiveness.
3) Theme 3: Creativity in Graphic and Visual Design
   All interviewees agreed that creativity has a significant impact in graphic and visual design. Despite diverse views, the role of creativity was considered uniform, emphasizing the need for a contextual approach in applying the concept of creativity in design practice.
4) Theme 4: Employee Perceptions and Responses to Machine Learning Technology
   There was variation in employees' views on the impact of machine learning technology. While one interviewee saw the impact as insignificant, most stated that the adoption of the technology had a positive impact on employee

perception and response.

5) Theme 5: Barrier Factors in Machine Learning Implementation
   Views on the barriers to Machine Learning implementation varied. Some interviewees saw these factors as insignificant, while others considered them significant, emphasizing the importance of technical understanding and effective communication during implementation.
6) Theme 6: Impact of Machine Learning Implementation on Customer Experience
   Interviewees' views on the impact of machine learning implementation on customer experience were mixed. While one interviewee saw the impact as insignificant, most stated that technology adds value by simplifying processes and offering creative solutions for the creative industry.
7) Theme 7: Resource and Time Optimization
   Interviewees' views on the optimization of resources and time using machine learning varied widely. Some doubted the technology's contribution to routine tasks, while others saw it as a significant contributor in saving time and positively influencing aspects of design and social media management. It is worth noting the diversity of views regarding the role of human creativity.

3.1.3. The level of efficiency and creativity in utilizing machine learning

The results of interviews with six interviewees who have diverse perspectives regarding the application of machine learning in the creative industry indicate that. The application of machine learning in CV Maxiidea Arta Sukses has a positive impact on operational efficiency [8]. The algorithms help analyze design trends and user preferences, increase focus on audience-driven concepts, and respond to the market more efficiently according to the company's Creative Director. Innovation was considered key to a successful digital marketing strategy by 2 interviewees, while all interviewees recognized creativity as a key element in graphic and visual design. The use of Machine Learning at CV Maxiidea helps in data analysis, content personalization, and faster decision-making. Some inhibiting factors, such as technological complexity and privacy risks, were recognized by 2 interviewees, but CV. Maxiidea is considered responsive in overcoming these challenges. The implementation of Machine Learning at CV. Maxiidea has had a positive impact on customer experience, although one interviewee emphasized the importance of maintaining a balance between technology and human aspects for more personalized interactions. The use of Machine Learning at CV Maxiidea is acknowledged to help optimize resources and time, especially in data analysis and content personalization, as expressed by 2 interviewees. The conclusion of this interview is that the implementation of Machine Learning at CV. Maxiidea contributes to operational efficiency, creativity, and customer experience, but needs to pay attention to inhibiting factors and maintain a balance between technology and human values.

3.2. Discussion

Analysis of findings obtained through interviews with six different individuals in the creative industry, highlighting the impact of applying machine learning, innovation, creativity, employee perceptions, barriers, customer experience, and resource optimization at CV Maxiidea Arta Sukses. Impact on Operational Efficiency: Interviews revealed various perspectives on the impact of machine learning on operational efficiency. While some interviewees acknowledged its role in analyzing design trends, improving user preferences, and responding to the market more efficiently, others believed that further evaluation was needed to holistically understand its impact. These differences underscore the need for careful consideration of the specific context and application of machine learning at CV Maxiidea Arta Sukses. It is important to balance the potential benefits with a comprehensive evaluation of the operational implications. Innovation in Digital Marketing Strategy: Differences of opinion regarding innovation in digital marketing strategy show the diversity of approaches in the creative industry. Although two interviewees emphasized the need for “out of the box” innovation, others acknowledged the positive impact of such innovation in increasing customer responsiveness. These findings underscore the importance of adaptability and innovation in digital marketing approaches. Companies in the creative industries should consider implementing innovative strategies while ensuring they align with their unique goals and customer base. Creativity in Graphic and Visual Design: All interviewees agreed on the important role of creativity in graphic and visual design. This consensus emphasizes the importance of creativity in creative industries, highlighting its indispensable nature in design practice. The diversity of opinions regarding creativity shows the need for a contextual approach in applying the concept of creativity, adapting it to specific design challenges and goals. Employee Perceptions and Responses: Employee perceptions of machine learning technology vary; some consider the impact to be insignificant and some consider the impact to be positive. It is important to know that employee perception plays a critical role in the successful implementation of new technology. The majority of those who recognize its positive impact indicate that effective communication and support for employees during machine learning implementation can contribute to better perceptions and responses. Barriers: Views regarding the barriers to implementing machine learning show mixed opinions. Some interviewees considered these factors unimportant, while others emphasized their importance, particularly regarding the importance of technical understanding and effective communication during implementation. Recognizing these barriers and addressing them proactively is critical to the smooth integration of machine learning technologies in the creative industries.

Impact on Customer Experience: Interviewees expressed mixed views on the impact of machine learning on customer experience, with some considering it insignificant and others highlighting its benefits in simplifying processes and offering creative solutions. Striking a balance between technology and human aspects is critical to creating personalized interactions that resonate with customers. These findings underscore the need for companies to carefully consider how machine learning aligns with their customer-centric goals. Resource and Time Optimization: The diverse perspectives on resource and time optimization through machine learning reflect varying expectations regarding the technology's contribution. Some interviewees questioned its role in routine tasks, while others acknowledged its significant contribution in saving time and positively influencing social media design and management. The diversity of views emphasizes the nature of resources and time optimization in the context of machine learning. Interview findings at CV Maxiidea Arta Sukses show that the application of machine learning contributes positively to operational efficiency, creativity, and customer experience in the creative industry. However, to maximize the benefits, companies must overcome barriers and ensure balanced integration that aligns with their unique goals and values. Employee perception and adaptability are important considerations in this process. This study provides valuable insights for companies looking to leverage machine learning technology while maintaining a creative and customer-centric approach in the dynamic landscape of creative industries.

4. Related Work

In recent years, research in the field of machine learning utilization in the creative industry has shown several significant findings. Asep Saeful Anwar (2022) his colleagues explored the impact of machine learning on the efficiency and productivity of the creative industry. The results highlighted that the application of machine learning can improve efficiency and productivity by automating repetitive and time-consuming tasks. M. Ridho Setiawan (2021) his team also conducted similar research, focusing on the implementation of machine learning to improve efficiency and creativity in the creative industry. The results of their research show that machine learning can provide a positive boost to efficiency and creativity by generating new and creative ideas. Previously, Rizki Nugraha (2019) and his colleagues focused on automating tasks in the creative industry using machine learning. Their findings showed that this technology can be effectively used to automate such tasks, helping to save time and human effort. Ilham Akbar (2018) examined the effect of machine learning on innovation in the creative industry. The research highlighted that machine learning can play a role in generating new and creative ideas, with the potential to increase the level of innovation in the creative industry. The Fajar Aji Saputra (2017) explores the utilization of machine learning to improve the accuracy and consistency of work output in the creative industry. The results showed that this technology can be used to improve accuracy and consistency, reduce errors, and increase productivity. Over time, these studies have provided greater insight into the potential utilization of machine learning in various aspects of the creative industry, from operational efficiency to innovation and productivity. These findings provide a foundation for further understanding and future strategy development.

5. Conclusion

From the results of this study, it can be concluded that the interviewees' opinions regarding the impact of Machine Learning implementation on operational efficiency, innovation in digital marketing strategies, creativity in graphic and visual design, employee perceptions and responses to Machine Learning technology, inhibiting factors in Machine Learning implementation, the impact of Machine Learning implementation on customer experience, and optimization of resources and time are diverse. Further evaluation is needed to fully understand the impact of this technology. The average efficiency figure of 72.22% indicates the successful implementation of Machine Learning at CV Maxiidea in improving operational efficiency. Several interviewees highlighted the contribution of Machine Learning algorithms in focusing on design concepts according to audience preferences, improving market response, and creating more relevant designs. Meanwhile, the average creativity rate of 61.11% shows that the implementation of Machine Learning gives a positive boost to the creative aspect of the company. Although there are concerns about the potential replacement of human creativity, in general, CV Maxiidea successfully fulfills the need for creativity. On the theme of the effect of Machine Learning implementation on operational efficiency, there were divergent views between the interviewees, and the findings emphasized the need for in-depth evaluation and discussion for a holistic understanding of its impact. The findings reflect that the utilization of Machine Learning at CV Maxiidea Arta Sukses contributes significantly to improving operational efficiency while maintaining the level of creativity that is crucial in the creative industry. The synergy between technology and human creativity is key in achieving optimal results, in accordance with the view that technology can be a very effective tool in supporting the creative aspects of this industry. From the findings, this research provides practical benefits by providing an in-depth understanding of how the utilization of Machine Learning can affect efficiency and creativity in the creative industry. Theoretically, this research contributes by providing a deeper understanding of the relationship between Machine Learning implementation, operational efficiency, and creativity in the context of the creative industry.

Methodologically, this research contributes by demonstrating effective research approaches and methods in exploring the themes of efficiency and creativity through the utilization of Machine Learning.

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