

# Penerapan Metode Machine Learning untuk Menganalisis Perilaku Pembelian Konsumen Selama Pandemi COVID-19: Studi Kasus PT XYZ = Implementation of Machine Learning Method for Analyzing Consumer Buying Behavior During the COVID-19 Pandemic: A Case Study of PT XYZ

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## Abstrak

Permintaan global akan produk kecantikan terus tumbuh seiring dengan meningkatnya kesadaran masyarakat dalam menggunakan kosmetik, dengan pertumbuhan 1,45% hingga 3,34% setiap tahunnya. Namun, menyebarnya pandemi COVID-19 secara global pada Desember 2019 mempengaruhi pertumbuhan bisnis tatap muka seperti industri kecantikan yang turun hingga -7,11% pada 2020. Penelitian ini bertujuan untuk menganalisis dampak pandemi COVID-19 terhadap industri kecantikan di Indonesia dan pergeseran segmen konsumen kecantikan selama pandemi. Studi ini mengadopsi kerangka react-cope-adapt (RCA) untuk menyusun periodisasi pandemi COVID-19 di Indonesia. Analisis korelasi digunakan untuk menentukan dampak pandemi COVID-19 terhadap penjualan perusahaan. Selain itu, teknik clustering digunakan untuk mengidentifikasi segmen konsumen dan preferensi produk selama pandemi. Penelitian ini menunjukkan bahwa kasus COVID-19 berkorelasi positif terhadap penjualan perusahaan selama fase react. Korelasi negatif yang kuat antara COVID-19 terhadap pendapatan perusahaan teramati pada fase cope. Pada fase adapt, dampak negatif COVID-19 terhadap penjualan perusahaan mengalami penurunan. Penelitian ini juga mengkonfirmasi adanya pergeseran perilaku pembelian konsumen selama pandemi. Konsumen lebih memilih membeli produk kosmetik secara online daripada offline selama fase react. Pada fase cope, konsumen perlahan mulai membeli secara offline. Konsumen kembali membeli kosmetik secara offline pada fase adapt, sama seperti sebelum pandemi. Hasil clustering menunjukkan tiga segmen konsumen: segmen konsumen loyal, segmen konsumen impulsif, dan segmen konsumen biasa. Selain itu, selama pandemi, konsumen lebih memilih membeli produk perawatan kulit dibandingkan produk make-up akibat kebijakan pemerintah yang menghimbau masyarakat untuk tinggal, bekerja, dan belajar dari rumah. Penelitian ini memiliki implikasi teoretis dan praktis. Secara teoritis, hasil penelitian ini mendukung kegunaan model RCA dan teknik clustering dalam menganalisis perubahan perilaku pembelian konsumen selama masa krisis, seperti pandemi COVID-19. Secara praktis, industri kecantikan dapat mengantisipasi pergeseran ini dengan mempercepat transformasi digital dan fokus terhadap produk yang paling disukai untuk mempertahankan bisnisnya.

.....The global demand for beauty products continues to grow due to raised public awareness of applying cosmetics, with a 1.45 % to 3.34 % growth annually. Unfortunately, the COVID-19 outbreak broke out globally in December 2019, affecting face-to-face businesses such as the beauty industry fall until -7.11 % in 2020. This study aims to analyze the impact of the COVID-19 outbreak on Indonesia's beauty industry and the shift in the beauty consumer segment during the pandemic. This study adopts the react-cope-adapt (RCA) framework to construct the COVID-19 pandemic periodization in Indonesia. The correlation analysis was used to investigate the impact of the COVID-19 pandemic on the beauty industry. In addition, clustering techniques were employed to identify hidden consumer segments and product preferences

throughout the COVID-19 outbreak. The study shows that COVID-19 cases positively impact beauty company's sales during the reacting phase. A strong negative relationship between COVID-19 and company revenue was observed in the coping phase. In the adapt phase, the negative impact of COVID-19 on the company's sales has decreased. Our finding also confirms the shift in consumer buying behavior during the pandemic. Consumers prefer to buy cosmetics products online than offline during the reaction phase. In the coping phase, consumers slowly begin to purchase in-store. Finally, consumers return to buying cosmetics offline in the adapting phase, similar to before the pandemic. The clustering results showed three hidden consumer segments: the loyal consumer segment, the impulsive consumer segment, and the regular consumer segment. In addition, during the pandemic, consumers prefer to buy skincare products over make-up products since government policies forced people to stay, work, and study at home. Our study has theoretical and practical implications. Theoretically, our results support the usefulness of the RCA model and clustering techniques in analyzing the change in consumer buying behavior during a time of crisis, such as COVID-19 pandemic. Practically, beauty industries can anticipate this shift by accelerating the digital business transformation and focusing on the most preferred product to sustain their business.