

C45 Algorithm for Creative Economic Products and Services Marketing Classification of Padang

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Abstract. The aims of this research were to analyze the marketing data for creative economy products and services in Padang using the C45 algorithm. Nowadays, the development of information technology is one of the factors that play a role in the marketing of products and services in creative economy. The C45 algorithm is able to classify how big influence the existing marketing factors have on the transaction. This research resulted in a classification of the level of sales of products and services, namely less famous, famous, and very famous. The results of this study are used to reference the development of integrated digital-based marketing concepts.

Keywords: C45 Algorithm; Creative Economic; Marketing Classification

1 Introduction

Padang is one of the cities that have a fairly good development of creative economy in Padang, including a center for souvenirs, culinary, and cultural performances [1] This happens because of various factors, including the development of the tourism sector, the good governance of people's economic enterprises [2]. This will encourage the emergence of a creative industry that has good competitiveness. Reports on the development of the creative economy of Padang are carried out annually, like fashion, performance services / culture, souvenirs [3]. The dominating application of digital marketing for marketing is social media marketing.

Marketing of creative economy products and services in Padang must be supported by integrated marketing channels, so that the current form of marketing can be more optimal [4]. So that digital-based marketing or what is commonly called digital marketing can optimize the use of social media [5][6]. The use of information technology in the marketing of creative economic products and services is able to provide good added value to improve the best service to consumers [6][4]. This will increase growth in the creative economy business [7]

The use of digital marketing in small and medium enterprises can increase sales [8] and digital marketing can provide good data processing support [9]. So, there is no reason not to apply this digital marketing technology [10]. Social media is one form of digital marketing that has been widely applied in various business fields, this will provide the input of digital technology needs that are needed today [11][12]. Apart from social media, another type of digital marketing is email marketing, where email plays a role in marketing products and services in an industry or company, which is sent directly to registered consumer e-mails [13][14].

The thing that needs to be considered in digital marketing is how to make consumers explore the products and services we sell so that they will be able to increase marketing [12][15]. Analysis needs to be done using data mining algorithms to produce decision support in implementing and choosing the type of digital marketing [16] [17][5][14][18].

2 Method

To develop the marketing of creative economy products and services in Padang, it is necessary to first analyze the marketing data. Marketing data analysis in this study used one of the data mining algorithms, namely C4.5. The C4.5 algorithm is able to predict the classification of factors that affect the marketing of products and services for creative economy actors. The results of this analysis will become a reference in the development of marketing of creative economy products and services in Padang with the concept of Customer Relationship Management (CRM).

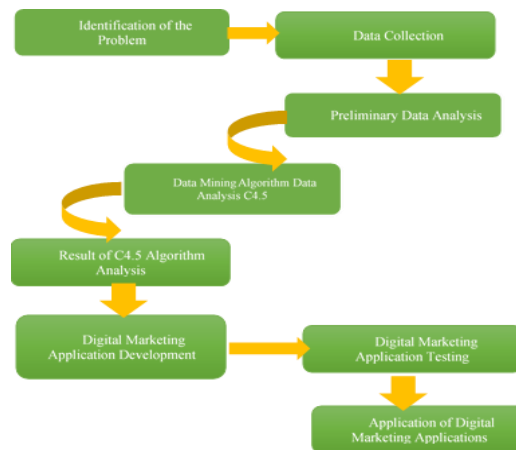


Fig 1. Research Framework

This research used a combination method, begins with identification of the problem then p data collection and preliminary data analysis stages, in analyzing the data used c4.5 data mining algorithm, the results of data analysis are used to refer to the development of digital marketing applications, then the application is tested to be ready. To be implemented, for more details, the stages of the research can be seen in Figure 1. After identifying the problem, data collection is carried out. The initial data that is collected is marketing data to be analyzed, namely data from Padang creative economy actors obtained from the Padang creative economy book in 2018.

In addition, the data taken from the book, to find out various factors that influence the marketing of creative economy products in Padang, then the researcher conducted a field survey and submitted a questionnaire related to marketing factors. The collected data is carried out preliminary analysis to be able to produce sample data or initial data. This initial data will be processed with data mining algorithm C.45 to perform marketing predictions. Then the results of this analysis will be used as a reference for the development of digital marketing applications, then the digital marketing application trial will be carried out and finally the

implementation of the digital marketing application in the creative economy players in Padang.

3 Result and Discussion

To develop the marketing of creative economy products and services in Padang, it is necessary to first analyze the marketing data. Marketing data analysis in this study used one of the data mining algorithms, namely C4.5. The C4.5 algorithm is able to classify the factors that influence the marketing of products and services for creative economy actors. The results of this analysis will become a reference in the development of marketing of creative economy products and services in the city of Padang with the concept of Customer Relationship Management (CRM).

The marketing data analyzed is data from Padang creative economy actors obtained from the Padang creative economy book in 2018. In addition to the data taken from the book to find out various factors that affect the marketing of creative economy products in the city of Padang, the authors conducted a field survey and submitting a questionnaire related to marketing factors. The collected data is carried out preliminary analysis to be able to produce sample data. For more details, the sample data used can be seen in table 4.1

Table 1. Padang Creative Economy Marketing Data

No.	Creative Economy List	Type Of Business	Business Location	Product Prices	Social Media Promotion	E Commerce Marketing	Product Quality	Type Of Product	Popularity
1	Pusat Oleh Oleh Umami Aufa Hakim	Kuliner Cemilan	Strategic	Standard	Yes	No	Good	Many	Famous
2	Sitti Nurbaya Food	Kuliner Makanan	Strategic	Standard	Yes	Yes	Good	Many	Famous
3	Keripik Balado Cristine Hakim-Asli Padang	Kuliner Cemilan	Strategic	Compete	Yes	Yes	Good	Many	Very Famous
4	Keripik Balado Rohana Kudus	Kuliner Cemilan	Strategic	Standard	Yes	Yes	Good	Many	Famous
5	Keripik Balado 4x7	Kuliner Cemilan	Strategic	Standard	Yes	Yes	Good	Many	Famous
6	Keripik Balado Mahkota	Kuliner Cemilan	Strategic	Standard	Yes	Yes	Good	Many	Famous
7	Rumah Makan Ampalu Raya	Kuliner Makanan	Strategic	Standard	No	No	Good	Many	Famous
8	Rajo Bengkuang Wh 8	Kuliner Cemilan	Less	Standard	No	No	Good	Little	Less Famous
9	Batik Tanah Like Bundo Kanduang	Kriya	Strategic	Standard	Yes	No	Good	Many	Famous
10	Yadir Fashion Designer	Fashion	Strategic	Compete	Yes	No	Good	Many	Famous
11	Novia Hertini Fashion Designer	Fashion	Less	Compete	Yes	No	Good	Many	Less Famous
12	De Irma Fashion Designer	Fashion	Strategic	Compete	Yes	No	Good	Many	Famous
13	Rumah Tenun Nelvi Silungkang Pandai Sikek	Kriya	Strategic	Standard	Yes	No	Good	Many	Famous

14	Bordir Mande	Kriya	Less	Standard	Yes	No	Good	Many	Less Famous
15	Keripik Balado Sutan Pangeran	Kuliner Cemilan	Strategic	Standard	Yes	No	Good	Many	Famous
16	Heni Adli Minangkabau Kraft Village	Fashion	Less	Compete	Yes	No	Good	Many	Famous
17	Rendang Suir Wh 8	Kuliner Makanan	Strategic	Standard	Yes	Yes	Good	Little	Less Famous
18	Tampuruang Barendo Handy Craft	Kriya	Less	Standard	Yes	Yes	Good	Little	Less Famous
19	Annisa Tali Ameh	Kriya	Less	Less	No	No	Reguler	Little	Less Famous
20	Rumah Rendang Awak Juo	Kuliner Makanan	Less	Standard	Yes	Yes	Good	Little	Less Famous
21	Rumah Makan Keluarga	Kuliner Makanan	Strategic	Standard	No	No	Good	Many	Less Famous
22	Rumah Makan Muaro Baru	Kuliner Makanan	Reguler	Standard	Yes	No	Good	Many	Famous
23	Opicha Craft Kerajinan Daur Ulang	Kriya	Less	Standard	Yes	Yes	Good	Many	Famous
24	Silvia Piobang Handycraft	Kriya	Less	Standard	Yes	Yes	Good	Many	Less Famous
25	Bubuk Nabati Mungbean	Kuliner Minuman	Less	Standard	Yes	Yes	Good	Many	Less Famous
26	Rumah Makan Pagi Sore	Kuliner Makanan	Strategic	Standard	Yes	No	Good	Many	Famous
27	Asese	Kuliner Makanan	Strategic	Compete	Yes	Yes	Good	Many	Very Famous
28	Doni Rahman Fashion Designer	Fashion	Strategic	Compete	Yes	No	Good	Many	Famous
29	Rimbun Coffe	Kuliner Minuman	Strategic	Compete	Yes	No	Good	Many	Famous
30	Percetakan Lado Kutu Offside	Desain Produk	Less	Compete	Yes	No	Good	Many	Famous
31	Soto Garuda	Kuliner Makanan	Strategic	Compete	Yes	No	Good	Little	Famous
32	Rumah Makan Bernama	Kuliner Makanan	Strategic	Compete	Yes	No	Good	Many	Less Famous

3.1 Decision Tree

Decision tree is the result of data testing using Rapid Miner software. Where it can be seen that the marketing factors that influence a creative economy become famous, less famous and very famous, if the creative economy actors have a few types of products then we need to look at the business location, if the business location is lacking then it is certain that the creative economy is less famous, but if strategic business location it will be famous. If the type of product sold by the creative economy, it is necessary to see whether it is using e-commerce marketing, if not then the creative economy actors will be famous, if so then we need to look again at the product price, the right product price will make this creative economy actor become very famous.

However, if the product price is standard, it is necessary to look at the location of the business. If the business location is lacking, it will be less famous, but if the business location is strategic, it will become famous.

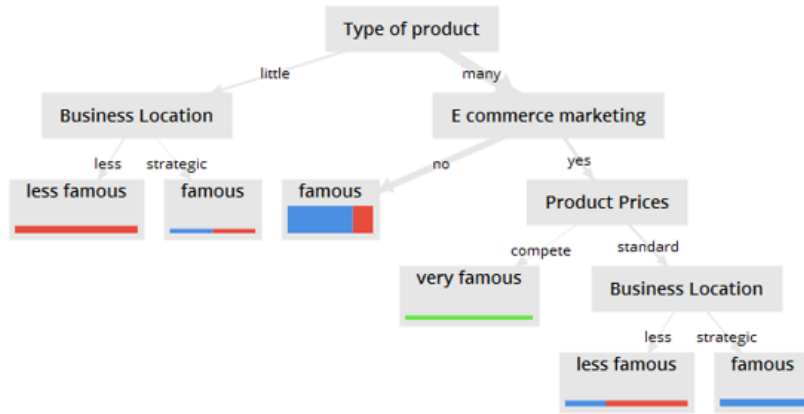


Fig 2. The Creative Economy Marketing Analysis Decision Tree of Padang City

Tree

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Type of product = little
| Business Location = less: less famous {famous=0, very famous=0, less famous=4}
| Business Location = strategic: famous {famous=1, very famous=0, less famous=1}
Type of product = many
| E commerce marketing = no: famous {famous=13, very famous=0, less famous=4}
| E commerce marketing = yes
| | Product Prices = compete: very famous {famous=0, very famous=2, less famous=0}
| | Product Prices = standard
| | | Business Location = less: less famous {famous=1, very famous=0, less famous=2}
| | | Business Location = strategic: famous {famous=4, very famous=0, less famous=0}

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Fig 3. Creative Economy Marketing Analysis Tree of Padang City

5 Conclusion

This research produces decision support in the form of a decision tree using the C45 data mining algorithm. The marketing data for the creative industry in Padang were collected, analyzed, processed and tested using RapidMiner software. The classification that is formed from the C45 analysis consists of three, namely, very famous, famous, and less famous. The factors that cause these creative industry players to be included in one of these parts depend on the conditions of the factors that affect their marketing. This research needs to be carried out for more and more diverse numbers of creative economy industry players in Padang, not only recorded by the relevant agencies, but also direct searches in the field, so that more data is processed.

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