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Investigation Factors Affecting Competitive Advantage in Streaming Industry with Multi-Criteria Decision Making Methods

Yayın Akış Endüstrisinde Rekabet Avantajını Etkileyen Faktörlerin Çok Kriterli Karar Verme Yöntemleriyle İncelenmesi

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ÖZ

Bu çalışmanın amacı; dijital pazarlama yaklaşımlarının sıklıkla kullanıldığı yayın akış platformlarının tercih edilme nedenlerine etki eden faktörlerin ortaya konulmasıdır. Bu doğrultuda "platform özellikleri" ve "platform imajı" ana kriterleri çerçevesinde belirlenen "abone sayısı, minimum ve maksimum aylık ödeme tutarı, Twitter, Instagram, Facebook ve YouTube sosyal medya platformlarındaki takipçi sayısı, PlayStore ve AppStore uygulama puanı ile Şikayetvar.com sitesindeki şikâyet sayısı" alt kriterleri CRITIC yöntemiyle ağırlıklandırılmış daha sonra "Netflix, BluTv, Exxen, Gain, Turkcell TV+, Tivibu, D-Smart, Bein Connect" platformlarına ait veriler CODAS ve PIV yöntemleriyle incelenerek sonuçlar karşılaştırılmıştır. Çalışmanın sonuçları, tüketiciler tarafından yayın akış platformlarının tercih edilmesinde en etkili kriterin "minimum aylık ödeme tutarı" kriteri olduğunu göstermektedir. Ayrıca yapılan analizlerin genel değerlendirmesinde "Netflix" platformunun, diğer yayın akış platformlarına göre daha başarılı olduğu sonucuna ulaşılmıştır.

ABSTRACT

The purpose of this study is to determine which factors influence people's preferences for streaming platforms that frequently employ digital marketing techniques. Accordingly, the "number of subscribers, minimum and maximum monthly payment amount, the number of followers on Twitter, Instagram, Facebook and YouTube social media platforms, the PlayStore and AppStore application score, and the number of complaints on the Şikayetvar.com site" were weighted using the CRITIC method as determined within the main framework of "platform features" and "platform image". This was followed by the analysis of the data belonging to "Netflix, BluTv, Exxen, Gain, Turkcell TV+, Tivibu, D-Smart, Bein Connect" platforms using the CODAS and PIV methods and comparison of the results. According to the study's findings, the "minimum monthly payment amount" criterion is the most effective criterion for consumers when selecting streaming platforms. Furthermore, in the overall evaluation of the analyses carried out, the "Netflix" platform was found to be more successful than other streaming platforms.

1. Introduction

The incorporation of new information and communication technologies into marketing strategies leads to a shift away from traditional marketing methods and an increase in the prominence of digital marketing applications. Digital marketing activities are among the most popular applications of the twenty-first century, as they are frequently preferred by businesses in order to benefit from developing technologies while also achieving high

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profitability. The concept of digital marketing mediates the activities carried out by companies on a global scale, and plays an important role in the emergence of a different digital ecosystem by reshaping individual shopping habits. Digital marketing, which differs from traditional marketing activities in terms of convenience, wider reach, cost effectiveness, and the elimination of distance and time constraints, plays an important role in the development of a customer-oriented marketing perspective.

With the influence of social media, digital marketing, which refers to the processes by which companies effectively use technology to create a common value for all of their stakeholders and make this value sustainable (Guercini et al., 2018; Kim et al., 2021), is becoming a part of many people's daily lives (Woodside and Mir, 2019; Faruk et al., 2021). The communication component of digital marketing strategies emphasizes social media marketing, which allows businesses to create various content on social media, share it with their followers, and thus increase their recognition and sales volume (Ki et al., 2020; Saura, 2021; Shankar et al., 2021). The most important component of digital marketing activities is social media marketing, which is defined as the totality of strategies by which a company can create, develop, and deliver various content to its target users based on user diversity and interests using specific platforms (Santini et al., 2020; Chawla and Chodak, 2021; Khan, 2022). Aside from businesses, the importance of digitalization among individuals, the increased use of social media each day, and individuals' ongoing digital marketing activities provide differentiation in their personal and social preferences over time. Individual consumption preferences, which have changed in tandem with technological developments, have evolved from traditional television broadcasts to streaming platforms that serve digitally.

Since the Baird Television Development Company broadcasted the first transatlantic television signal in 1928, the television industry has undergone significant changes (Snyman and Gilliard, 2019). The development of video compression technologies in the 1980s and the rise in popularity with the widespread use of the Internet in the 1990s led to an increased interest in the concept of video streaming by individuals (Li et al., 2013). The streaming industry has evolved into a complex ecosystem that includes the telecommunications, media, and entertainment sectors as a result of these changes (Gimpel, 2015). Additionally, international and local video streaming platforms have started to appeal to a wide market, especially with the spread of internet infrastructure all over the world and the development of communication technologies. The growth of the market and the rise of digitalization activities have increased competition in the broadcasting industry, and led to an innovative approach dominating. Keeping content up to date, identifying consumer interests, and creating different catalogs has become critical for digital platforms involved in the streaming industry as a result of this innovative approach.

Digital broadcasting platforms where millions of viewers have the opportunity to watch live news broadcasts, sports competitions, concerts and various shows on their technological devices, have led to a major digital transformation in education, business and mass media (Krikke, 2014). Although the rise in streaming platforms is associated with the increased individual freedom and flexibility they provide, the common feature of these new technologies is that individuals choose what, when, and where to watch or listen through self-scheduling and ondemand access. These innovative technologies now pose a threat to the traditional television and radio industries, which rely on live, program-based, content distribution (Spilker and Colbjørnsen, 2020). Furthermore, companies in the video streaming industry are classified based on the media content they create, whereas the business reasons and business models of companies vary greatly (Fagerjord and Kueng, 2019). Because of this diversity, the digital broadcast streaming industry, which provides significant benefits to both content producers and local producers, creates a favorable environment for all industry stakeholders to increase economic profitability on both a global and regional scale.

Integration of video streaming platforms into existing social media tools such as Facebook, Twitter, Instagram, and YouTube boosts the popularity of these platforms significantly (Daştan, 2020). The competition between international and local video streaming platforms is highlighted in this situation as a factor that increases competition. Broadcast streaming platforms, which can be watched without time and place constraints through various technological devices for a monthly fee, appear as channels where digital marketing strategies are frequently used from a variety of perspectives. In this regard, the study's goal is to examine the factors influencing the reasons for choosing "Netflix, BluTv, Exxen, Gain, Turkcell TV+, Tivibu, D-Smart ve Bein Connect" streaming platforms active and holding a great potential in the Turkish market in this digital sector with increasing competition and to make guiding recommendations for companies involved in the sector.

2. Conceptual Framework

2.1. Digital Marketing

In its most basic form, digital marketing is defined as the execution of marketing activities on electronic platforms using various technological devices (Krishen et al., 2021). Digital marketing, also defined as a set of technical activities developed over the internet to persuade users to buy a product or service, is built on two pillars: "social media marketing," which refers to the strategy of interacting with users in social networks through social advertising, and "search engine marketing," which refers to the sponsorship of advertising spaces on search engines or websites (Lies, 2019; Palacios-Marqués et al., 2019; Saura, 2021). Social media is currently used as an important marketing tool at the stage of increasing brand value by exchanging information

and ideas with consumers online, as it is one of the most effective digital platforms used by companies to communicate with consumers (Appel et al., 2020; Nijssen and Ordanini, 2020). In addition to exchanging information and ideas, social media channels are also considered as supporting platforms for providing brand experience, developing customer trust, establishing customer loyalty and creating a brand image (Khoa, 2020; Zollo et al., 2020; Chawla and Chodak, 2021; Khan, 2022).

Social media marketing is one of the approaches that support digital marketing activities and is used by companies to reach potential customers by creating various content and communicating directly with them, to support brands, to promote products, to increase sales rates at low costs, and to increase their global recognition (Chatterjee and Kar, 2020; Jung and Jeong, 2020; Dolega et al., 2021). The logic of ranking at the top of search engine queries underscores search engine marketing, a digital marketing approach in which companies aim to promote their websites by increasing their visibility on the internet and directing potential customers to their own websites (Angeloni and Rossi, 2021; Aswani et al., 2021). In search engine marketing, the element of trust, which is developed based on one-to-one relationships with customers in social media marketing, occurs when companies' websites appear at the top of search results (Shih et al., 2013; Panchal et al., 2021). For this reason, search engine marketing, which is divided into two branches as "search engine optimization", which refers to the position of companies in search results based on the algorithms used by search engines, and "paid search engine advertising", which refers to buying a place in search engine results lists, either as a sponsor or for a fee, is positioned at an important position for the promotion of companies in the digital context (Kritzinger and Weideman, 2013; Haan et al., 2016; Bhandari and Bansal, 2018; Mudjahidin et al., 2022).

Today, with the adoption of innovative technologies such as social media, television, radio, SMS, e-mail, websites, mobile applications, search engines and streaming platforms, digital marketing applications, whose usage area has increased, have been used to achieve their goals in both consumer-to-consumer and business-to-consumer commercial activities (Berezan et al., 2018; Kapoor et al., 2018; Das et al., 2019; Iacobucci et al., 2019). With the use of artificial intelligence, virtual reality and big data technologies, digital marketing applications are one of the marketing methods used to inform and influence customers in physical and online environments, to strengthen and develop customer relations, (Busca and Bertrandias, 2020; Kim et al., 2021; Krishen et al., 2021), and, in the framework of globalization, are shown among the important factors that provide competitive advantage to companies (Ko, 2019; Herhausen et al., 2020; Kim, 2021). Data analysis, which is critical for tracking consumer preferences and forecasting demand, is also widely used in the context of digital marketing dynamics, particularly in social media and search engine marketing (Grover et al., 2020; Makrides et al., 2020; Saura et al., 2021). Digital marketing approaches in which the communication element can be developed in an integrable, goal-oriented, and measurable way have a lot of potential for both businesses and individuals when it comes to creating value and turning it into profit (Matarazzo et al., 2021; Setkute and Dibb, 2022).

2.2. Streaming Platforms

Streaming platforms that provide users with access to catalogs of movies, TV, series, documentaries, audiobooks and podcasts and provide opportunities for creators and rights holders to create, distribute and monetize intellectual property for these ideas are among the most popular applications today (Meier and Manzerolle, 2019; Bender et al., 2021; Hracs and Webster, 2021). Streaming platforms are defined as platforms with technical infrastructures, interfaces, usage patterns, and content where digital marketing approaches are effectively used, despite their recent and rapid emergence (Mackenzie, 2018; Kim and Kim, 2020; Singh et al., 2021). Streaming platforms, are defined as digital platforms which have a dynamic structure. create value with the content they produce for individual or multiple users, offer choices according to user preferences, allow various personalizations, have no spatial and temporal constraints in viewing options, that have a subscription system and provide services on a global scale (Garbes et al., 2022; Menon, 2022; Mulla, 2022).

Unlike regular television broadcast streams, streaming platforms can produce local content based on the preferences of consumers in the markets where they are located and are digital applications that can be completely shaped according to the wishes of the users and are among the best time-passing alternatives (Shon et al., 2021; Ramasoota and Kitikamdhorn, 2021; Silva and Lima, 2022). Streaming platforms, which are based on a subscriber-based system with alternative payment options, are designed to meet users' entertainment needs by removing geographical barriers (Camilleri and Falzon, 2020; Nagaraj et al., 2021). Streaming platforms, which make a difference in the industry by supporting local producers and content creators, also play an important role in marketing and advertising activities in the digital age, by integrating technological devices such as smartphones, smart televisions, computers, and tablets with internet infrastructure, allowing for intercultural interaction in the markets they participate in (Elkins, 2019; Wongkitrungrueng and Assarut, 2020; Taylor et al., 2021; Agrawal and Mittal, 2022).

Particularly in light of the worldwide restrictions imposed in response to the Covid-19 pandemic, video streaming platforms, which have seen a significant increase in subscriber numbers, are rapidly evolving into a new lifestyle for individuals as a viable alternative to traditional television broadcasting (Alashhab et al., 2021; Rahman and Arif, 2021). Leading the development of a new business model with personalized recommendations and dynamic catalogs, broadcast streaming platforms also offer options for offline

viewing of content that individuals have previously downloaded from these platforms (Mulla, 2022). Broadcast streaming platforms, which are an important part of technological and digital developments today, are the subject of many studies with their numerous features.

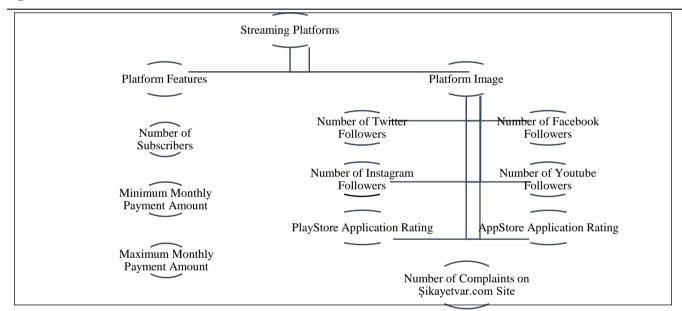
3. Method

3.1. Purpose, Sample and Model of the Research

Many new sectors have emerged as a result of the digital transformation that has occurred in recent years, as well as new ways of marketing and selling the products and services produced by these sectors. The digitalization element, which has played a significant role in the transition from traditional television viewing culture to digital environments such as streaming platforms, has played a significant role in the

transition from traditional television viewing culture to digital environments such as streaming platforms. Companies' use of new approaches that have gained popularity, such as digital marketing and social media marketing, has provided them with various advantages in such digital environments where competition is fierce. In light of this information, the research's goal is to examine the factors that influence why people choose streaming platforms, a digital market with fierce competition, using multi-criteria decision-making methods. While the universe of the study is the streaming platforms operating in the Turkish market, the sample consists of "Netflix, BluTv, Exxen, Gain, Turkcell TV+, Tivibu, D-Smart and Bein Connect" platforms, whose data can be accessed for the specified criteria. The study model determined according to the main criteria and sub-criteria of platform characteristics and platform image is as follows:

Figure 1: Research Model



3.2. Study Method

In line with the study method, the "number of subscribers, minimum and maximum monthly payment amount, the number of followers on Twitter, Instagram, Facebook and YouTube social media platforms, the PlayStore and AppStore application score, and the number of complaints on the Şikayetvar.com site" were weighted using the (Criteria Importance Through Intercriteria Correlation) method as determined within the main framework of platform features and platform image. In the next step, CODAS (Combined Distance-based Assessment) and PIV (Proximity Indexed Value) methods were used to determine the preferred ranking of platforms according to the criteria. Furthermore, using sensitivity analysis and correlation analysis, the differences in the ranking of alternatives (streaming platforms) based on different values of criterion weights were investigated, as well as the similarities between the methods.

When the literature studies on CODAS and PIV methods are examined; Ahmad et al., (2021), in their study, used BWM-PIV methods to determine the sending rules applied to select a job when a machine is free. In their study, Choudhary and Mishra (2021) used AHP-CoCoSo and AHP-PIV methods to identify and analyze Critical Success Providers (CSEs) that facilitate the implementation of Industry 4.0. Demir (2021), in his study, examined the academic performance of foundation universities in Turkey with the CRITIC-WEDBA method. BWM-PIV and the Goal Programming Model were used by Wakeel et al., (2021) in the selection of sustainable materials for the production of automotive products. In the study conducted by Biswas and Anand in 2020, they performed a comparative analysis of the logistics performances of the G7 and BRICS countries with PSI-PIV methods. Ulutaş and Karaköy (2019), in their study,

evaluated the logistics performance of EU countries using CRITICAL, SWARA, and PIV methods. In their study conducted in 2018, Tuş and Adalı addressed the personnel selection problem using the CRITICAL-PSI-CODAS methods.

The processing steps of the CRITIC method are expressed as follows:

(i). Decision Matrix: The criteria values (n) of the alternatives (m) in the decision problem are expressed in matrix form.

$$X_{ij} = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \vdots & \vdots & \dots & \vdots \\ \vdots & \vdots & \dots & \vdots \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix}$$
 (1)

(ii). Normalized Decision Matrix: The main purpose of the normalization process is to convert the criteria expressed by different criteria into a similar format. The criteria are normalized according to the characteristics of benefit equality (1) and cost equality (2).

$$x_{ij}^* = \frac{x_{ij} - \min(x_{ij})}{\max x_{ij} - \min x_{ij}}$$
 (2)

$$x_{ij}^* = \frac{\max(x_{ij}) - x_{ij}}{\max x_i - \min x_{ii}}$$
(3)

(iii). Correlation Coefficient Matrix: The correlation coefficient matrix is calculated using equation (4).

$$p_{jk} = \frac{\sum_{i=1}^{m} (x_{ij}^* - \bar{x}_j) (x_{ik} - \bar{x}_k)}{\sqrt{\sum_{i=1}^{m} (x_{ij}^* - \bar{x}_j)^2 \sum_{i=1}^{m} (x_{ik} - \bar{x}_k)^2}}$$
(4)

(iv). Information Value of Criteria: The information value Cj, of the criteria is calculated according to equation (5) where the standard deviation (σj) values are used.

$$C_j = \sigma j \sum_{k=1}^n 1 - p_{jk} \tag{5}$$

(v). Weights of Criteria: The criterion weights w*j* are calculated according to equation (6).

$$w_j = \frac{c_j}{\sum_{k=1}^n c_k} \tag{6}$$

The CODAS method, proposed by Keshavarz et al. in 2016, is a method in which Taxicab distance is also used, primarily Euclidean, in sorting alternatives. In the method, the alternatives are listed starting from the farthest ideal distance from the negative. If the Euclidean distance of two alternatives cannot be measured, in other words, if the distance is the same, the evaluation of alternatives is performed using the Taxicab distance.

The process steps of the CODAS method are expressed as

follows:

- (i). The Decision Matrix: According to equation (1), the decision matrix is created.
- (ii). Normalized Decision Matrix: Normalization is performed according to equation (7).

$$n_{ij} = \begin{cases} \frac{x_{ij}}{\max x_{ij}} & j \in N_b \\ \frac{\min x_{ij}}{x_{ij}} & j \in N_c \end{cases}$$
 (7)

(iii). Weighted Normalized Decision Matrix: Weighted normalized decision matrix is formed by multiplying the weight coefficients (wj) of the criteria in equation
(2) by the normalized decision matrix column elements.

$$r_{ij} = w_j. x_{ij}^* \tag{8}$$

(iv). Negative-Ideal Solution Point: The negative ideal solution point ns_i in equation (3) is the selection of the minimum values of the column values in the weighted normalized decision matrix.

$$ns_i = \min r_{ii} \tag{9}$$

(v). Distance to Negative Ideal Solution Point: In equations (10) and (11), the distance values of the alternatives ns_i are calculated according to the (E_i) Euclidean and (T_i) Taxicab distances, respectively.

$$E_i = \sqrt{\sum_{j=1}^{n} (r_{ij} - ns_j)^2}$$
 (10)

$$T_i = \sum_{i=1}^{n} |r_{ij} - ns_j| \tag{11}$$

(vi). Comparative Evaluation Matrix: In equation (12), the alternatives are compared according to their Euclidean and Taxicab distances.

$$h_{ik} = (E_i - E_K) + (\psi(E_i - E_K).(T_i - T_K))$$
 (12)

Where $k \in \{1,2,..., m\}, 0,01 \le \tau \le 0,05$ and ψ is a threshold function to recognize the equality of Euclidean distances of two alternatives.

$$\psi(\mathbf{x}) = \begin{cases} 0, & |\mathbf{x}| < \tau \\ 1, & |\mathbf{x}| \ge \tau \end{cases} \tag{13}$$

(vii). Assessment Score: The assessment score H_{ij} , which ranks the alternatives in descending order, is calculated according to equation (14).

$$H_{ij} = \sum_{i=1}^{n} h_{ij} \tag{14}$$

The PIV method was introduced to literature by Mufazzal and Muzakkir, (2018). The proximity index of the

alternatives to the best possible value/ideal solution is taken into account in the proposed method by using the proximity index, which is a linear difference of each alternative's normalized value from the best available alternative. The Proximity Index values (taking into account the attribute weights) are added linearly for all attributes to give the Overall Proximity Index value of each alternative. This denotes the total weighted normalized distance of the alternatives from the best alternative.

The process steps of the PIV method are expressed as follows:

- (i). Decision Matrix: According to equation (1), the decision matrix is created.
- (ii). Normalized Decision Matrix: The normalization process is performed according to equation (15).

$$n_{ij} = \frac{y_{ij}}{\sum_{i=1}^{m} y_{ij}^2} \tag{15}$$

(iii). Weighted Normalized Decision Matrix: The weighted normalized decision matrix is determined using equation (8).

$$r_{ij} = w_i. n_{ij} \tag{16}$$

Table 1: Identified Criteria and Explanations

(iv).	Determin	ation	of Weig	hted Proxii	nity In	dex (u	i):
	Accordin	g to tl	he utility a	and cost cha	racteris	tics of t	he
	criteria,	the '	weighted	proximity	index	value	is
	obtained	using	equality	(17).			

$$u_{ij} = \begin{cases} r_{max} - r_{ij} \text{ benefit criterion} \\ r_{ij} - r_{min} \text{ cost criterion} \end{cases}$$
 (17)

(v). Determination of General Proximity Values:

$$d_i = \sum_{i=1}^n u_i \tag{18}$$

(vi). Ranking the Alternatives by d_i Values: The success order of the alternatives is formed by the ascending order of their d_i value.

The criteria for the streaming platforms and the explanations of the Criteria are shown in Table 1 in detail. The criteria data of these platforms has been collected from; the Information Technology and Communication Agency market report for the 4th Quarter of 2021 (BTK, 2021), the official websites of the platforms, social media platforms (Twitter, Instagram, YouTube, Facebook), PlayStore and AppStore applications, and the website Şikayetvar.com.

	Criteria Code	Criteria Name	Explanation	Benefit/Cost	Source
Į.	K1	Number of Subscribers	Number of Subscribers in 2021	Benefit	BTK
Platf	K2	Minimum Price	Minimum monthly payment amount (TL)	Cost	Official Web Site
Щ	K3	Maximum Price	Maximum monthly payment amount (TL)	Cost	Official Web Site
	K4	Twitter Followers	Twitter follow count	Benefit	Official Account
ge	K5	Number of Instagram Followers	Number of Instagram Followers	Benefit	Official Account
mage	K6	Number of Facebook Followers	Number of Facebook Followers	Benefit	Official Account
n I	K7	YouTube Followers	YouTube Followers	Benefit	Official Account
for	K8	PlayStore App Score	PlayStore App Score	Benefit	PlayStore
Platfor	K9	AppStore App Score	AppStore App Score	Benefit	AppStore
Д	K10	Number of Complaints	Obtained from Şikayetvar.com website.	Benefit	Sikayetvar.com

4. Findings

4.1. Calculating CRITIC Weights of Criteria

The CRITIC method was used to calculate criterion weights in the study. The decision matrix containing the data of the streaming platforms is given in Table 2.

 Table 2: Decision Matrix

Alternative	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Netflix	3.500.000 **	26,99	54,99	1.903.465	3.950.104	1.210.000	1.800.000	4,20	3,9	904
BluTv	$4.000.000^*$	15,90	29,90	160.561	599.970	556.000	365.000	3,50	4,5	1.544
Exxen	1.500.000 **	16,60	69,80	118.449	692.718	369.000	68.000	2,40	2,4	5.997
Gain	750.000 **	13,90	21,90	61.440	220.542	33.900	5.968	2,90	3,5	42
Turkcell TV+	1.100.000 *	16,99	24,99	56.790	112.119	20.300	193.000	3,60	4,6	1.730
Tivibu	550.000^*	7,90	35,70	49.110	35.843	536.000	325.000	4,30	4,7	25.458
D-Smart	$1.100.000^*$	29,00	59,00	40.606	12.568	75.700	161.000	2,30	2	14.923
Bein Connect	2.500.000 **	9,90	99,00	10.366	54.655	762.000	13.000	3,30	2,3	1.509

The decision matrix is normalized according to the benefit/cost characteristics of the criteria according to equation (2) and equation (3), respectively. The normalized decision matrix table is given in Table 3.

Table 3: Normalized Decision Matrix

Alternative	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Netflix	0,855	0,095	0,571	1,000	1,000	1,000	1,000	0,950	0,704	0,966
BluTv	1,000	0,621	0,896	0,079	0,149	0,450	0,200	0,600	0,926	0,941
Exxen	0,275	0,588	0,379	0,057	0,173	0,293	0,035	0,050	0,148	0,766
Gain	0,058	0,716	1,000	0,027	0,053	0,011	0,000	0,300	0,556	1,000
Turkcell TV+	0,159	0,569	0,960	0,025	0,025	0,000	0,104	0,650	0,963	0,934
Tivibu	0,000	1,000	0,821	0,020	0,006	0,433	0,178	1,000	1,000	0,000
D-Smart	0,159	0,000	0,519	0,016	0,000	0,047	0,086	0,000	0,000	0,415
Bein Connect	0,565	0,905	0,000	0,000	0,011	0,623	0,004	0,500	0,111	0,942

In the third step, the correlation coefficients between the criteria calculated with the help of equation (4) are included

in order to determine the relationships between the criteria. The correlation coefficients are shown in Table 4 in detail.

Table 4: Calculation of Correlation Coefficients

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
K1	1,0000	-0,2334	-0,2130	0,5373	0,5804	0,7050	0,5475	0,2774	0,1137	0,5221
K2	-0,2334	1,0000	0,0306	-0,5381	-0,5238	-0,0612	-0,5161	0,2760	0,2936	-0,1401
K3	-0,2130	0,0306	1,0000	-0,0585	-0,0726	-0,4320	0,0257	0,2658	0,7581	-0,0459
K4	0,5373	-0,5381	-0,0585	1,0000	0,9909	0,7483	0,9795	0,4737	0,1715	0,2664
K5	0,5804	-0,5238	-0,0726	0,9909	1,0000	0,7531	0,9601	0,4223	0,1507	0,3179
K6	0,7050	-0,0612	-0,4320	0,7483	0,7531	1,0000	0,7560	0,5899	0,0979	0,1173
K7	0,5475	-0,5161	0,0257	0,9795	0,9601	0,7560	1,0000	0,5837	0,3000	0,1447
K8	0,2774	0,2760	0,2658	0,4737	0,4223	0,5899	0,5837	1,0000	0,7852	-0,1288
K9	0,1137	0,2936	0,7581	0,1715	0,1507	0,0979	0,3000	0,7852	1,0000	-0,0596
K10	0,5221	-0,1401	-0,0459	0,2664	0,3179	0,1173	0,1447	-0,1288	-0,0596	1,0000

Standard deviations σ , amount of information Cj, and weights of the criteria are given in Table 5.

In criteria weights, the minimum monthly payment amount has been calculated as 15.3%, the maximum monthly payment amount as 12.5%, the number of complaints on the

site Şikayetvar.com as 11.9%, the AppStore application score as 11.01%, the number of subscribers as 9.7%, the PlayStore application score as % 8.5, YouTube followers 8.3%, Twitter followers 7.7%, Instagram 7.67%, Facebook followers 7.22%.

Table 5: Criterion Weights

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
σ	0,3781	0,3528	0,3438	0,3431	0,3391	0,3477	0,3313	0,3736	0,4131	0,3569
C_i	2,3301	3,6732	3,0059	1,8629	1,8382	1,9909	1,7291	2,0381	2,6394	2,8570
W_i	0,0972	0,1533	0,1254	0,0777	0,0767	0,0831	0,0722	0,0850	0,1101	0,1192

The weight of the "platform features" of the streaming platforms was calculated as 37.59%, and the criterion weight of the "platform image" was calculated as 62.41%.

The decision matrix, which is normalized by organizing the criterion data for streaming platforms according to equality 13 for benefit and cost characteristics, is shown in detail in Table 6.

4.2. Application of the CODAS Method

Table 6: Normalizing the Decision Matrix

Alternative	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Netflix	0,875	0,293	0,398	1,000	1,000	1,000	1,000	0,977	0,830	0,046
BluTv	1,000	0,497	0,732	0,084	0,152	0,460	0,203	0,814	0,957	0,027
Exxen	0,375	0,476	0,314	0,062	0,175	0,305	0,038	0,558	0,511	0,007
Gain	0,188	0,568	1,000	0,032	0,056	0,028	0,003	0,674	0,745	1,000
Turkcell TV+	0,275	0,465	0,876	0,030	0,028	0,017	0,107	0,837	0,979	0,024
Tivibu	0,138	1,000	0,613	0,026	0,009	0,443	0,181	1,000	1,000	0,002
D-Smart	0,275	0,272	0,371	0,021	0,003	0,063	0,089	0,535	0,426	0,003
Bein Connect	0,625	0,798	0,221	0,005	0,014	0,630	0,007	0,767	0,489	0,028

The weighted normalized decision matrix is obtained with the help of equation (14) according to the criteria weights calculated in the CRITIC method. In Table 7, the normalized decision matrix and the distance to the negative-ideal solution calculated according to equation (15) are included in the values.

Table 7: Normalized Decision Matrix and Negative-Ideal Solution Distance Values

Alternative	K1	K2	К3	K4	K5	K6	K7	K8	K9	K10
Netflix	0,0851	0,0449	0,0500	0,0777	0,0767	0,0831	0,0722	0,0831	0,0914	0,0055
BluTv	0,0972	0,0762	0,0919	0,0066	0,0117	0,0382	0,0146	0,0692	0,1054	0,0032
Exxen	0,0365	0,0729	0,0394	0,0048	0,0135	0,0253	0,0027	0,0475	0,0562	0,0008
Gain	0,0182	0,0871	0,1254	0,0025	0,0043	0,0023	0,0002	0,0574	0,0820	0,1192
Turkcell TV+	0,0267	0,0713	0,1099	0,0023	0,0022	0,0014	0,0077	0,0712	0,1078	0,0029
Tivibu	0,0134	0,1533	0,0769	0,0020	0,0007	0,0368	0,0130	0,0850	0,1101	0,0002
D-Smart	0,0267	0,0418	0,0466	0,0017	0,0002	0,0052	0,0065	0,0455	0,0469	0,0003
Bein Connect	0,0608	0,1223	0,0277	0,0004	0,0011	0,0523	0,0005	0,0653	0,0539	0,0033
ns_i	0,0134	0,0418	0,0277	0,0004	0,0002	0,0014	0,0002	0,0455	0,0469	0,0002

The Euclidean distance values (Ei) of the alternatives calculated with the help of equation (16) are shown in Table

8 in detail.

Table 8: Euclidean Distance Values of Alternatives

Alternative	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Netflix	0,005	0,000	0,000	0,006	0,006	0,007	0,005	0,001	0,002	0,000
BluTv	0,007	0,001	0,004	0,000	0,000	0,001	0,000	0,001	0,003	0,000
Exxen	0,001	0,001	0,000	0,000	0,000	0,001	0,000	0,000	0,000	0,000
Gain	0,000	0,002	0,010	0,000	0,000	0,000	0,000	0,000	0,001	0,014
Turkcell TV+	0,000	0,001	0,007	0,000	0,000	0,000	0,000	0,001	0,004	0,000
Tivibu	0,000	0,012	0,002	0,000	0,000	0,001	0,000	0,002	0,004	0,000
D-Smart	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Bein Connect	0,002	0.006	0.000	0.000	0.000	0.003	0,000	0.000	0.000	0.000

The Taxicab distance values (Ti) of the alternatives calculated with the help of equation (17) are shown in Table

9 in detail.

Table 9: Taxicab Distance Values of Alternatives

Alternative	K1	K2	К3	K4	K5	K6	K7	K8	K9	K10
Netflix	0,072	0,003	0,022	0,077	0,076	0,082	0,072	0,038	0,045	0,005
BluTv	0,084	0,034	0,064	0,006	0,011	0,037	0,014	0,024	0,059	0,003
Exxen	0,023	0,031	0,012	0,004	0,013	0,024	0,002	0,002	0,009	0,001
Gain	0,005	0,045	0,098	0,002	0,004	0,001	0,000	0,012	0,035	0,119
Turkcell TV+	0,013	0,030	0,082	0,002	0,002	0,000	0,007	0,026	0,061	0,003
Tivibu	0,000	0,112	0,049	0,002	0,000	0,035	0,013	0,040	0,063	0,000
D-Smart	0,013	0,000	0,019	0,001	0,000	0,004	0,006	0,000	0,000	0,000
Bein Connect	0,047	0,081	0,000	0,000	0,001	0,051	0,000	0,020	0,007	0,003

With the help of equation (18), the comparative evaluation matrix of the alternatives is shown in Table 11 by using the threshold value (ψ) calculated according to the degree of closeness of the Euclidean distance (τ =0,02). For ease of

calculation, the E_i and T_i calculated in Tables 8 and 9, as well as the H_i ranking results of the alternatives, are shown in detail in Table 10.

Table 10: Comparative Evaluation Matrix, Evaluation Score and Ranking Results

Alternative	E_i	T_i	A1	A2	A3	A4	A5	A6	A7	A8	H_i	Order
Netflix	0,181	0,492	0,000	0,047	0,132	0,016	0,071	0,033	0,158	0,073	0,529	1
Gain	0,165	0,321	-0,016	0,030	0,115	0,000	0,054	0,017	0,141	0,056	0,399	2
Tivibu	0,148	0,314	-0,033	0,013	0,098	-0,017	0,037	0,000	0,124	0,039	0,262	3
BluTv	0,134	0,336	-0,046	0,000	0,085	-0,031	0,024	-0,013	0,111	0,026	0,155	4
Turkcell TV+	0,111	0,226	-0,070	-0,024	0,061	-0,054	0,000	-0,037	0,087	0,002	-0,035	5
Bein Connect	0,109	0,210	-0,072	-0,026	0,059	-0,056	-0,002	-0,039	0,085	0,000	-0,052	6
Exxen	0,050	0,122	-0,130	-0,084	0,000	-0,114	-0,060	-0,097	0,026	-0,058	-0,519	7
D-Smart	0,024	0,044	-0,155	-0,110	-0,026	-0,140	-0,086	-0,123	0,00	-0,084	-0,723	8

According to the findings obtained according to the CODAS method, the order of streaming platforms was Netflix, Gain, Tivibu, BluTv, Turkcell TV+, Bein Connect, Exxen and D-Smart.

The sensitivity analysis results are shown in Table 11 below.

In the first case, where the minimum and maximum criteria weights were replaced, the rankings of the BluTv and Tivibu platforms swapped between themselves according to the current situation. According to the table, in the second scenario where all the criteria are equal, BluTv and Tivibu,

and Turkcell TV+ and Bein Connect streaming platforms

have switched places among themselves.

 Table 11: Sensitivity Analysis in the CODAS Method

	Netflix	BluTv	Exxen	Gain	Turkcell TV+	Tivibu	D-Smart	Bein Connect
Current State	1	4	7	2	5	3	8	6
Min-Max	1	3	7	2	5	4	8	6
All Values Equal	1	3	7	2	6	4	8	5

4.3. Application of the PIV Method

The decision matrix normalized according to equation (15) in the PIV method is shown in detail in Table 12.

Table 12: Normalized Decision Matrix

Alternative	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Netflix	0,5532	0,5156	0,3517	0,9930	0,9722	0,7251	0,9558	0,4386	0,3788	0,0299
BluTv	0,6322	0,3037	0,1912	0,0838	0,1477	0,3332	0,1938	0,3655	0,4371	0,0510
Exxen	0,2371	0,3171	0,4464	0,0618	0,1705	0,2211	0,0361	0,2506	0,2331	0,1982
Gain	0,1185	0,2655	0,1401	0,0321	0,0543	0,0203	0,0032	0,3029	0,3399	0,0014
Turkcell TV+	0,1738	0,3246	0,1598	0,0296	0,0276	0,0122	0,1025	0,3760	0,4468	0,0572
Tivibu	0,0869	0,1509	0,2283	0,0256	0,0088	0,3212	0,1726	0,4491	0,4565	0,8415
D-Smart	0,1738	0,5540	0,3773	0,0212	0,0031	0,0454	0,0855	0,2402	0,1942	0,4933
Bein Connect	0,3951	0,1891	0,6331	0,0054	0,0135	0,4566	0,0069	0,3446	0,2234	0,0499

The weighted normalized decision matrix according to equation

(16) is shown in detail in Table 13.

Table 13: Weighted Normalized Decision Matrix

Alternative	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Netflix	0,0538	0,0790	0,0441	0,0772	0,0746	0,0602	0,0690	0,0373	0,0417	0,0036
BluTv	0,0615	0,0466	0,0240	0,0065	0,0113	0,0277	0,0140	0,0311	0,0481	0,0061
Exxen	0,0231	0,0486	0,0560	0,0048	0,0131	0,0184	0,0026	0,0213	0,0257	0,0236
Gain	0,0115	0,0407	0,0176	0,0025	0,0042	0,0017	0,0002	0,0258	0,0374	0,0002
Turkcell TV+	0,0169	0,0497	0,0200	0,0023	0,0021	0,0010	0,0074	0,0320	0,0492	0,0068
Tivibu	0,0085	0,0231	0,0286	0,0020	0,0007	0,0267	0,0125	0,0382	0,0503	0,1003
D-Smart	0,0169	0,0849	0,0473	0,0016	0,0002	0,0038	0,0062	0,0204	0,0214	0,0588
Bein Connect	0,0384	0,0290	0.0794	0,0004	0.0010	0.0379	0,0005	0.0293	0,0246	0.0059

The criteria weights according to the PIV method, and the maximum and minimum values of the criteria are given in

Table 14.

Table 14: Criterion Weights and Maximum Minimum Values of Criteria

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
w	0,0972	0,1533	0,1254	0,0777	0,0767	0,0831	0,0722	0,0850	0,1101	0,1192
Maksimum	0,0615	0,0849	0,0794	0,0772	0,0746	0,0602	0,0690	0,0382	0,0503	0,1003
Minimum	0,0085	0,0231	0,0176	0,0004	0,0002	0,0010	0,0002	0,0204	0,0214	0,0002

Weighted proximity index values (u_i) calculated with equation (17) are shown in detail in Table 15.

Table 15: Weighted Proximity Index Values

Alternative	K1	K2	К3	K4	K5	K6	K7	K8	K9	K10
Netflix	0,008	0,056	0,027	0,000	0,000	0,000	0,000	0,001	0,009	0,003
BluTv	0,000	0,023	0,006	0,071	0,063	0,033	0,055	0,007	0,002	0,006
Exxen	0,038	0,025	0,038	0,072	0,061	0,042	0,066	0,017	0,025	0,023
Gain	0,050	0,018	0,000	0,075	0,070	0,059	0,069	0,012	0,013	0,000
Turkcell TV+	0,045	0,027	0,002	0,075	0,072	0,059	0,062	0,006	0,001	0,007
Tivibu	0,053	0,000	0,011	0,075	0,074	0,034	0,057	0,000	0,000	0,100
D-Smart	0,045	0,062	0,030	0,076	0,074	0,056	0,063	0,018	0,029	0,059
Bein Connect	0,023	0,006	0,062	0,077	0,074	0,022	0,068	0,009	0,026	0,006

The final ranking in the PIV method is determined by the ascending order of the alternatives' general proximity index

values. Table 16 details the general proximity values, which are the sum of the weighted proximity index values of the

alternatives calculated using equation (18), as well as the ranking.

Table 16: Overall Proximity Index and Final Ranking

Platform	Value	Order
Netflix	0,103	1
BluTv	0,266	2
Turkcell TV+	0,356	3
Gain	0,365	4
Bein Connect	0,372	5
Tivibu	0,403	6
Exxen	0,409	7
D-Smart	0.511	8

Table 17: Sensitivity Analysis in PIV Method

According to the findings obtained according to the PIV method, the order of streaming platforms was Netflix, BluTv, Turkcell TV+, Gain, Bein Connect, Tivibu, Exxen and D-Smart. The sensitivity analysis results are shown in Table 17 below. According to the results in the table, the Gain and Bein Connect platforms swapped places in the first scenario where all the criteria were equal. In the second case, where the minimum and maximum criterion weights are swapped, no change was observed compared to the current situation.

	Netflix	BluTv	Exxen	Gain	Turkcell TV+	Tivibu	D-Smart	Bein Connect
Current State	1	2	7	4	3	6	8	5
Min-Max	1	2	7	4	3	6	8	5
All Values Equal	1	2.	7	5	3	6	8	4

5. Conclusion

In today's environment, where digital transformation is rampant, almost every industry is attempting to keep up with with this digital transformation to some extent. Digital marketing approaches, which are shown as one of the basic building blocks of digital transformation, are one of the activities implemented by companies in terms of digitalization. Companies that aim to gain a competitive advantage in their sector with various digital marketing approaches, both social media marketing and search engine marketing, aim to increase their awareness and profitability, especially on a global scale. At this point, it is of great importance that the factors influencing consumer preferences in streaming platforms, which are at the forefront of the sectors where digital marketing approaches are widely used, can help streaming platform companies increase their competitive power and expand their market shares. From this point of view, the factors affecting consumer preferences are discussed with CODAS and PIV methods, which are multi-criteria decision making methods that can be considered new in literature. The Netflix, BluTv, Exxen, Gain, Turkcell TV+, Tivibu, D-Smart and Bein Connect were assessed using a total of 10 criteria: "number of subscribers, minimum and maximum monthly payment amount" criteria, and the platform features, and the number of followers on Twitter, Instagram, Facebook and YouTube social media platforms, the PlayStore and AppStore application score, and the number of complaints on the Şikayetvar.com site" reflecting the platform image.

In criteria weights calculated with the CRITIC method, the minimum monthly payment amount has been calculated as 15.3%, the maximum monthly payment amount as 12.5%, the number of complaints on the site Şikayetvar.com as 11.9%, the AppStore application score as 11.01%, the number of subscribers as 9.7%, the PlayStore application score as % 8.5, YouTube followers 8.3%, Twitter followers 7.7%, Instagram 7.67%, Facebook followers 7.22%. The

weight of the "platform features" of the streaming platforms was calculated as 37.59%, and the criterion weight of the "platform image" was calculated as 62.41%. According to the findings obtained according to the CODAS method, the order of streaming platforms was "Netflix, Gain, Tivibu, BluTv, Turkcell TV+, Bein Connect, Exxen and D-Smart". In the sensitivity analysis of the CODAS method results, where the minimum and maximum criteria weights were replaced, the rankings of the BluTv and Tivibu platforms swapped between themselves according to the current situation. In the second scenario where all the criteria are equal, BluTv and Tivibu, and Turkcell TV+ and Bein Connect streaming platforms have switched places among themselves. According to the findings obtained according to the PIV method, the order of streaming platforms was Netflix, BluTv, Turkcell TV+, Gain, Bein Connect, Tivibu, Exxen and D-Smart. In the results of the sensitivity analysis of the PIV method, the Gain and Bein Connect platforms swapped places in the first scenario where all the criteria were equal. In the second case, where the minimum and maximum criterion weights are swapped, no change was observed compared to the current situation. According to the findings obtained from CODAS and PIV methods, it has been concluded that the "Netflix" platform is more successful than other streaming platforms. In addition, another important result of the study shows that the most effective criterion in the preference of streaming platforms by consumers is the "minimum monthly payment amount" criterion.

When the results of the study were examined, the "Netflix" platform was found to be more successful than other streaming platforms. This can be interpreted as a positive acceptance by consumers of the fact that the Netflix video streaming platform can take full advantage of all the content with the minimum monthly payment amount set. Furthermore, it is thought that the presence of a by-product or an additional package application on this platform that can be used for a fee has a positive impact on consumers.

Furthermore, the same quality of viewing from any device with appropriate technological infrastructure, as well as the use of the same membership from different IP addresses, help this platform stand out among other streaming platforms. When the criteria weights used in the comparison of video streaming platforms are evaluated, it is clear that consumers value keeping the minimum monthly payment amount of video streaming platforms at an optimal level and that it is the most important criterion influencing the reasons for preference. At this point, it is expected that video streaming platforms will offer low prices to their customers while maintaining certain profit margins, giving them an early advantage in customer acquisition and retention activities. Furthermore, these platforms are thought to have positive feedback in terms of customer satisfaction and trust. depending on their ability to quickly and effectively resolve complaints made about them on the Şikayetvar.com website. In addition, it is very important for digital broadcasting platforms to keep their social media accounts as up-to-date as possible, to create content that will attract the attention of consumers, and to offer frequent campaigns and information from these accounts, in order for consumers to become addicted to and adopt the brand.

Among the constraints of the study, the selection of 8 streaming platforms operating in the Turkish market and meeting the determined criteria can be shown. In addition, the selection of only online streaming platforms and platforms such as Twitch, which is shown as a live streaming platform among social networking sites, and YouTube, which is the pioneer of video sharing sites, not being included can be shown as other constraints of the study. Recommendations for future studies can be listed as expanding the criteria determined and adding different streaming platforms to the analysis and examining streaming platforms operating not only in the Turkish market, but also on a global scale within the scope of the study.

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