



# Performance analysis of Wireless Network using COPRAS multi criteria decision Making Method

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**Abstract.** Introduction: Uses high frequency radio waves. It is a type of local area network that uses wires to communicate between nodes. Data from mobile telecommunication technology these networks offer very fast data speeds compared to charges and their range is very low. Area Networks and Wireless Wide Area Networks. Area Networks, Wireless Personal A wireless network connects two or more computers through communication without using any wires. Wireless networks use spread-spectrum or rely on OFDM technology. It enables the user to move to a wider coverage area but remain connected to the network. Research significance: Increases teamwork and productivity across the organization through traditional networks. Allows you to roam around your enterprise premises without disconnecting from the network. Wireless networks allow users to access mobile, real-time information, Methodology: Receiver sensitivity, modulation technique, output power, range (open office), range (closed office) are given as substitution values and RTT, (EED), packet loss, FTP file transfer time evolution parameters. Result: In this data analysis this wireless network got first rank for output power and last rank for modulation technique. Conclusion: Like every new advancement made in today's world it has its concerns. As technology advances, universal wireless communication is something people can expect. Wireless communications have many advantages and can make the world more efficient.

## 1. Introduction

Wireless networks are a popular solution for networking home, business, and telecommunications. Four indicates the computer network using the connection. Wireless Networks Type a wireless network is the transmission of radio frequency (RF) between nodes in the network. Wireless WANs vary when it comes to size, range, and connectivity requirements. Wireless LAN; Wireless and, Wireless WAN and Includes Connect to an existing network It can communicate directly with other wireless computers or computers through radio communication to wireless AP. A wireless network connects computers without using network cables. Here are some useful features offered by a home Wi-Fi network, Internet connection allows you to store computer devices. A wireless home network, also known as Wi-Fi, files, rather than a wired network established in A small geographical area Like house, office or building. On the other hand, a WAN is a computer network that covers a wide geographical area. While LANs allow users to transfer data quickly, WANs have relatively slow data transfer rates. Indispensable not only because the Internet is considered the world's largest, but also for everyday use WAN. WANs facilitate information sharing and more. WANs can be essential for international businesses. Communication between devices around the world through a WAN provider, Wi-Fi refers to high-speed Internet access that connects nearby devices to each other and share the Internet via hotspots, whereas Bluetooth is used to connect devices over a short range. The Cobras method with the best solution rate determines a solution. This time adequately calculates alternative modes and criterion values and weights. The Complex Proportionality Assessment of Multiple Criteria and allow for a realistic estimate, as well as lower window restoration costs. It was developed by the authors with the aim of solving the problems mentioned above. Solutions based on multidisciplinary analysis are more rational to customer needs method is direct and proportional to the criterion set and the values and Weights of sufficiently descriptive criteria alternatives and the importance and degree of use of the studied versions. COPRAS technique was used to evaluate maintenance strategies.

## 2. COPRAS

Areas of application, COPRAS, other multi-criteria methods linked to nationality and country of authors and articles cited. This article provides useful insights into COPRAS, a new methodology with many research opportunities. First, nas divers applications m divertes cetores e, desconto que eli s "flexible" quanto a questao de campinazao com outros metodos multicritrios. Portando, or Cobras, is associated with means and ends, science and passions, investor intent, and many other attributes. Empora varias technicians tom city combinato or intercalada com o cobras tradicional, mutas outras technicas naidem foi investigationda. Estas technicas fazem or COPRAS tradictional mais representativas and viável no manuseio pratico de teórico de various problems. We extend Cobras' approach to develop a risk-based method in a fuzzy environment. Considering its efficiency and effectiveness in dealing with uncertainty, optimal solution rate and COPRAS-F simultaneously, it is acceptable because of the ratio of best-worst solutions and logical concepts. The system of descriptive criteria takes biases. Emphasis on application level is direct and proportional versions studied and The Cobras method with the best solution rate

determines a solution. This is time adequately calculates alternative modes and criterion values and weights. The Complex Proportionality Assessment of Multiple Criteria Developed by the authors with the aim of solving the problems mentioned above. Differential analysis is customer-based solutions that are method is direct and proportional to the criterion set and the values and weights Substitution and significance are explanatory criteria of adequacy and degree of use of the studied versions. COPRAS technique was used to evaluate maintenance strategies. In this The weights of the criteria and the alternative evaluations of performance are calculated language wise norms. Based on Fuzzy AHP and COPRAS to solve MCDM problems. We propose an integrated approach. Alternative methods is assessed using According to the results of the COAPRAS method, the COAPRAS technique. Finally, ranking and the Two MCDM methods are used for decision making in this research. This section will do. SWARA review and weighting criteria and COPRAS are used to evaluate and rank alternatives. This is the problem for which COPRAS methods have been used.SWARA and solution approaches. Experts from various disciplines participated in this research to draw conclusions in collaboration with SWARA and COPRAS. COPRAS methodology is considered for evaluating research alternatives. SWARA is a new powerful method in MCDM that has an advantage in policy formulation. This is the problem for which SWARA and COPRAS methods have been used as solution approaches. COPRAS methodology is considered for evaluating research alternatives. SWARA is a new powerful method in MCDM that has an advantage in principle formulation. In the second phase, the results of the COBRAS method will be presented. After determining all the weights of each criterion and sub-criteria through the SWARA method, COPRAS methodology was used to evaluate and select alternatives. Four in high-tech industries Whatever the purpose using SWARA is COPRAS mode.

### 3. Wireless Network

A collection of autonomous mobile nodes. Therefore, many Routing protocols are proposed. As a result, for ad hoc wireless networks, Wireless networking with mobile ad hoc access networks (MANET) are about to enter the mainstream. Since such networks do not require anything installed in the framework or centralized management, they can be deployed various civilian and military applications [1]. The There we describe the use Assist spectrum management, location-assisted network provisioning however optimization; should be reconsidered. All these problems are In CR and cognitive wireless network domains. Location Information in Cognitive Wireless Networks. Applications and based applications, focus this paper on Some of these are location addresses issues are explored to some extent for traditional radios and wireless networks. We recommend balancing Location Information in Cognitive Wireless Networks they have a team of design engineers and the cognitive radios are provided with a location-aware engine. Current wireless network operators use semi-computerized planning and expansion of their networks. A classification of cognitive wireless networks is presented. A system model based on perception, cooperation and node diversity to protect user privacy [2]. It is a purely sociological phenomenon, and it is interesting, That's the field that starts with problems like the Watts governor had such a wide impact. Financial Economics and Production Systems. Wireless Networks, Operations Research, Researchers from all these disciplines regularly attend our workshops and flagship conferences. The Intense current interest in the wireless network industry and there are many challenges in designing workable wireless networks that are considered revolutionary in terms of their impact on society and the development of control systems that regulate multiple wirelessly connected sensors and actuators. Many problems in wireless networks arise from the distributed nature of wireless media. In the remainder of this paper, we discuss issues surrounding four. How to do this in the current Internet, let alone future wireless networks, is a topic of ongoing research. Finally, wireless networking and embedded network devices are two topics in the broader information technology field. It's getting a lot of attention right now. The purpose of running a wireless network is to transfer packets. One is the power control problem described earlier. With the foundation laid over the past four decades, we need to grasp the opportunities. For example, we have illustrated the problems with wireless design networks [3]. Wireless LANs, like cellular and many other Current wireless networks divide the available bandwidth into orthogonal channels and reserve these channels for transmission. Terminals allow instant integration of our protocols [4]. However, security of information transmission in wireless networks is a challenging problem. Wireless networking plays a Therefore, the employment of directional antennas can be optimized to improve wireless network performance, avoid physical congestion attempts and increase data availability. We provide training on several existing methods to improve security at the physical layer in wireless networks [5]. Also, Machine Includes motivations and mechanisms. Cognitive Radios (CR), of various ML algorithms. Readers clarify Data-driven ML network association is becoming a powerful technique to significantly improve wireless networks with their compelling applications. Explored to help readers refine we begin by exploring the thrust of ML in Wireless networks, from the physical layer to the application layer. Inspired by the challenges mentioned above, We review the development of networks. In this article ML-assisted wireless Some specific examples based on research are presented. Some recent popular learning algorithms and their compelling applications in wireless networks. However, the energy consuming network performance and the rapid growth in the number of users and the explosive growth of teletraffic data are pushing also, we summarize and further characterize Evolution of wireless networking techniques. Network capacity limitations. Future wireless networks are under review. Development of wireless networks since their birth Wireless networks aim to provide ubiquitous information services to users in various situations. A significant concern for climate change is A closely related issue in future wireless networks is interference management, which is critical to their performance in dynamic networks Energy Optimization. Mitigation in future wireless networks is the transmission between them throughout its lifetime. A particularly important task in dealing with latency and reliability specifications [6]. We develop and analyze cooperative diversity protocols as a low-complexity ap-

proach to combat multipath propagation-induced fading in Service providers are increasingly interested in supporting wireless networks Content and multicasts around the world. Future wireless networks are under review. Networks are reviewed the evolution of wireless networks from their birth to the future of wireless [8]. Expected to be widely used in future systems. Such hardware is currently common to wireless network nodes and, if not part of it, can be used in networks today its low cost, size, weight and power consumption. TIK protocol enables and provides a temporary leash [9]. Achieving Real-time Addition a dynamic network in a 6G data driven network. Existing wireless network architectures use diversity based on Also, some parts both spectrum principles and communications while the some bands are unlicensed technologies [13].

#### 4. Result& Discussion

Route Reconstruction Time: The time it takes for a route reconstruction to be triggered and completed. FTP File Transfer Time: The evaluation parameter is the time taken to transfer binary files from a source to a recipient. Average effective data rate per bits (b/s) received from 100 bits. Packet Loss: Percentage of packet loss during 100 ping data End-to-End Delay (EET): The delay between a source sending a packet and its arrival at the destination. C

TABLE 1. Wireless Network

	RTT	(EED)	Packet Loss	FTP File Transfer Time
Receiver sensitivity	36.12	147.53	36.00	35.00
Modulation technique	28.09	130.23	38.00	32.00
Output power	32.54	122.18	25.00	19.00
Range(open office)	23.34	145.73	24.00	32.00
Range(closed office)	21.32	165.42	28.00	23.00

Table 1shows given are alternative values Receiver sensitivity, Modulation technique, Output power, Range (open of- fice), Range (closed office).

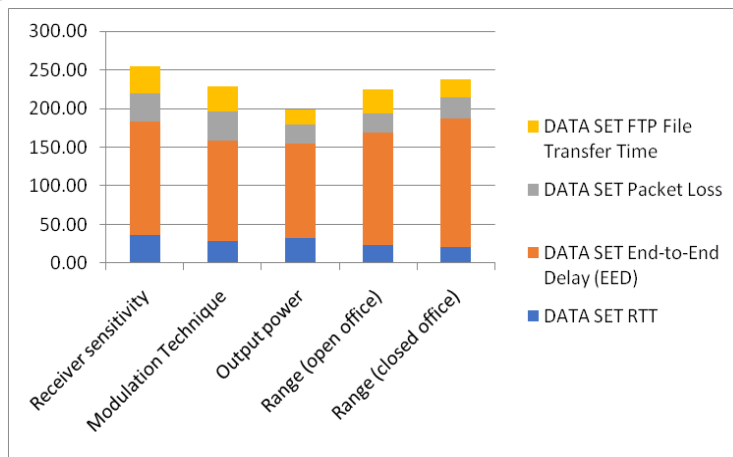


FIGURE 1. Wireless Network

Figure 1 shows in RTT, End-to-End Delay (EED), Packet Loss, FTP File Transfer Time. Receiver sensitivity can be determined using a graph of the highest and lowest rank in a given data set.

TABLE2. Normalized Data

RTT	End-to-End Delay (EED)	Packet Loss	FTP File Transfer Time
0.2554	0.2075	0.2384	0.2482
0.1986	0.1831	0.2517	0.2270
0.2301	0.1718	0.1656	0.1348
0.1651	0.2049	0.1589	0.2270
0.1508	0.2326	0.1854	0.1631

Table2 Normalized data is found by taking the sum of the given values in the data set and the given total value, then summing and dividing the value of each alternative value.

**TABLE 3. Weight**

Weight			
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25

Table 3 is showing the Weight ages used for the analysis. We have taken same weights for all the parameters for the analysis.

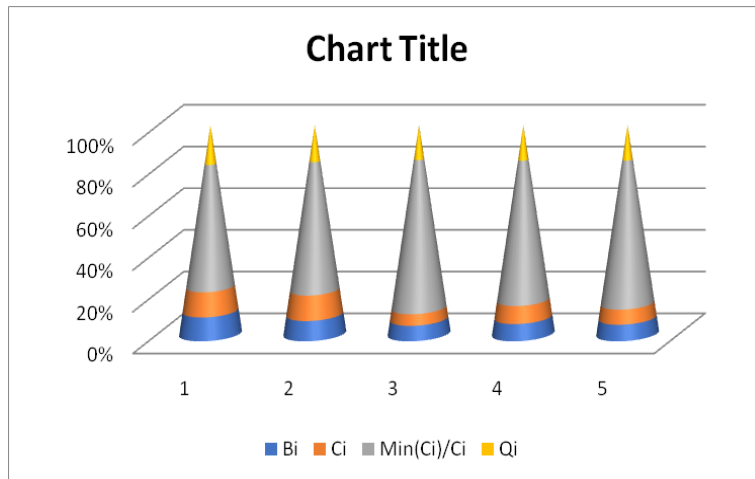
**TABLE 4. Weighted normalized decision matrix**

RTT	End-to-End Delay (EED)	Packet Loss	FTP File Transfer Time
0.2554	0.2075	0.2384	0.2482
0.1986	0.1831	0.2517	0.2270
0.2301	0.1718	0.1656	0.1348
0.1651	0.2049	0.1589	0.2270
0.1508	0.2326	0.1854	0.1631

Table 4 This value is found in the weighted normalized matrix by multiplying the normalized data and the weights.

**TABLE 5. Min (Ci)/Ci**

Bi	Ci	Min(Ci)/Ci	Qi
0.116	0.122	0.6171	0.195
0.095	0.120	0.6275	0.176
0.100	0.075	1.0000	0.229
0.092	0.096	0.7782	0.193
0.096	0.087	0.8616	0.207
min(Ci)*sum(Ci)	0.0375	3.8844	

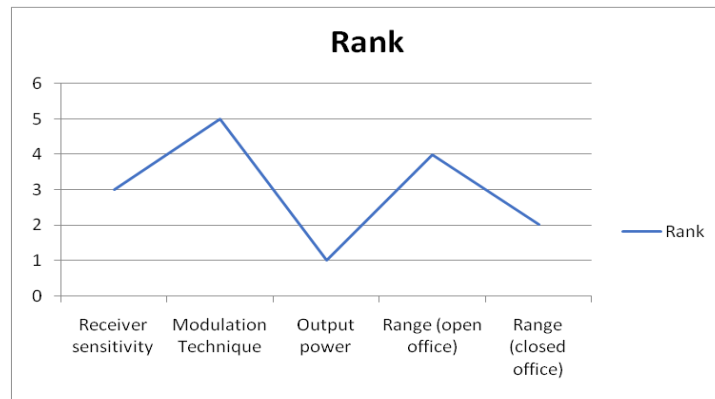


**FIGURE 2. Min (Ci)/Ci**

The value of Min(Ci)/Ci is obtained by dividing Min(Ci)/Ci by the minimum power of Ci.

**TABLE 6. Rank**

	Rank
Receiver sensitivity	3
Modulation Technique	5
Output power	1
Range (open office)	4
Range (closed office)	2



**FIGURE 3.** Rank

In this data analysis this wireless network got first rank for output power and last rank for modulation technique.

## 5. Conclusion

Areas of application, COPRAS, other multi-criteria methods linked to nationality and country of authors and articles cited. This article provides useful insights into COPRAS, a new methodology with many research opportunities. First, as divers applications m divertes cetores e, desconto que eli s "flexible" quanto a questao de campinazao com outros metodos multicritios. Portando, or Cobras, is associated with means and ends, science and passions, investor intent, and many other attributes. One is the power control problem described earlier. With the foundation laid over the past four decades, we need to grasp the opportunities. For example, we have illustrated the problems with wireless design networks. Wireless LANs, like cellular and many other Current wireless networks divide the available bandwidth into orthogonal channels and reserve these channels for transmission. Terminals allow instant integration of our protocols. In this data analysis this wireless network got first rank for output power and last rank for modulation technique.

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