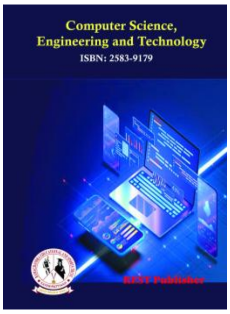
Computer Science, Engineering and Technology
Vol: 1(2), June 2023
REST Publisher; ISSN: 2583-9179 (Online)
Website: https://restpublisher.com/journals/cset/
DOI: https://doi.org/10.46632/cset/1/2/4



Radio resource management Satellite Communication Networks MCDM Method

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Abstract. *A communications satellite would be an artificial satellite that creates a channel here for the transmission of a communication through a transponder between a sender and a recipient located at various locations on Earth. Communications via satellite are used in telecommunications, radio, broadcast, computer, and military applications. Satellites offer three different kinds of communication services: data communication, broadcasting, and telephone. Lower Geostationary satellite, Networks for Low-Earth-orbiting (LEO) and Medium Eccentricity Orbit (MEO) are the three different types of satellite networks. A satellite system or a portion of a satellite system with only one satellite in it and a working ground station is known as a satellite network. Models 1, 2, and 3. A satellite network is a system that uses satellite technology to transmit media services to recipients. The two main components of communication systems are the ground component, which consists of stationary or mobility transmissions, receptions, and ancillary equipment, and indeed the space component, which primarily consists of the satellite. In addition to offering in-flight communications, satellites are frequently the primary voice communication method in rural areas and places where telephone connections have been disrupted during a catastrophe. Satellites are also a major source of time for cell phones and pagers. With nine operating communications satellites in geo-stationary orbit, one of the largest domestic satellite communications networks in the Asia-Pacific region is the Indian National Television (INSAT) system. Radio and cable television are provided to us. They allow us to use our mobile phones to make long distance calls. So that we can find ourselves and get directions, they offer us the Global Positioning System (GPS) our destinations. Satellites offer data on Earth's atmosphere, seas, land, and clouds. They can also see smoke, volcanoes, and forest fires. All of this data aids in weather and climate prediction. Farmers benefit from knowing what crops to plant. PROMETHEE (Priority Ranking System Method for Enrichment Assessments) About PROMETHEE methods and usage to uncover current research to classify and explain A classification scheme and a comprehensive literature review is presented. Alternative is Laser communication, optical networks, satellite optical communication, vibrations and satellite network. Evaluation parameters are Solar Radiation Pressure, Thermal Bending, Micro Meteorite impacts, Solar and Lunar Gravity and Earth oblations effects.* Vibrations are got the first rank whereas is the Optical networks are having the Lowest rank. *Satellite Communication Networks for using the analysis of PROMETHEE Method. Vibrations is got the first rank whereas is the Optical networks is having the Lowest rank.*

Keywords: *MCDM, Laser communication, optical networks, satellite optical communication and satellite network.*

1. INTRODUCTION

As an addition to terrestrial cellular networks, satellite telecommunications infrastructure can offer more broad wireless coverage, especially in areas with low population concentrations. The potential architecture of terrestrial-satellite communication systems (TSNs) next-generation networks since they can attain completely ubiquitous coverage. In this paper, we present three key technological issues that must be taken into consideration when managing radio resources for upcoming TSNs: managing spectrum resources, managing beam resources, and managing cross-layer power [1].Estimates of the the quantity of sensors, orbits, and channels required for a satellite network are obtained. Satellite links' characteristics and impacts are addressed. In the second section of the paper, a more thorough model is used to determine the quantity of communication channels per link. This comprises both satellite links and terrestrial lines, as well as radio connectivity from satellites to mobile users and gateways. We present a method to estimate link strengths based on network architecture and traffic demands and introduce another theoretical structure for LEO/ICO-based networks [2].With the rising demands of data traffic, one of the key difficulties, satellite communication networks can serve as a complement to terrestrial wireless networks and are also suited for some specialized applications, such as manned space travel, high seas exploration, and emergency rescue. increases the capability of satellite communication networks' computers. Maximizing resource usage under restricted spacecraft resources is also an inescapable issue, as the majority of satellite resources in present networks are underutilized, aside from network infrastructures (such as ground stations and satellites), or abilities on a single satellite [3].The management and configuration of the satellite communication system are hampered by the existing system design's inefficiency and rigidity. We describe a solution to this problem in terms of in this study, network function virtualization and software-defined networks were applied in a number of co satellite navigation system. A network function parallelization service deployment mechanism and a three-layer communications system make up the framework, which also includes development tools architectural for effective traffic forecasting. Utilizing a network that can tolerate delays and open flow, we develop a prototype based on the suggested framework. The prototype's functioning and the viability of the suggested framework are then confirmed through the construction of a test scenario and experiments [4].Due to very limited cost savings and the inherent technical challenges involved, communications systems offerings have not developed as quickly as terrestrial communications systems. However, the remote sensing industry is clearly committed to reframing and retooling the role of satellite communications in orbit. In fact, it is crucial that the next generation business architecture supports a variety of network protocols, including several layers and satellite communications, given the current and upcoming problems that will be pursued under 5G [5].Entrepreneurs and vendors face relatively high entry barriers when using satellite networks. The use of satellites is restricted to a few significant operators, for instance, as the cost of constructing and implementing the Iridium Next system is anticipated to surpass $3 billion. Traditional satellite projects do not use continual decommissioning i.e., a new development strategy, and thus have extremely long development cycles that can range from four years for success of company to ten or more years for government initiatives. It is challenging to adjust to the quickly shifting market needs because the programmer is typically released only after the last programmer has been fully exploited [6].In order to provide worldwide network coverage, communications systems networks are become more and more appealing. It is possible to create low-cost, lightweight satellites that enable the use of low-cost launch vehicles thanks to an increasing demand for communications services, novel design technologies, and manufacturing engineering. As a result, satellite communication networks—which can offer a variety of advanced communication services regardless of a person's location or environment—is quickly turning into an economically viable option [7].When trying for high-availability connections, satellite communications are particularly tempting. One of the techniques with the greatest potential for availability and margin enhancement is site diversity. It is possible to "upgrade" traditional site diversity frameworks to achieve better performance and fewer problems. The research provided an ecological scenario and assessed the advancement that may be made by using more precise models. Further research focuses on improvement evaluation in circumstances that are more realistic and yield parametric outcomes in response to the removal of stations [8].Three key characteristics of a terrestrial communication network that handle voice traffic affect its topological design are listed below. Secondly, the cost of long-distance satellite transport between two earth stations is independent of their distance from one another. Second, voice communication service requests happen between node pairs. Finally, voice service requests are not always the same. For instance, scheduled travel to Little Rock and Schenectady is substantially lighter than scheduled traffic connecting New York and Los Angeles. As well as assuming that requests are homogeneous frequently, modeling of data communication networks commonly assume that service requests in a network of data communication occur at each individual node, connecting with a central facility [9].Geospatial systems are subject to certain limitations because satellite resources and communications are expensive. Every layered protocol architecture used by the Internet protocol family and the ISO/OSI reference model must address a number of technical problems. The protocol stack model states that a protocol uses services offered by modules below it to address a particular problem and offers a fresh service to higher layers [10].LEO satellite communications cannot totally use real-time measurements of the signal-to-interference-plus-noise ratio because the pathways of satellite communications networks vary quickly on the surface of the planet. Thus, changeover prediction must be performed to enhance the satellite handover frequency in order to maintain real-time service connectivity. Anti-satellite link (ISL) changeover has caused less worry than spot-beam and ground cellular network handovers. The user can identify more spacecraft at any given time as the number of LEO satellites rises. This can be seen as a general tendency in the literature on ISL handover. Gkizeli et al. suggested a hybrid channel adjustable handover scheme2,3 and a hard handover scheme1 are both used. By examining the customers' coverage times in LEO satellite networks, Seyedi et al. initially set a lower constraint on the anticipated amount of ISL handover. It combines all of the requirements for satellite handover that Zhaofeng Wu et al. have established [11].Fixed satellite communications (FSS) and mobility satellite services are two categories of satellite communication services (MSS). In this essay, we concentrate on the MSS, which stand for the next generation of international satellite communications. Services for mobile satellite-based telephones have existed since the late 1970s. However, cellular technology, which offers a dependable and affordable alternative and can attain nearly universal coverage, has significantly hurt satellite-based telephone service from a penetration point of view. Moreover, satellite services depend on LOS availability, which is impossible in interiors and difficult to ensure in cities [12].many optical satellite connections. A method for calculating associated an optimal approach for choosing military radar is provided while ground stations for various scenarios are illustrated. Mathematical algorithms are described for evaluating ground station accessibility for single connectivity and diversity scenarios for decor relation cloud incidence values in A

New Approach to Assess Optical Military Radar Access and availability Going to consider Both Temporal and Spatial Cloud communication [13].Their optical lines of sight must be in alignment during the conversation for two satellites to establish optical communication. To comply with this criterion, satellites point other spacecraft generally using ephemeris data (the satellite's position according to the circular equation) and precisely using a tracking system [14].The deployment of LEO satellites occurs at altitudes of 500–1500 km which results in propagation delays that are comparable to those of terrestrial networks. Higher throughput and real-time communications are made possible by decreased propagation delay. The instability of the satellite makes satellite handover problematic. When the providing satellite is below the customer's minimum increasing distance, the user should be switched to another visible satellite to stop further interference since the user's contract length may surpass the LEO satellite's coverage time Connection [15].The use of satellites is thought to increase communication survivability rates. The Hybrid Routing Protocol (HRA)11 uses residual load information as a key component to determine a node's residual load capacity. The node capacity at each range can be used to determine the link status. When pheromones are acquired via genetic algorithms, HRA also employs the insect larva method to discover the best path (GA). Software defined networks (SDN) and virtual topologies are combined in depth-first search (DFS) and Dijkstra's algorithm (JDDA)12 (VT). Maximum traffic load is determined by JDDA, whereas vital nodes are determined by DFS. Typically, DFS was applied form required nodes and JDDA was applied between source node and start node or final requirement node and final node [16].Communication by satellite, wireless technology, and optical fiber. To choose the optimum communication technology for automating electrical systems, its benefits and drawbacks must be weighed against one another. To prevent interruptions in power systems caused by unforeseen failures, a highly dependable, scalable, secure, robust, and affordable communication infrastructure involving substations and wireless remote center is essential. Quality of Service (QoS) standards is necessary to guard against unexpected power outages and disturbances [17].The principal cooperative users in the space industry are satellite communication networks, which are made up of various spacecraft at various altitudes. Cooperative dynamic spectrum satellite communications are being emphasized as important cognitive radio approaches. In this paper, a trust-weighted cooperative spectrum detection for primary satellite system is developed in an attempt to completely explore the potential of portable satellite communication systems according to the idea the ability of a satellite cluster to support a variety of applications. The proposed algorithm also enables the integration center to composite all 1-bit neighborhood findings from all auxiliary satellites using confidence weights to get a final determination on the unavailability of the main satellite system [18].Security threats are especially likely to affect satellite communications. The primary goal of physical layer security is to take advantage of the shadowed region (SR) channel, a network that has been extensively investigated, to distinguish between the new channel and indeed the eavesdropper's channel [19].Together, the satellite network and the grounded network, working as an information processing network, boost the system's overall efficiency in terms of spectrum use. Integrating the NOMA scheme with the CSTN, which guarantees access to many users and increases spectrum usage without additional resource consumption, would undoubtedly result in further improvement. However, in CSTN, the cognitive network's transmission power must be managed to prevent a decline in the primary user's communications [20].

2. MATERIALS AND METHOD

2.1. Laser communication: The use of free-space communication systems in space is laser communication. Applications for satellite-to-ground or satellite-to-satellite communication can take place totally in orbit (inter-satellite laser link). Because infrared light compresses data into noticeably tighter waves than radio waves do, ground stations can receive more data simultaneously when using infrared light for laser communications. Despite not always being quick, laser communications can send greater information with one downlink. Laser communication (LC) can pack data into tighter waves, meaning higher bandwidth, allowing more data to be sent over a single link. Although the data rates achieved depend on the signal-coding scheme, in general, they can be 100 to 1000 times higher than RF communication rates. The "amplitude modulation" process underlies the operation of laser communication systems. In this, the modulating signal's instantaneous amplitude determines the carrier's amplitude.

2.2. Optical networks: An communication fiber is a telecommunications system that transmits information amongst two or more places using light signals rather than electronic signals. Computers in an office, sizable cities, or even entire nations can be points in a global communications network. Three crucial elements of optical networks are capacity, range, and speed. A single strand of fiber-optic cable may transport optical signals at multiple wavelengths concurrently, with each laser source carrying its own data content, because bright light does not interfere with one another. The optical fiber cable that connects the ONT, or optical network terminal, to the Termination Point (TP), commonly known as a modem. It connects to your router using an Ethernet wire and transforms light signals from your TP's fiber optic line into digital signal that your router can comprehend.

2.3. Satellite optical communication: The two main components of satellite communication are the ground segment, which consists of fixed or mobile transmissions, reception, and associated systems, and the space component, which primarily consists of the satellite. A wireless telecommunications system known as optical satellite communication uses optical frequency as a medium to transport data signals at a high bit-rate. Free space is a medium used in optical satellite communication. A channel, receiver, and transmitter make up an optical satellite.

2.4. Vibrations: Any physical system will typically experience vibration, which is when an elastic component or medium is moved outside of its neutral axis and given time to respond to forces, the periodical back back and forwards motion of particles occurs. bring it back into balance. Vibration energy is the energy that is present in a vibrating system when it would otherwise be at rest. This is particularly true of molecules because of the vibrations that occur within them.
2.5. Satellite networks: The nodes that make up a satellite network transmit data from one location on Earth to another. A satellite, an earth station, an end-user terminal, or a phone can all function as a node in a network. Unmetered Bandwidth is the ability to communicate from a relatively small satellite on Earth with a geostationary gravitational slingshot more than 22,300 yards above the equator.
2.6. Solar Radiation Pressure: The force generated by the impact with sunlight photons on a spacecraft's surface is known as solar radiation pressure (SRB). the disturbance that follows the gravitational pull of the Earth, Sun, and Moon. The sum of the forces produces the SRP force on a flat surface (reflection or diffuse reflection). A pyrometer or pyrheliometer is used to monitor global radiation and/or direct radiation, respectively. A sunshine recorder is a less precise but less expensive alternative way of monitoring solar radiation.
2.7. Thermal Bending: When a thin structural element is exposed to an external load that is applied perpendicular to the element's longitudinal axis, the behavior is characterized as bending (also known as flexure) in applied mechanics. The flexural strength of the material was found to be less at 90°C than it was at room temperature, and it was also affected by how long it was held at that temperature.
2.8. Micro Meteorite impacts: All exposed materials on an uninsulated surface are gradually but surely destroyed by a micrometeorite. Little impacts have the same cooling effect on glass as large impacts in a huge gravity well like the Moon because they are energy enough to cause impact melting. When spacecraft and satellites hit with this "space junk," it may result in severe devastation or catastrophic failure. For astronauts doing extravehicular missions in space, these accidents present a potentially fatal risk.
2.9. Solar and Lunar Gravity: Together, The gravitational attractions of the Sun, Moon, and Earth revolving surface result in tides, or changes in sea level. Tidal debris is spread by friction in shallow oceans and continental shelves, 70% of which is brought on by the gravity of a moon. The Moon significantly affects Earth's tides, despite the fact that the Sun also generates enormous tidal forces. Sunspot tides are modifications of lunar tidal patterns that are half as large as lunar tides.
3.0. Earth oblations effects: Four These are the primary motion-related impacts of Earth's fading: (1) The orbital plane rotates around the Earth's axis at a rate of 10,000 (R/r)3.5 degree per day in the wrong direction to the satellite. What is the orbital plane's elevation to the equator and R is the equator of the planet? A planet's form is flattened or tilted by rotation by diminishing the equator's actual gravitational acceleration, which causes centrifugal acceleration, and the redistribution of mass on the globe (which changes the gravitational field). communication effects of orbital perturbations. Geostationary satellite insertion into orbit. The gravitational pull of Earth is stronger the closer a satellite is to the planet. The satellite must move more quickly in a low orbit to avoid crashing back to Earth.
3.1. Method: The PROMETHEE method of each criterion takes. In this way, every criterion Can be evaluated on different grounds Operate. For example, better conclusions can be drawn. PROMETHEE I identifies incomparable and neglected alternatives by creating an Area Ranking, PROMETHEE Complete for alternatives Provides ranking [21]. Through using PRO METHEE approach, the MCDA process often goes as follows: I choosing DMs based on the criteria, comparing alternatives' efficacy to the criteria, choosing common values, associated negligence values, and entirely voluntary values for each criterion, applying PROMETHEE where necessary, and performing sensitivity analysis finalizing decisions that have been made. Use of standard criterion functions is the main distinction between the PROMETHEE approach and other MCDA techniques [22]. The PROMETHEE method is well known this is the outreach-based approach Decision making for decision makers Provides support for resolution. Issues through a valuable outreach relationship. This relationship is based on the pairing sequences between alternatives and PROMETHEE mode Defines custom framework. PROMETHEE The system is very much in the process of making complex decisions Is useful, especially Human in real world MADM problems Subjective judgment of consciousness and experts [23]. PROMETHEE alternatives are comparable. Positive and between negative outgoing flows Sort of alternatives by balance in Hand flow is used. Taking into account the PROMETHEE Criterion Performance Uncertainty in values; However, it is very difficult for users to select common criteria functions for each criterion and the associated limits, resulting in additional uncertainty [24]. Therefore, to overcome this, they are based on reliability Proposed the approach, which is PROMETHEE The firmness of the solution obtained from Help the decision maker to explore the character. The PROMETHEE family was first created by 1982 in Quebec, Canada France at the conference, including PROMETHEE I for alternative rankings and PROMETHEE while the PROMETHEE VE, PROMETHEE for the problems of the segment, is the PROMETHEE VEO for alternatives [25]. Of the many criteria currently in place, PROMETHEE methods are the most important. The number of specialists who apply these techniques for issues that involve many criteria in actual practise, as well as the annual growth of returnees. Conference presentations utilizing one or more PROMETHEE techniques (see notes) [26]. Selection of each standard examining a PROMETHEE activity each standard frequently serves as a function. The decision and the criteria's nature maker is determined predefined There are six categories exams processes, most of which include the following criteria: standard scale, semi-scale, linear priority criterion, Level scale, linear The area of [27]. The Prometheus method is portfolio complexity Most widely used for applications One of the

outlined methods. Relatively few publications Portfolio selection methods directly based although found to contain this type of in which it is analyzed and its irreversibility. The present article [28]. At PROMETHEE, we encounter more than seven sometimes too large to cover criteria Evaluation tables. At that point, the decision will be made PROMETHEE a to help solve problems Becomes a black box. in this situation, if a wood-structure is adopted, it can be seen as an extension of PROMETHEE [29].

3. RESULTS AND DISCUSSION

TABLE 1. Satellite Communication Networks

	Solar Radiation Pressure	Thermal Bending	Micro Meteorite impacts	Solar and Lunar Gravity	Earth oblateness effects
Laser communication	1550	1650	75.6	57.8	63.5
Optical networks	1350	1480	60.6	86.5	95.3
Satellite optical communication	1560	1950	40.5	97.8	88.6
Vibrations	1750	1750	50.5	90.5	98.4
Satellite networks	1560	1350	67.6	50.6	69.79
Max	1750	1950	75.6	97.8	98.4
Min	1350	1350	40.5	50.6	63.5
max-Min	400	600	35.1	47.2	34.9
	400	600	35.1	47.2	34.9

Table 1 shows the Satellite Communication Networks, Solar Radiation Pressure. Thermal Bending Micro Meteorite impacts Solar and Lunar Gravity Earth oblateness effects. Figure 1. shows Laser communication, Optical networks, Satellite optical communication, Vibrations, Satellite networks from the figure 1 and table 1 it is seen that Vibrations is showing the Maximum Value for Solar Radiation Pressure and Optical networks is showing the minimum value. Satellite optical communication is showing the Maximum Value for Thermal Bending and Satellite networks is showing the minimum value. Laser communication is showing the Maximum Value for Micro Meteorite impacts and Satellite optical communication is showing the minimum value. Satellite optical communication is showing the Maximum Value for Solar and Lunar Gravity and Satellite networks is showing the minimum value. Vibrations is showing the Maximum Value for Earth oblateness effects and Laser communication is showing the minimum value

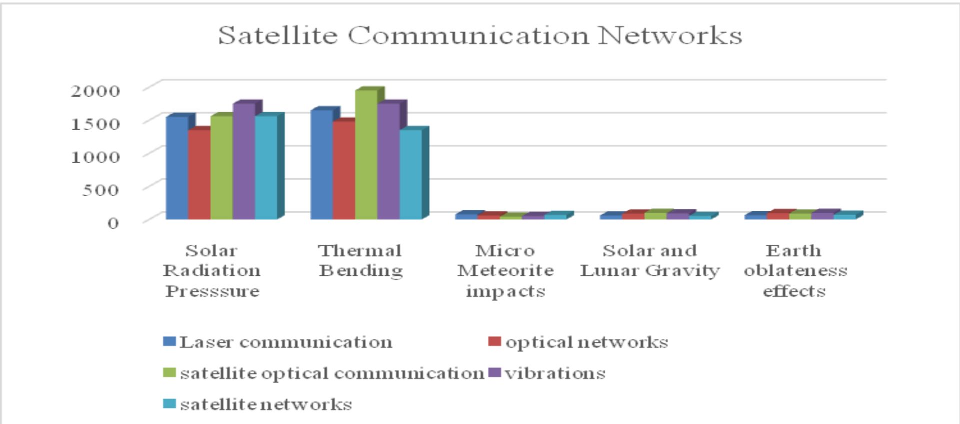

FIGURE 1. Satellite Communication Networks

TABLE 2. Normalized Matrix

Normalized Matrix					
	Solar Radiation Pressure	**Thermal Bending**	**Micro Meteorite impacts**	**Solar and Lunar Gravity**	**Earth oblateness effects**
Laser communication	0.5	0.5	1	0.15254	0
Optical networks	0	0.2167	0.5726	0.76059	0.9112
Satellite optical communication	0.525	1	0	1	0.7192
Vibrations	1	0.6667	0.2849	0.84534	1
Satellite networks	0.525	0	0.7721	0	0.1802

Table 2 shows the Normalized matrix of Satellite Communication Networks or Prometheethe Normalization are shown in the above tabulation. Table 2 shows the default matrix of Prometheus for the Satellite Communication Networks shown in the table above.

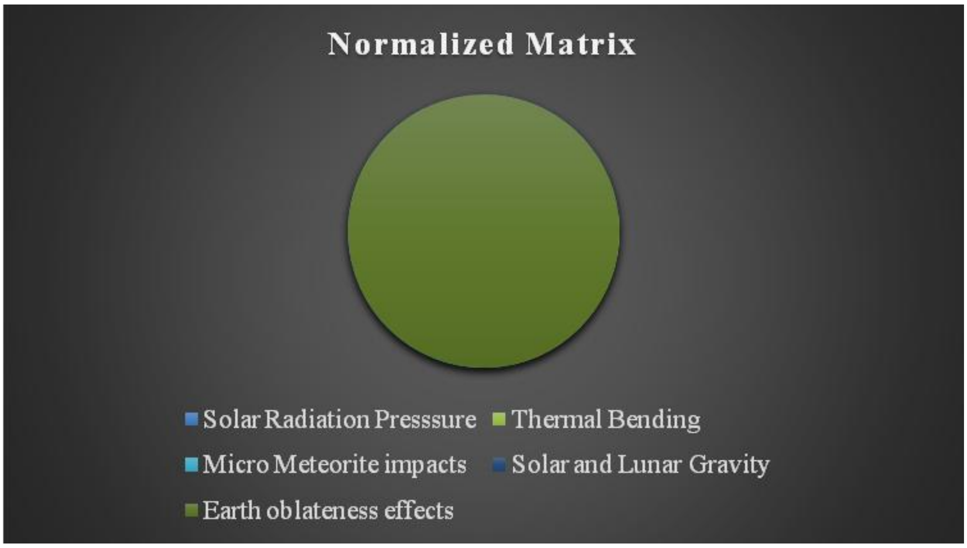

FIGURE 2.Normalized matrix

Figure 2 shows the Normal matrix of the Satellite Communication Networks for PROMETHEE Solar Radiation Pressure. Thermal Bending Micro Meteorite impacts Solar and Lunar Gravity Earth oblateness effects. Laser communication, Optical networks, Satellite optical communication, Vibrations, Satellite networks

TABLE 3. Pair wise Comparison

Pair wise Comparison					
	Solar Radiation Pressure	**Thermal Bending**	**Micro Meteorite impacts**	**Solar and Lunar Gravity**	**Earth oblateness effects**
D12	0.5	0.2833	0.4274	-0.6081	-0.911
D13	-0.025	-0.5	1	-0.8475	-0.719
D14	-0.5	-0.1667	0.7151	-0.6928	-1
D15	-0.025	0.5	0.2279	0.15254	-0.18
D21	-0.5	-0.2833	-0.427	0.60805	0.9112
D23	-0.525	-0.7833	0.5726	-0.2394	0.192
D24	-1	-0.45	0.2877	-0.0847	-0.089
D25	-0.525	0.2167	-0.199	0.76059	0.7309
D31	0.025	0.5	-1	0.84746	0.7192
D32	0.525	0.7833	-0.573	0.23941	-0.192
D34	-0.475	0.3333	-0.285	0.15466	-0.281
D35	0	1	-0.772	1	0.539
D41	0.5	0.1667	-0.715	0.6928	1
D42	1	0.45	-0.288	0.08475	0.0888
D43	0.475	-0.3333	0.2849	-0.1547	0.2808
D45	0.475	0.6667	-0.487	0.84534	0.8198
D51	0.025	-0.5	-0.228	-0.1525	0.1802
D52	0.525	-0.2167	0.1994	-0.7606	-0.731
D53	0	-1	0.7721	-1	-0.539
D54	-0.475	-0.6667	0.4872	-0.8453	-0.82

Table 3 shows the Pair Wise Comparison of table 2 the Satellite Communication Networks for PROMETHEE Solar Radiation Pressure Thermal Bending Micro Meteorite impacts Solar and Lunar Gravity Earth oblateness effects. Laser communication, Optical networks, Satellite optical communication, Vibrations, Satellite networks comparing each row with other row on the tabulation.

TABLE 4. Preference Value

Preference Value						
	0.2336	**0.165**	**0.3355**	**0.102**	**0.042**	
D12	0.1168	0.047	0.1434	0	0	0.307
D13	0	0	0.3355	0	0	0.336
D14	0	0	0.2399	0	0	0.24
D15	0	0.083	0.0765	0.016	0	0.175
D21	0	0	0	0.062	0.039	0.101
D23	0	0	0.1921	0	0.008	0.2
D24	0	0	0.0965	0	0	0.097
D25	0	0.036	0	0.078	0.031	0.144
D31	0.0058	0.083	0	0.087	0.03	0.205
D32	0.1226	0.129	0	0.024	0	0.276
D34	0	0.055	0	0.016	0	0.071
D35	0	0.165	0	0.102	0.023	0.29
D41	0.1168	0.028	0	0.071	0.042	0.257
D42	0.2336	0.074	0	0.009	0.004	0.32
D43	0.111	0	0.0956	0	0.012	0.218
D45	0.111	0.11	0	0.086	0.035	0.342
D51	0.0058	0	0	0	0.008	0.013
D52	0.1226	0	0.0669	0	0	0.19
D53	0	0	0.259	0	0	0.259
D54	0	0	0.1634	0	0	0.163

Table 4 shows the Performance value of the Satellite Communication Networks for PROMETHEE Solar Radiation Pressure Thermal Bending Micro Meteorite impacts Solar and Lunar Gravity Earth oblateness effects. Laser communication, Optical networks, Satellite optical communication, Vibrations, Satellite networksWhen compare to all others. And the last one is the sum of the same row.

TABLE 5. Sum of Performance Value

	Solar Radiation Pressure	**Thermal Bending**	**Micro Meteorite impacts**	**Solar and Lunar Gravity**	**Earth oblateness effects**		
Laser communication	0	0.307	0.3355	0.23992	0.1746	1.05704	0.2114
optical networks	0.10072	0	0.2003	0.09654	0.1444	0.54196	0.1084
satellite optical communication	0.20546	0.2765	0	0.07086	0.2902	0.84296	0.1686
vibrations	0.25747	0.3204	0.2185	0	0.3422	1.13844	0.2277
satellite networks	0.01348	0.1895	0.259	0.16345	0	0.62551	0.1251
	0.57712	1.0934	1.0132	0.57076	0.9514		
	0.11542	0.2187	0.2026	0.11415	0.1903		

Table 5 shows the sum of all rows and column are applied on the last row. The sum of all row of performance value are arranged above tabulation and the diagonal value are zero.

TABLE 6. positive flow, Negative Flow, Net flow

	positive flow	**Negative Flow**	**Net flow**	**Rank**
Laser communication	0.21141	0.1154	0.095983141	2
Optical networks	0.10839	0.2187	-0.110283791	5
Satellite optical communication	0.16859	0.2026	-0.034057452	3
Vibrations	0.22769	0.1142	0.113535054	1
Satellite networks	0.1251	0.1903	-0.065176952	4

Table 6 shows ranking for the positive flow, Negative Flow, Net flow. Laser communication, Optical networks, Satellite optical communication, Vibrations, Satellite networks. In the above tabulation the vibrations are in the first rank and the last rank is Optical networks.

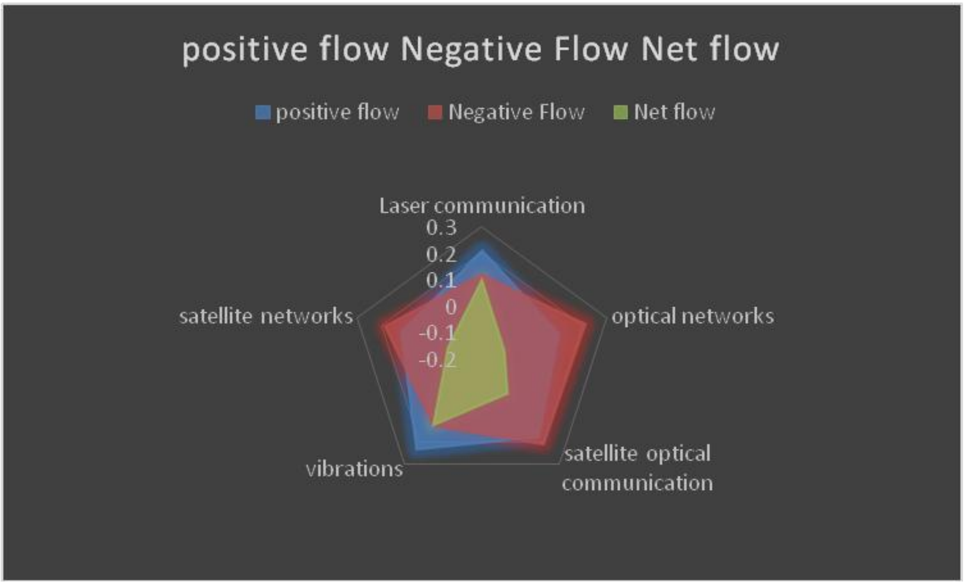

FIGURE 3. Satellite Communication Networks positive flow Negative Flow Net flow

Figure 3 shows the Satellite Communication Networks Positive flow, Negative flow, Net flow. The Net flow value is vibrations is Showing the highest Value. And Optical networks is Showing the lowest Value.

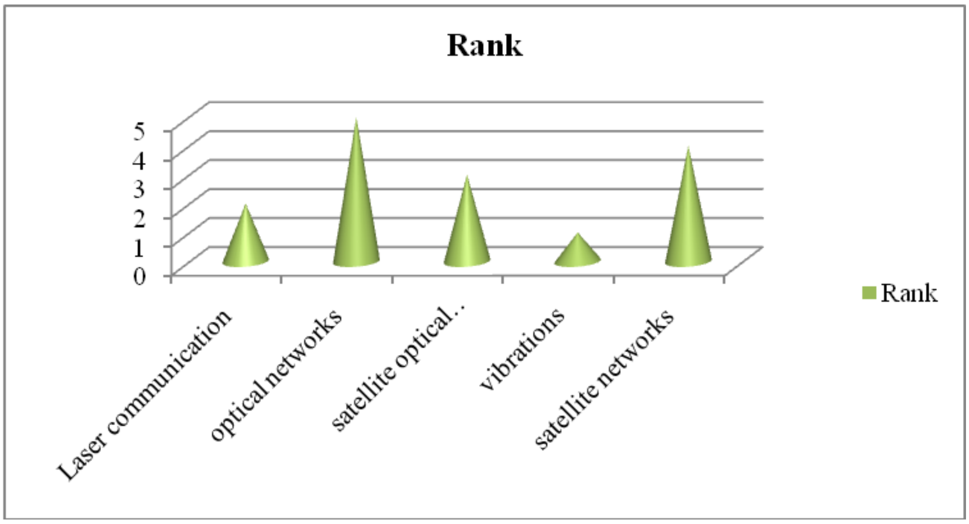

FIGURE 4. Shown the Rank

Figure 4 Shows Ranking of Satellite Communication Networks for using the analysis of PROMETHEE Method. vibrations is got the first rank whereas is the Optical networks is having the Lowest rank.

4. CONCLUSION

A communications satellite would be an artificial satellite that creates a channel here for the transmission of a communication through a transponder between a sender and a recipient located at various locations on Earth. Communications via satellite are used in telecommunications, radio, broadcast, computer, and military applications. Satellites offer three different kinds of communication services: data communication, broadcasting, and telephone as an addition to terrestrial cellular networks, satellite telecommunications infrastructure can offer more broad wireless coverage, especially in areas with low population concentrations. The potential architecture of terrestrial-satellite communication systems (TSNs) next-generation networks since they can attain completely ubiquitous coverage. In this paper, we present three key technological issues that must be taken into consideration when managing radio resources for upcoming TSNs: managing spectrum resources, managing beam resources, and managing cross-layer power. The use of free-space communication systems in space is laser communication.

Applications for satellite-to-ground or satellite-to-satellite communication can take place totally in orbit (inter-satellite laser link). Because infrared light compresses data into noticeably tighter waves than radio waves do, ground stations can receive more data simultaneously when using infrared light for laser communications. A communication fiber is a telecommunications system that transmits information amongst two or more places using light signals rather than electronic signals. Computers in an office, sizable cities, or even entire nations can be points in a global communications network. Three crucial elements of optical networks are capacity, range, and speed. A wireless telecommunications system known as optical satellite communication uses optical frequency as a medium to transport data signals at a high bit-rate. Free space is a medium used in optical satellite communication. A channel, receiver, and transmitter make up an optical satellite. Any physical system will typically experience vibration, which is when an elastic component or medium is moved outside of its neutral axis and given time to respond to forces, the periodical back back and forwards motion of particles occurs. bring it back into balance. The nodes that make up a satellite network transmit data from one location on Earth to another. A satellite, an earth station, an end-user terminal, or a phone can all function as a node in a network. PROMETHEE (Priority Ranking System Method for Enrichment Assessments) About PROMETHEE methods and usage to uncover current research to classify and explain A classification scheme and a comprehensive literature review is presented. Laser communication, optical networks, satellite optical communication, vibrations and satellite network.Solar Radiation Pressure, Thermal Bending, Micro Meteorite impacts, Solar and Lunar Gravity and Earth oblations effects. vibrations are got the first rank whereas is the Optical networks is having the Lowest rank.

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