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A Value Approach for Home Buyers in Township Projects

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Abstract: ***The last two decades have witnessed hectic real estate activity especially the proliferation of residential townships. Not only the metropolitans but even the mid-sized cities have adopted the apartment or commonly called the flat system of housing. The twenty-first-century house buyer wants to be in the vicinity of Malls, entertainment places, shopping areas, and gyms. Almost every middle-class household owns a car and many of them have more than one, yet want near to the workplace, education institutions, and hospitals as also a striking distance from Airport, etc. Real estate works in micro markets and the cost of apartments normally is talked about in cost/sqft. The house buyer has a set of requirements to be met in a given budget but he gets to hear and talked about huge claims, jargons, and fuzzy cost calculations. Thus, one is neither clear about the overall amenities, nor the square feet and not even the total cost quoted by different builders at the decision-making time. This paper presents enlistment of quality-of-life parameters as identified from the literature survey and the survey. Further, a Value Approach is presented that could be used for rating real estate products based on the parameters that directly impinge on the QOL (Quality of Life) of the homebuyer and the value he or she places on them***
Keywords: Quality of Life, Value Drivers, Cost of Ownership, Value Index, Value Approach

I. INTRODUCTION

Enhancing the Quality of life is an ultimate objective for any homebuyer. It is an abstract notion of expectations for every individual and the idea of a flat that a builder would promote and sell. Preference for outdoor space, sports facility, balcony, view, shopping facility, walking plaza or any such facility can be an attraction that is known to enhance 'Quality of Life'. A conjecture as it may sound, but it is understood to express the intent and the deliverable expressed in a variety of ways but without an agreed body of knowledge to express it consistently across the industry. At the conceptual level there is no disagreement that such a notion does not exist or should not exist (Gopikrishnan & Paul, 2017). This research work has identified a set of variables that are generally identified to be the expectations through the literature review and the survey of developers, buyers and other stakeholders that are involved in the real estate segment. This paper presents enlistment of quality-of-life parameters as identified from the literature survey and the survey. Further, a Value Approach is presented that could be used for rating real estate products based on the parameters that directly impinge on the QOL of the Home buyer and the value he or she places on them.

II. LITERATURE REVIEW

Quality is an evolving concept. It has moved up from 'Fitness to Standard' and 'Fitness to Use" from the time of Juran to 'Fitness to Latent Requirement' in the Steve Job legacy. Quality, when referred to build structures, is normally described in terms of materials used, structural strength, building performance and aesthetics (Kumar, et al., 2020). QOL is a complex combination of build, social and economic environment. Rarely, has the built quality been directly associated with QOL even though it is an often-used phrase when describing human satisfaction from living conditions in general and an important concern in economics, social and political science (Gopikrishnan & Paul, 2018). However an understanding of its framework and idea has been there for some time now. Many urban planners, architects and researchers have articulated about concept of liveability which roughly translates into QOL, even though the later is much bigger concept and subsumes the former (Paul & Basu, 2018). A very useful working definition of urban liveability comes from Vuchic (1999, p.7) who defines it as "…generally understood to encompass those elements of home, neighborhood, and metropolitan area that contribute to safety, economic opportunities and welfare, health, convenience, mobility, and recreation". Liveability is a qualitative concept which could embrace the issues related t 'quality of life' and well-being. Also Tan Khee Giap (2014) defines it as a notion that relates to the attractiveness of an area as a 'desirable' place to live, work, invest, and conduct business. In other words liveability is a place- centric thing where features like surroundings, amenities, functionality of houses or the locality contribute in well- being and quality of life.

Also Tan Khee Giap (2014) also suggests that wellbeing of an individual and his quality of life are knitted together in such a manner that his living conditions and state of mind can be easily determined by measuring it. In similar manner the quality of living can also derive factors from the urban surroundings and the configuration of work and place of stay. Interestingly, these statements and development factors have given rise to various components and indicators that can evaluate or measure liveability in the further part of the paper. Indicators like how well the connectivity of that place is w.r.t public transport, the level of development of the area where the apartments are situated or connection of green spaces and outdoor access. Thus to put it in another way, the notion of 'liveability' is used to describe the overall contribution of the urban environment in influencing the quality of life or wellbeing of residents (Urbis, 2008).

Various authors have worked on effects of various components of RBE like Jackson explained the effects of green space on humans both at the psychological level as well as on physical level. Visual and physical accessibility to green space is important to human welfare at the neighbourhood scale as well as the individual parcel (Jackson, 2003). Insufficient greenery in residential colony reduces the aspirations and opportunities for natural experiences of residents outside the domestic setting, which may result in lower physical activity, behavioural problems, and social isolation (Lindheim and Syme, 1983). As per Emmanuel, the built form geometry and density is one of the influential variables affecting outdoor thermal comfort (Emmaneul, 2005). According to Angelotti (2007) outdoor spaces that offer thermal comfort conditions are characterized with high levels of liability. This is possible as a better thermal comfort condition enhances the productivity of humans affecting their performance. Road networks and connectivity also play an important role in creating a congenial built environment for social interaction and exchange. Well defined driveways, street crossings and footpath for pedestrians are important to encourage walking among the residents. The conveniences offered by strategic location of public facilities and services to meet day to day needs of the residents discourage the use of vehicles within residential colonies. Better pedestrian conveniences in a residential colony not only reduces pollution caused by vehicular use but also reinforces local networks of support and the sense of community through frequent meeting among neighbours on the streets, which are important for psychological health (Barton et al, 2003). The clean environment relates to general sanitation conditions within the residential colony and satisfaction of residents with the surrounding physical built environment. The built environment that discourages littering on outdoor spaces and helps in collection of domestic garbage efficiently does affect the living quality of residents.

Built environment factors like close proximity of a residential area to a noise generating establishments or activities in the vicinity, is influential in determining the satisfaction of residents with the living conditions in a colony (Gopikrishnan & Paul, 2018). Noise affects human both physically and mentally and results in improper communication, sleeplessness and reduced efficiency (Singh and Davar, 2004). The noise above certain tolerance limits would affect human health which in turn will influence the performance of humans. Visual character of a residential colony forms a positive or negative image of wellbeing of residents. Visual landmarks and logical transit pathways also assist people in reaching their destinations (Jackson, 2003). According to Austin, housing quality too has a positive affect on satisfaction with the local physical environment, which has an impact on perception of safety (Austin et al, 2002)

III. BUILT ENVIRONMENT

The built environment signifies man-made structures, features, and facilities viewed collectively as an environment. This is a space in which humans live and work and is a result of their needs, aspirations and actions. Human needs have been so eloquently described by Maslow in his 'Hierarchy of Needs' in a famous 1943 work, "A Theory of Human Motivation". At the bottom of the pyramid are the most basic Physiological and Safety needs and on top ie the vertex is human esteem and self actualisation. At the centre is the transition where physical and real transcends into more intangible and sublime ie Love, belonging and societal etc. Physiological needs are nothing but metabolic requirements of food, water and air and protection elements of clothing and shelter. Safety needs refers to personal, health, financial, job and physical protection against harm. How much can the Built Environment cater for all these needs in one form or the other ie physical, societal, cultural and sublime needs? As one can see, more and more people want to be in a place that can go beyond physical needs, meaning improving their QOL reaching upto sublime needs. There has been a new awakening to this evolving discourse on QOL and Value in recent times and new regulations and building codes have come up in last few years trying to meet many of the basic needs. But the individuals want provisions beyond the codes that layout minimum standards and that is where the demand meets supply. Builders try and add design value, green zones, amenities and facilities, even automation to entice the home buyer.

IV. SEEKING VALUE AND VALUE DRIVERS

Notion of value is different from the cost that is attached to a commodity. In any commodity, everything that is purchased may not be counted to be what an individual would like to count as a preference. Other terms that are used include 'worth' or 'goodness' which refer to the choice of an individual. Thus, value is a personal matter of choice. In this context (Paul, et al., 2021), (Paul & Kumar, 2021) has emphasized that the fire and life safety provisions play an important role in establishing the value drivers of a built environment. It relates cost to the quality that is perceived in relation to the need. Competitors in the market promote what may interest a variety of buyers based on the segment that they focus. While best value may be the economic advantage but in a competitive market, everything else that comes with the commodity is what matters. The rationale is, prima facie, difficult to comprehend but it is the determinant.

In the instant case of QOL, the value is preference of each of the determinant of QOL by an individual. Based on the literature, promotional literature and the questionnaire survey, analysed using Delphi Technique, Value Drivers for Quality of Life Parameters are presented in Table 1.

Table 1: Quality of Life Parameters

Qualitative Value driver for Home Buyer	Parameter
Access to Amenities (Distance in time units)	Important landmarks and hubs
	Schools, Colleges and Educational Institutes
	Shopping malls
	Golf course
	Sporting Arenas and Parks
	Corporate offices
	Government Offices
	Hospitals
Mobility (Proximity to)	Public Transport- Metro/Bus Stop
	Railway station
	Bus stand
	Airport
	Expressway
Building/Tower Characteristics	Apartments per floor
	Number of Lifts
	Tower to Tower distance
	Tower height
	Roof top/Building amenities
	Fire and Safety provisions
Apartment	High Ceiling, Large size doors, Bay windows
	Premium finishes like Italian marble, Wooden flooring etc.
	Build Quality including Material Specifications like branded electrical fittings, bathroom and kitchen
	Carpet area, built up area, Equivalent area
	Aesthetics
	View
Outdoor and Indoor Facilities in the Project area	Playgrounds and Parks
	Indoor facilities like gym, spa, indoor games.
	swimming pool,
	Children play area
	Cycling/jogging/walking tracks
Project Features	Theme based Architecture including spatial layout and

Qualitative Value driver for Home Buyer	Parameter
	landscaping etc
	Green Features
	Gated
	Density and FAR
	Parking and storage area
	Shopping centre
	Pedestrian friendly
Services	CCTV, Access control, Security
	Power back up
	Water source
	Maintenance, Concierge, Laundry, Solid Waste Disposal services
	Piped gas
	Wi-Fi
Health and Well-being	Open spaces
	Green belt
	sea front
	noise
	pollution free, dust inhibitors
	Herbal Parks
Community and social infrastructure	Community center
	Resident's Club
	Yoga and meditation
	Place of worship
	Care for elderly, youth, children and specially enabled
	Play way, Nursery and Primary school
	Homogeneity/Heterogeneity of residents
Miscellaneous	Brand
	Exclusivity
	Automation

As can be observed from the Table 1, every builder has a tendency to market project based on the QOL Factors through the promotional literature. In a very close cost competition, the tilt in favour of buying decision is based on the perception of an individual in relation to these factors.

There are other value factors for a discerning home buyer that he can measure or calculate, like the total space (can be called a space score) he is getting to own and total cost of ownership. Thus, a value seeking homebuyer would like to have maximum space score at minimum price score in a project that assures him/her the best QOL.

A. QOL Q- Score

QOL factors can be subjective and qualitative constituting of sub factors as shown in Table 1. It is reasonable to expect that the Q score should be maximum from the buyer's perspective, subject to the budget. Through the questionnaire survey was carried out respondents gave weightages to QOL factors in multiples of 5 where 0 meant no impact on QOL, 10 as considerable, 15 as a strong, 20 as very strong and 25 as extremely high impact on QOL. While assigning such weight, it is to be ensured that the sum of all 10 factors should be 100.

Each of the 10 factors comprise of a number of subfactors and their value is obtained between 0-3 meaning thereby; 0-Doesn't matter, 1-Somewhat matters, 2-Strongly matters, 3-Very strongly matters. Sum of such sub factors under each of the factors should be 10.

Initially, before the survey, the sub-factors were 60 but the questionnaire survey also regrouped these to 20 in relation to the 10 main parameters. The final QOL Scores and subfactor subgrouping is presented in the Table 2.

Table 2: QOL Factor Relative weights and subfactor grouping

S.NO.	Factor Affecting QOL	Relative rounded-off weight of factor (A)	Subfactors	Relative rank of subfactors	Relative weight for subfactors grouping	Grouped factors
1	Access/Proximity	10	Work	2	2	Work and Educational Institutes
			Educational institutes	3		
			Malls and shopping centres	5		Hospitals, Health Infrastructure (and sports facilities
			Hospitals, Health Infrastructure	1		
			Sporting facilities, clubs and recreational areas	4		
2	Mobility	10	Public transport	1	2	Public transport like metro station, bus stop
			Railway station	4		
			Bus stand	5		Airports and Expressway
			Airport	2		
			Expressway	3		
3	Apartment /House	15	Build quality	1	3	Build Quality
			Premium fittings/ finish	5		High ceilings, large size doors, bay windows and premium fittings/finish
			Aesthetics	4		
			High ceiling, large size doors, bay windows	3		Aesthetics, balconies and view
			View	2		
4	Building Performance	10	Apartments per floor	3	2	Apartments per floor and tower to tower distance, tower height
			Number of lifts	2		
			Tower to tower distance	4		No. of lifts and fire safety
			Tower height	6		
			Roof top building amenities	5		
			Fire safety provisions	1		
5	Project Features and	10	Architectural, spatial	4	2	Gated, Parking and

S.NO.	Factor Affecting QOL	Relative rounded-off weight of factor (A)	Subfactors	Relative rank of subfactors	Relative weight for subfactors grouping	Grouped factors
	amenities		layout, landscaping			storage areas, Green features, shopping centre
			Green features	2		
			Gated	1		
			Parking and storage area	3		
			Density	6		Architecture, Spatial layout, landscaping and pedestrian friendly
			Shopping centre	7		
			Pedestrian friendly	5		
6	Outdoor and Indoor facilities	10	Playground and parks	1	2	Cycling, jogging and children play area
			Indoor facilities like spa, gym, indoor games	4		
			Swimming pool, children play area	5		Playgrounds, parks, indoor facilities gym, spa, indoor games and swimming pool.
			Children play area	3		
			Cycling, jogging and walking tracks	2		
7	Services	10	CCTV, Access control, security	2	2	Water source and power backup, piped gas
			Power backup	3		
			Water source	1		CCTV, Access control and Security, Wifi
			Maintenance	4		
			Piped gas	5		
			Wifi	6		
8	Health and Well being	10	Green belt	2	2	Pollution and Noise free
			Sea front	5		
			Noise	3		Green belt, herbal parks etc.
			Pollution free, dust inhibitors	1		
			Herbal parks	4		
9	Community and social infrastructure	10	Community center	2	2	Community centre and Residential club, homogeneity and heterogeneity of residents
			Residents club	3		
			Yoga and meditation	5		
			Care for elderly, children and specially enabled	1		Care for Children and Elderly needs, yoga and meditation
			Homogeneity and heterogeneity of residents	4		
10	Add Ons	5	Brand	5	1	Brand, Furnishing, Smart etc
			Exclusivity	3		
			Level of furnishing	1		
			HVAC	4		
			Smart apartment features	2		

The QOL Weighted Average and subgroups finally derived after analysis of the survey results are presented in Table 3.

Table 3: Final QOL Weighted Average and subgroups

Ser No	Factor Affecting QOL	5	10	15	20	25	Weighted Rounded off Mean W (Nearest to 5)	Relative Weights RWs (Sub Factors)
1	Access/Proximity	24	41	28	11	02	10 (11.5)	2
2	Mobility	35	39	25	7	-	10 (10.1)	2
3	Apartment/House	11	43	29	17	6	15 (13.3)	3
4	Building Performance	21	63	19	03	-	10 (10.2)	2
5	Project Features and amenities	15	62	23	5	1	10 (11)	2
6	Outdoor and Indoor facilities	29	66	09	02	-	10 (9.81)	2
7	Services	21	46	32	06	01	10 (11.23)	2
8	Health and Well Being	29	46	25	04	02	10 (10,47)	2
9	Community and social infrastructure	61	37	05	02	01	10 (7.68)	2
10	Add Ons	80	26	00	00	00	5 (6.22)	1
	Total						100	20

Table 3 which the outcome of expert and house buyer survey shows that in the Township Projects the House Buyer attaches maximum value to Apartment ie around 15 percent. Combined with building and project amenities it goes to 33 percent. It also shows that he/she attaches nearly 20 percent value to access and mobility. It also indicates that brand factor and other misc. add ons etc does play a role of up to 5 percent in value terms.

B. Space Core

Real Estate Regulatory Authority (RERA) has mandated that the guiding factor of sale of apartments in townships is Carpet Area. An apartment has components that has different value but sold as one. In fact, the builders quote their headline costs by Super Area. It is the built-up area plus area supposed to have been consumed by common areas, facilities and amenities. Normally built-up area should be 1.25 times carpet area. Super Area may be 1.4-1.6 times the carpet area. Therefore, there is a need to develop the correct understanding of the spatial factor. Density score is a congestion factor. It is area divided by No of Dwelling Units. Entire space thus has to be disaggregated to get the space score. The relation of the components to carpet area was obtained by Delphi Expert Survey.

Table 4: Delphi derived disaggregation of Carpet Area

Type of area	Equivalent ratio as per experts
Carpet Area	1
Balcony area	0.33
Covered cark park	0.33
Open car park	0.20
Lawn space	0.20
Terrace space	0.125
Density factor per DU	0.10

C. Cost Score: Total Cost of Ownership at NPV

The builders do not quote the cost in lumpsum. They offer various levels of finishes and at times add some discounts. Invariably, they allow the buyer to pay in instalments, construction linked payments or time linked payments etc (Saif, et al., 2020). Correct idea can only be gained if all the competitor offerings are brought to a common normalised level. This was also put through Delphi Expert Survey and following were finalised based on that.

Table 5: Delphi derived cost break ups of total cost of ownership

Type of Cost	**Remarks**
Bare Flat or Raw cost based on chargeable area inclusive of one CCP and one OCP.	Cost is normally worked out by builders on super area. In that case Chargeable is Super Area
Cost of additional open car park	Open car parks as per RERA rules are not supposed to be charged but it is generally flouted.
Preferred Location charges if any	Different floors may have different cost additions.
Registration, stamp duty and GST	
Brokerage and any other agent costs	
Modifications, retrofitting, furnishing and finishes to bring to a common level	
Miscellaneous such as club membership, yearly maintenance, RWA subscription for 10 years	
NPV in case of deferred payments or specialized payment plan.	Discounts to be treated as minus cost from NPV.

D. Concept of Value Index

A Value Index is proposed that will give a relative score of the value of competitive projects as a direct function of QOL Score and Space Score and an inverse function of the cost. It can be expressed as:

$$Value\ Index = Q * S*1000/C$$

Where Q is the QOL score, S is the Space Score and C is the Total Cost of ownership at NPV. A multiplication factor of 1000 has been chosen to obtain the results in an interpretable form. The concept was validated on five projects in Noida Sector 150.

Table 5: Validation of Value Index on Projects

S.NO	Project costs	Unit	Selected projects for Total cost of ownership in Sector 150 Noida				
			P1	P2	P3	P4	P5
1	Total cost of ownership	Rs (in lacks)	111.09	109.07	107.46	107.92	107.79
2	Effective Sqft area-SQFT	Sqft	1161.441	1263.4961	1427.3457	1206.3347	1417.428
3	Tcown/Sqft (CSFT)	Number	9565	8632	7529	8946	7605
4	QOL score	Number	95	94	85	93	92
5	Value index= Q*1000/CperSFT	Number	9.93	10.89	11.29	10.40	12.10
6	Ranking	Number	5	3	2	4	1

V. CONCLUSION

Residential townships have a high investment cost for the developer and may consume life time savings of the end user. The builder builds value through better design, space planning, quality construction and suitable facilities and amenities. The Paper delves upon developing and understanding a logic as to how a home buyer exercise his/her choice between two or more alternative products in competitive real estate setting. A discerning home buyer would like to get maximum space at minimum price with as many features that the project can offer.

The facilities and amenities have a subjective value and could have different weightage for different people depending on their taste, family composition and mores. The Value Index approach will aid in decision making to ensure that a quantified figure is available for comparison between various selected projects. In the example cited above, Project No 5 gives maximum value for the money spent while Project 1 is reverse. Limitation of this approach is that it can only work in selected micro markets and not across the board. However, it still gives a broad understanding to home on to features and factors of value.

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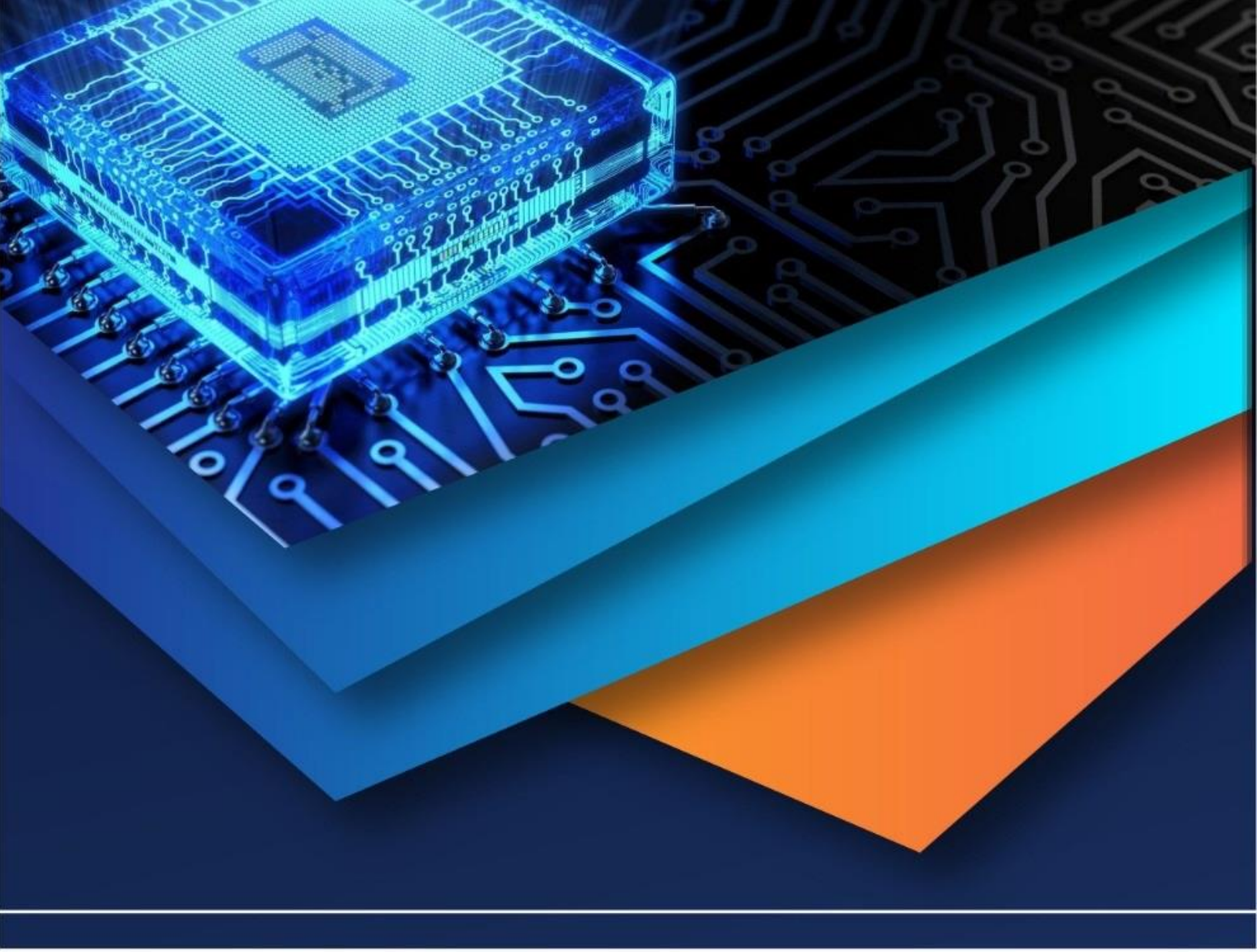

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