iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** III **Month of publication:** March 2021

DOI: https://doi.org/10.22214/ijraset.2021.33345

www.ijraset.com

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue III Mar 2021- Available at www.ijraset.com

Evolution of Public Private Partnership in India: A Case Study in Roads & Highway Structures

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Abstract: ***Public Private Partnership is a funding model that was introduced by the governments across the world to fill the gaps in provision of basic services in both developed and developing nations. But in practice, they have been criticized due to contract design problems, limitations of private participation and issues in bidding process, delays, and unrealistic expectations. The objective of this paper is to assess the PPP participation in the road and highway sector in India. The possible strategic reforms to rekindle private participation in this sector have also been discussed in this paper.***
Keywords: PPPs, BOT Models, India, infrastructure, roads, highway.

I. INTRODUCTION

In a competitive global environment, governments around the world are focusing on new ways to finance projects, build infrastructure and deliver services. Public-Private Partnerships (PPP's or P3's) are becoming a common tool to bring together the strengths of both sectors [1]. Public-Private Partnership (PPP) arrangements have been commended with the ability to overcome public sector capital deficit and bring private sector competency and skill to create and manage infrastructure assets [2].

India has the second largest road network in the world. Ministry of Road Transport and Highways (MORTH) is targeting to develop around 60,000 km of roads in the next five years at about 40km/ day. The National Highway Development Program (NHDP) was launched in 1997 to develop a large road network in a relatively short period of time. The Public Private Partnerships (PPP) model was adopted for road development in India, given the inherent advantages associated with it over conventional models [11]. Currently, the focus continues to be on Bharatmala Pariyojana, a new umbrella program for the highway sector. There is added stress on multimodal integration, road safety, increasing use of Information Technology (IT) applications, augmentation of existing funding sources and emphasis on green initiatives. Enhanced passenger facilities and logistics efficiency are also some major considerations [3].

The availability of high-quality infrastructure and the overcoming of India's infrastructure deficit is crucial to attaining and sustaining rapid growth that generates the right kinds of jobs. PPPs in infrastructure represent a valuable instrument to speed up infrastructure development in India [4]. Within the infrastructure sector, the implementation of PPP models is prevalent in the roads and highway sector. Over the years, the sector has witnessed momentous private investment through PPP projects, especially under the toll-based build operate-transfer or BOT model. However, beginning in 2013, factors such as delay in construction, lower than estimated revenue, over-aggressive bidding, and land acquisition issues resulted in a downturn, and interest in PPP projects declined. The government has been undertaking a number of initiatives in order to solve the various issues pertaining to this sector. These are in the form of operational and technological initiatives to enhance operational efficiencies [10].

II. LITERATURE REVIEW

PPP initiatives worldwide have generated substantial institutional, archival, and popular literature. Archival manuscripts have tended to focus on the following dimensions of P3 programs and projects: key success factors; emerging trends; risk characterization, allocation, and mitigation; and policy design and social implications [5].

Investments in Public-Private Partnerships (PPPs) have grown in absolute terms since 1991 with two notable periods of expansion and one period of contraction. Countries turned to PPPs throughout most of the 1990s, during which time there were massive commitments. PPPs grew steadily from $7 billion in 1991 to $91 billion in 1997, when governments felt the repercussions of the Asian financial crisis (1997- 1998).

After that, there was a period of contraction until investments in PPPs reached a minimum of $21.9 billion in 2002. When the global economy picked up steam in the mid-2000s, a second growth phase culminated in record investment of $158 billion in 2012. A significant decline of about 40% occurred in 2013. Since then, however, investment commitments in PPPs have grown, albeit slowly, reflecting the overall slowdown in key emerging markets, particularly Brazil and India [6].

III. DEFINITION OF PUBLIC-PRIVATE PARTNERSHIP

There are a great variety of definitions for PPP available worldwide. The contents and objectives may vary according to the country specific background and the specific interests of the individual author [7].

According to the Scheme for Financial Support to Public Private Partnerships in Infrastructure, of the Government of India, “Public Private Partnership (PPP) Project means a project based on a contract or concession agreement, between a Government or a statutory entity on the one side and a Private Sector Company on the other-side, for investing in construction and maintenance of infrastructure asset and / or delivering an infrastructure service”. In a PPP model, the private sector assumes considerable risk that would otherwise be held by the public sector, in exchange for compensation and the public sector ceding substantial authority over the delivery of infrastructure services.

The extent of adoption of PPPs across the world differs widely. Typically, in industrialized countries, PPPs are used in areas of public service provision like education, health services, waste water management and public buildings, while in developing countries with enormous needs for basic infrastructure, PPPs are often implemented in the power, water or roads and highway sectors in order to sustain the countries’ rapid economic growth.

IV. OVERVIEW OF ROAD AND HIGHWAY SECTOR IN INDIA

One of the major prerequisites for enabling overall development of India is the establishment and operation of quality road infrastructure. Apart from providing connectivity in terms of enabling movement of passengers and freights, the transport system of a country plays an integral role in the growth of its economy. The honorable Finance Minister in her Budget Speech for 2019-20 stated "Connectivity is the lifeblood of an economy. The government has given a massive push to all forms of physical connectivity through Pradhan Mantri Gram Sadak Yojana, industrial corridors, dedicated freight corridors, Bhartamala and Sagarmala projects, Jal Marg Vikas and UDAN Schemes."[8].

India has the second largest road network in the world, which spans a total of 5.89 million kilometers comprising of national & state highways and urban & rural roads.

The road network serves to nearly 65 per cent of the freight traffic and 87 per cent of the passenger traffic. National highways (NHs) account for 2% of the total road network and carry over 40% of total road traffic. Development Project (NHDP) in the context of NHs is nearing completion- in seven phases.

Later, other highway development programs like Special Accelerated Road Development Program for Development of Road Network in the North Eastern States (SARDP-NE), and the National Highways Inter Connectivity Improvement Project (NHIIP) were also taken up by the Ministry of Road Transport and Highways (MORTH). Furthermore, the Bharatmala Pariyojana is currently ongoing.

National Highways Authority of India (NHAI) is the implementation agency for most of the projects under NHDP and Bharatmala Pariyojana. Other NH related programs/ works are being implemented through agencies like National Highways Infrastructure Development Corporation Ltd (NHIDCL), State Public Works Department (PWD)s, State Road Development Corporations and the Border Roads Organization (BRO) [3].

India has a well-developed framework for Public-Private-Partnerships (PPP) in the highway sector. Asian Development Bank ranked India at first spot in PPP operational maturity and also designated India as a developed market for PPPs [9]. The introduction of innovative PPP models boosted private sector interest in roads and highways. However, more investment from the private sector is required. The NHAI has to raise Rs 1.4 lakh crore through PPPs just to meet the ambitious targets set for Bharatmala Pariyojana [10].

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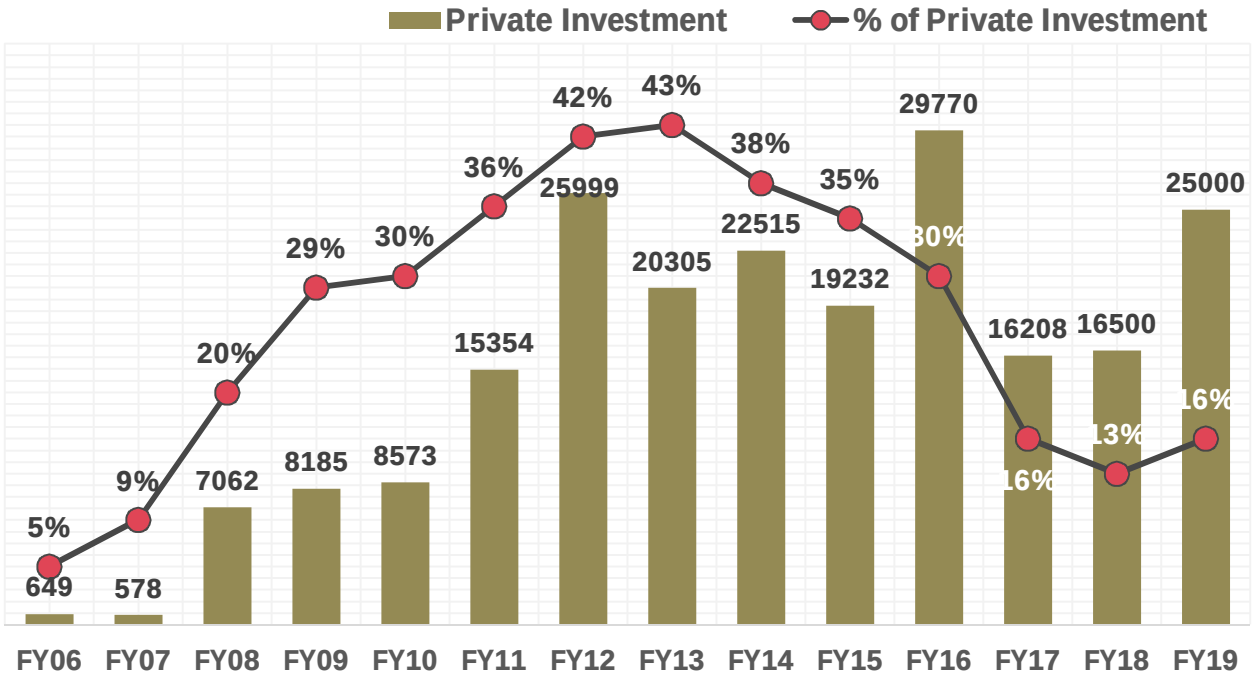

Fig. 1. Trends of Private Investment in Infrastructure in India

V. EVOLUTION OF PPP MODELS IN ROADS AND HIGHWAYS

A. *Existing PPP Models*

A proper understanding of the various PPP models being implemented is critical to understand the scenario of road sector in India. The major PPP modes prevalent in India are as follows:

1) *Build Operate and Transfer (BOT) Toll Model:* In a BOT (Toll) project, the concessionaire is responsible for designing, building, financing, operating, maintaining, tolling and transferring the project to the authority at the end of the concession period. The concession period is about 30 years, but is project specific. Depending on the viability of the project, there is a provision of upto 40% of the project cost which is paid by the government in the form of a Viability Gap Funding (VGF) [3]. Project awarding increased 10-fold between fiscals 2009 and 2012. However, it plummeted post fiscal 2012. The execution also took a hit. Out of 7,283 km of projects awarded in fiscal 2012, at least 25 projects totaling 3,300 km were stalled. Eventually, it caused significant financial stress for the developers as they found it difficult to complete projects due to delays in land acquisition, regulatory approvals and debt servicing. Aggressive bidding also made many projects unfeasible. Thus, awards under BOT (Toll) declined considerably from fiscal 2013 [10].
2) *BOT (Annuity):* In a BOT (Annuity) project, the concessionaire is responsible for designing, building, financing, operating, maintaining and transferring the project to the authority at the end of the concession period. The responsibility for tolling on the road stretch is upon the government. The concessionaire earns revenue primarily in the form of pre-determined semiannual annuity payments which are made by the government to the concessionaire [3]. Just as the BOT (Toll) model, BOT (Annuity) also saw an increase in the awards. However, the contracts declined due to low profitability; increasing operating cost; time and cost overruns with delay in transfer of right of way; and funding risk (if debt and equity are not tied up) [10].
3) *Hybrid Annuity Model (HAM):* In HAM projects, the concessionaire is responsible for designing, building, financing, operating, maintaining and transferring the project to the authority at the end of the concession period. The responsibility for tolling on the road stretch is taken by the government. The concession period is project-specific construction period and a fixed operation period of 15 years [3]. The total project cost is shared between the NHAI and the concessionaire in the ratio of 40:60 during the construction period [10].
4) *Engineering, Procurement and Construction (EPC) Model:* In EPC model, the Government completely finances the project. The government is responsible for all clearances, land acquisition and regulatory norms. Involvement of the concessionaire is minimum and is bounded to the provision of engineering services.

5) *Toll-Operate-Transfer:* This is an effective model that was introduced by the government in order to increase private sector participation. It ensures efficient Operation and Maintenance (O&M) of highways on a long-term basis and generates resources upfront that can be invested in new highway projects. In this model, for operational public funded highway projects, long-term O&M responsibilities and tolling rights are assigned to developers/investors after completion of construction. This is done after some years of successful operation of a project and once the traffic on it stabilizes. A fee is paid by the concessionaire to the government in exchange of the right to toll, operate and maintain the road asset for the concession period. In the current scenario, the concession period is 30 years [3].

6) *Operate-Maintain-Transfer (OMT):* Under the OMT mode, the concessionaire operates and maintains the completed road asset for a smaller duration - ranging from four to nine years. An operational road asset is transferred to the concessionaire without any rights for capacity augmentation. Concessionaire is given the right to collect toll on the road asset. In return, the concessionaire pays an agreed premium to the government [3].

B. Present Scenario of PPP in Road Sector in India

Currently, a majority of the road projects in India are being executed either under EPC model or HAM. HAM was introduced to reinvigorate PPP participation in the road sector after interest in BOT projects waned. Approximately 50% of the projects awarded in fiscal 2018 were under this model. In value terms, HAM projects increased from Rs 7,000 crore in fiscal 2016 to Rs 76,500 crore in fiscal 2018[3]. Although these models are beneficial to private players in terms of being less risky compared with the BOT (Toll) model, lays the burden of finances on the government. Thus, the government might consider adopting newer PPP frameworks in order to minimize public financing [10].

In addition to introduction of HAM which resulted in reduced initial investment requirement from the government in highway projects, efficient O&M of completed highway assets and augmenting existing sources of funding for the sector was also thought to be important. A model was introduced by the government that takes care of O&M requirements of an increasing highway network and also facilitates monetization of toll receivables for operational highways -this was the Toll Operate Transfer (TOT) model [3].

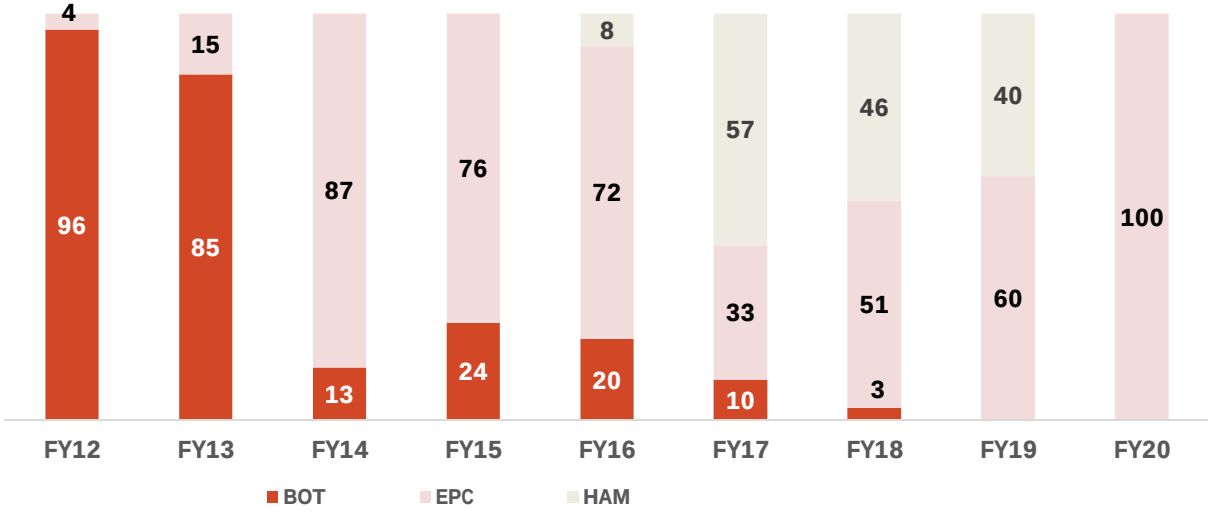

Fig. 2. Landscape shift in Construction of NHs.

VI. ISSUES AND CHALLENGES FACED BY ROAD AND HIGHWAY SECTOR IN INDIA

A. Financing Issues

a) Higher land acquisition cost.
b) Fading interest of PPP developers.
c) Increased project cost.
d) Debt servicing and investment returns for private developers.
e) O&M expenses.

B. Operational Issues

a) Land acquisition delays.
b) Delayed approvals and clearances.
c) Cost overrun due to delay.
d) Construction material shortage.
e) Toll collection pilferage.
f) Safety issues.
g) Road user facility deficit [3].

VII. RECOMMENDED STRATEGIC REFORMS TO REKINDLE PRIVATE INTEREST IN ROAD AND HIGHWAY PROJECTS

A. Development and Planning

1) Land Acquisition

a) Integration of IT enabled Systems "Boomirashi".
b) Direct Payment for LA.
c) 90-100% land acquisition.

2) Compliance to Statutory Permission and Clearances

a) Environmental.
b) Forest Clearances.

3) Encumbrance free access to Right of Way (ROW):

a) Tree Cutting in Forest Land.
b) Utility Shifting.

4) Robust feasibility and detailed study:

a) Increase time and funds for Detailed Project Report(DPR).
b) Near realistic traffic volume projection.
c) Adequate technical due diligence.

B. Structural reforms

1) Bidding Strategy

a) Bidding out the Special Purpose/Project Vehicle (SPV) Vs Bidding out the Right of Way (ROW).
b) SPV mandated to have the 4 development and planning strategies in place.

2) Enhanced BOT Model

a) Provisions to be made to ensure Minimum Revenue Guarantee is provided by viability gap funding to insulate the concessionaire from faulty traffic projection.
b) Revenue Sharing Model may be introduced where toll collection revenue the agreed annuity to enhance the lucrativeness of the BOT model.
c) Maximum Revenue Cap to be enforced along with Revenue sharing.

3) Remodelling Revenue Strategy

a) Integrating the development operation of Ways side amenities as an additional revenue pathway into the financial model.
b) Integrating an offset clause for node development along the project alignment.
c) Exploring High Occupancy Toll (HOT) Model.

4) Policy Reforms

a) Reimbursement of duties and taxes in a similar way in SEZ models.
b) Exemption Strategy for Royalty.
c) Exemption of Customs duty on equipment have provisions for Transfer of Technology, which may reduce project construction time.

5) Technology Integration:

a) Integration of Technology for transparency and confidence of Risk & Reward.

6) Renewable Energy

a) Avenues to be explored to for possibility of electricity generation by renewable methods (Solar & Wind) by exploiting the available ROW.

b) This will reduce the operation cost as well as open additional revenue stream.

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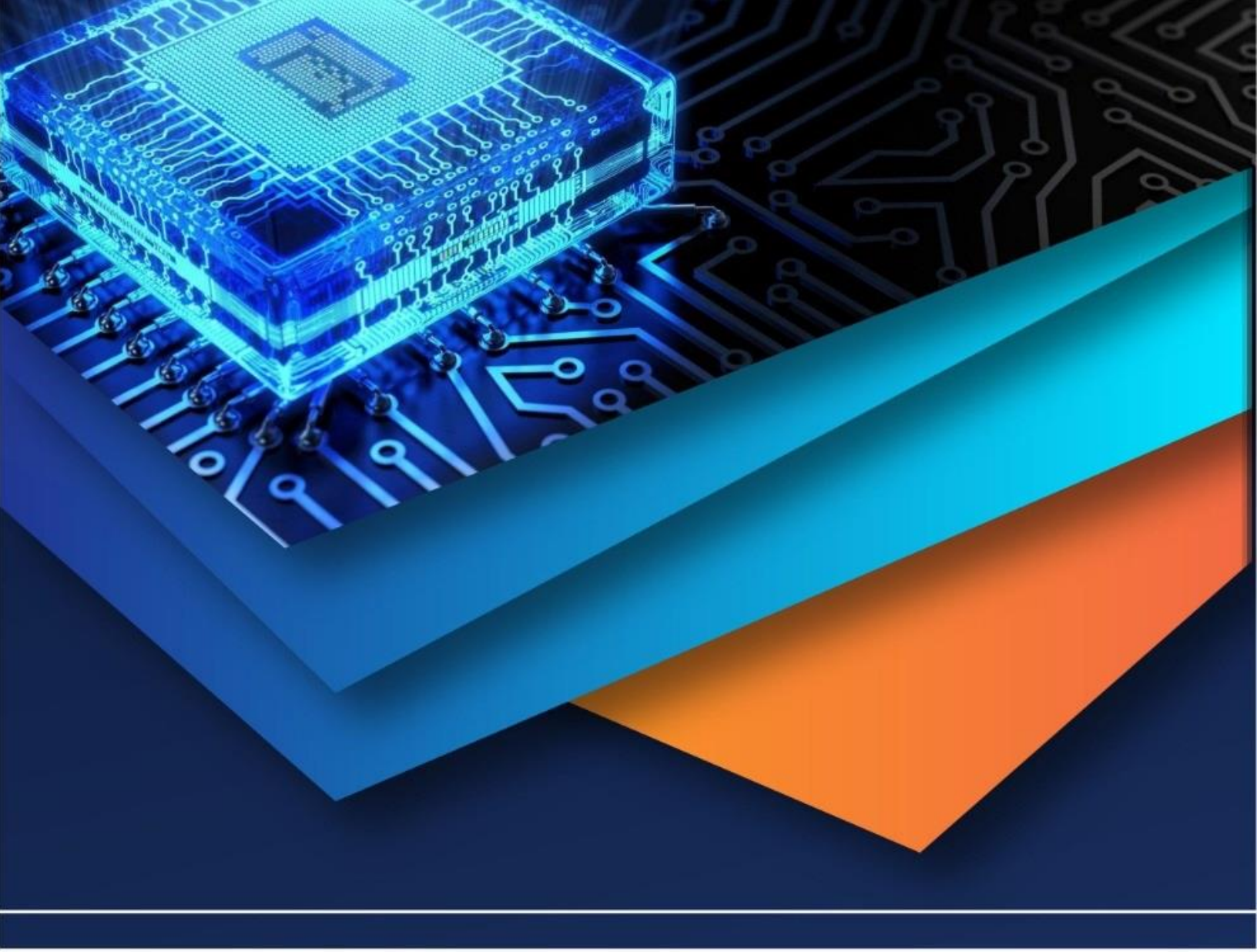

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