

Tech edge for realty

Tech-driven infrastructure enhances any city's real estate quotient

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There has been a growing absorption of technology in the construction sector. These technologies help tide over one pressing problem: delayed delivery. As the nation aims to achieve a \$5 trillion economy by 2026-2027, the integration of innovative technologies is crucial for modernising infrastructure and supporting economic growth. Harsh Pareek, regional sales director, India, and SAARC, Trimble Solutions, says, "Leading this transformation are cutting-edge solutions from prominent companies that provide essential tools for planning, designing, and executing complex infrastructure

projects with precision and reliability. A significant development in infrastructure construction is Building Information Modelling (BIM). This technology enables the creation of detailed digital representations of a project's physical and functional characteristics, enhancing collaboration among architects, engineers, and contractors. As a result, every aspect of a project can be meticulously designed and coordinated." Building on BIM, Digital Twins technology further enhances infrastructure development. Digital Twins are real-time digital replicas of physical assets that integrate IoT data, facilitating continuous monitoring and analysis. This technol-

ogy offers a comprehensive view of an infrastructure's lifecycle, from design and construction to operation and maintenance. By simulating various scenarios and predicting potential issues, Digital Twins enables proactive management, ensuring infrastructure remains robust and efficient. Pareek adds, "With BIM, project managers streamlined workflows and improved team coordination, resulting in 1.5 times increase in overall project efficiency."

TECHNOLOGY AND INFRA
Technology also plays a crucial role in developing as well as maintaining infrastructure. Trimble's asset management solutions allow for continuous monitoring, ensuring prompt issue resolution and extending the lifespan of assets. Integration of Digital Twins and BIM allows for better decision-making and more efficient management of the construction site, leading to safer and more sustainable infrastructure development. By embracing technological advancements, India can build a robust infrastructure framework that supports economic growth, and meets the challenges of tomorrow.

Talking about the trend, Jash Choraria VP Investments & Credit and Chief Staff, Crest, says, "The real estate market traditionally has had a slow pace when it comes to adopting new technology because of the high lead times required for learning and implementation which may potentially affect ongoing projects. However, the pandemic disruptions played a major role in pushing the industry to leverage technology to drive efficiencies in operations and new, more immersive interactions for customers." Technology adoption has been paramount including the deployment of ERP systems, video conferencing, data suite adoptions and digitally native marketing initiatives.

Enterprise Resource Planning (ERP) software had revolutionised real estate operations through integrating finance, sales, project management and customer relations into a unified platform. Cloud-based ERP systems reduce the risk of physical disruptions and have lower deployment and maintenance costs. Workforce management tools ensure smooth teamwork between various departments within an organisation so as to keep projects running smoothly while ensuring that they are completed within stipulated time frames.

For the customer, digital and inter-



Advanced public amenities, including automated waste management create a cleaner, safer, and healthier environment

active touch points became imperative as they started to seek more virtual, digitally native experiences to better evaluate and purchase under-construction projects. In turn augmented and virtual reality tours, 3D walkthroughs, high-definition video renders have become the mainstream of marketing.

Kamal Dubey, a contract commercial professional, says, "The integration of technology into urban infrastructure

is transforming cities and revolutionising their real estate markets." Dubey outlines 3 significant ways tech-driven infrastructure enhances a city's real estate market:

EFFICIENT URBAN PLANNING: "The advent of technologies like AI and GIS has greatly improved urban planning. These tools optimise land use, reduce congestion, and increase the availability of green spaces, all of which contribute to a higher quality of life. Well-organised and sustainable cities attract higher property values, making them more appealing to investors and residents alike," adds Dubey.

ENHANCED MOBILITY: Smart transportation systems, such as automated street lighting and smart parking solutions, have made urban commuting easier and less stressful. Improved mobility not only enhances the convenience of urban living but also increases the demand for properties in well-connected areas, thereby boosting realty market.

IMPROVED PUBLIC AMENITIES: "Advanced public amenities, including efficient drainage systems, automated waste management, and enhanced surveillance technologies, create a cleaner, safer, and healthier environment. These improvements make cities more desirable places to live, driving up property values and attracting a broad spectrum of residents and investors," adds Dubey. Shubham Taylia, managing director at

Echon, says, "In the era of Industry 4.0, companies are recognising the importance of investing in technology and research and development (R&D) to boost operational efficiency. This is especially crucial for India's infrastructure goals, where sustainable building materials play a vital role. PVC products including building materials have emerged as the preferred choice in the real estate industry due to their durability, adaptability, and environmental friendliness. These products are tested at state-of-the-art facilities equipped with modern machinery that ensures production of quality building materials at optimised costs. Moreover, advanced technology used at these facilities ensure timely production and distribution to meet real time demand for materials for both domestic and international markets helping minimise costs around project delays."

Globally, industries that prioritise R&D are better positioned to lead in technological advancements and sustainable practices, which are increasingly important in today's rapidly evolving economic landscape.

Thus, the global trend towards smart cities underscores the importance of integrating technology into urban infrastructure. These innovations not only address the functional aspects of city living but also add significant value to properties. Embracing tech-driven infrastructure is essential for creating more effective, connected, and sustainable cities that appeal overwhelmingly to investors and potential residents.



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Today, cloud computing tech has penetrated to almost every sector. Real estate segment is also no exception. With increasing digitalisation, cloud computing is helping sellers to improve customer engagement, target marketing activities and optimise operations. Deep penetration of cloud is also providing homebuyers with features such as virtual tours and personalised experience. In this way cloud computing is streamlining the real estate transaction process.

Stuti Jain, senior consultant – Growth Advisory, Aranca, elaborates, "Many leading companies have implemented cloud solutions to manage properties, targeted advertising, social media management, customer relationship management, etc. Digital platforms leverage cloud computing for managing transactions, virtual tours, real-time updates and analysing listing and market trend data to provide insights to investors. Apart from the above visible benefits, cloud computing also helps ease the backend ops of real estate companies through reduced on-premises infrastructure,



Deep imprint

Cloud computing has been impacting real estate transactions in a big way

enhanced security, remote access, data control, recovery and disaster management features."

As the industry evolves, there will be greater integration of cloud computing and other technologies such as AI, IoT, and blockchain leading to enhanced automation and features such as predictive maintenance, secure and transparent web3 based transactions, operation and maintenance of smart buildings, enhanced analytics,

tion, real estate companies have started adopting cloud-based property management solutions. There are various advantages which these solutions offer, like secure data storage, easy accessibility of property details from any device, and enhanced team collaboration. For real estate firms, cloud computing enables scalable operations with minimal infrastructure costs, while improving business decision-making."

& CEO at ESDS Software Solution Ltd, says, "In today's world, the success of almost every industry hinges on data, and the real estate sector is no exception. Organisations are increasingly reaping the benefits of data-driven decision-making, which involves storing, processing, and managing vast amounts of building-related data in remote servers and data centres. Cloud computing is revolutionising how real estate projects are constructed and managed. For instance, the cost of constructing a residential building typically hovers around ₹1700 per square foot, excluding land investment. However, for data centre buildings, this cost nearly doubles to ₹3400 per square foot."

This substantial increase is driven by the need for more robust structures and enhanced MEP (Mechanical, Electrical, and Plumbing) systems to support the intense data processing requirements of AI-driven data centres. The integration of cloud-based Building Information Modelling (BIM) tools further accelerates this transformation.

These tools enable real-time data sharing and collaboration among all stakeholders, ensuring that everyone is on the same page. This leads to fewer errors, reduced rework, and faster project timelines, which is critical in an industry where time is money.

"Real-time monitoring enabled by cloud-based solutions allows property managers to keep a pulse on their buildings' performance from anywhere. Whether tracking energy consumption, occupancy levels, or equipment status, instant access to critical data empowers quicker decision-making and operational optimisation. Furthermore, the real estate sector is poised for significant growth, with market size expected to reach \$1 trillion by 2030, contributing 13 per cent to India's GDP by 2025, according to a report by IBEF. Big data will play a crucial role in navigating the complex landscape of regional property values, customer preferences, and regulatory frameworks, providing real estate professionals with the flexibility and insight needed to thrive in a dynamic market," Somani concludes.

On the customer side, the efficiency of online transactions drives the need for cloud management solutions. Major real estate companies are now integrating their legacy systems with advanced cloud technologies, helping them make more informed decisions and stay competitive in the market.

Piyush Somani, founder, CMD

Home automation: A status update

Home automation is the mechanical management of intelligent electronic appliances in a home and is transforming realty sector by enhancing user experience and increasing property value

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Home automation has brought a big change to the homes and real estate market by streamlining the entire functioning of houses. In its early years, setting up a smart home meant hiring a third-party vendor who would connect different appliances at home. It promotes sustainability by reducing energy consumption and enhancing efficiency, contributing to a lower carbon footprint for residential properties. This aligns with the preferences of environmentally conscious buyers. Success stories and case studies demonstrate the tangible benefits of smart home solutions, encouraging more buyers to invest in such properties. Malvika Jethwani, country lead for Echo and Smart Home, Amazon Devices, India, says, "Fast forward to the present, customers can now start their smart home journey with just a smart speaker and a cloud based voice service-compatible smart plug or smart home product. Today, there are thousands of smart home devices compatible with such cloud-based voice service covering diverse categories like bulbs, cameras, ceiling fans, air conditioners, etc from leading brands."

Home automation is the mechanical management and administration of intelligent electronic appliances in a house. It acts as an integrated system that makes life more convenient and helps in saving a variety of costs.

Sumati Sahgal, VP, Retail, Schneider Electric Greater India, says, "Home automation has combined hardware, electronic, and communication interfaces with the internet, which has allowed people to manage their homes via their smartphones from anywhere. Home automation can be



used to drive energy optimisation, managing multiple sources of energy and there significantly reduce the customer's impact on the environment. Providing users with real-time monitoring of energy use and utmost convenience, the centralised system sets a new standard by trading excessive energy back to the grid. It also allows homeowners to programme, monitor, and control their home's security setup remotely or through in-home dashboards, providing homes with both safety and security."

Homes equipped with smart technology are more appealing to buyers, who are willing to pay a premium for the convenience and efficiency these features provide.

"Smart home automation can lead to substantial, long-term savings for homeowners. Features like smart thermostats and lighting systems optimise energy consumption

based on user behaviour, potentially reducing heating and cooling bills," adds Sahgal.

A Tata Power spokesperson says, "Home automation is transforming the realty industry by enhancing user experience and increasing property value. It offers a seamless, integrated living experience, making properties more appealing to buyers. Features like energy management, security, and convenience not only enhance the overall value of real estate but also align with the growing trend towards sustainable living." Developers can differentiate their properties by offering advanced home automation solutions, which adds credibility and attractiveness to their projects. The integration of home automation with security and building management systems offers a holistic living solution, making these properties more desirable.

The implementation of smart home technology enables better management of energy usage, reducing costs and promoting sustainability. Automated demand response programmes have shown significant load reductions, contributing to energy conservation. This advancement transforms traditional homes into modern, smart living spaces with cutting-edge features like retrofittable smart devices and customisable panels.



business agility and contribution to sustainability. Tushar Dhawan, Partner at Plus91 Labs, maintains, "With property developers and brokers increasingly looking to be at the forefront of digital transforma-