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AU UPDATE

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Architectural Softwares:

Offering Myriad Benefits

With the advancement of building technology, there is a rise in demand for newer and improved architectural softwares to put forth one's ideas. But, how open is India, for this transition from ordinary to advanced softwares

"We focus on the ability to coordinate with every project stakeholder which includes engineers and designers. We get them on a common platform so that everyone can give their inputs which are then put in the software and the model. At the end of the day the software or BIM model we are going to design is only good as the information you feed into it, which means every brick needs to be accounted for the model."

Sajeel Khanna
Sr VP, Design and Engineering, BluEnt

"As far as the hurdles we face, it is the nature of the infrastructure industry, including that in India, to be more conservative toward new technology. Simply put, advancements need to be proven before they're employed on the world's crucially important infrastructure. It is our job as a technology provider to prove the value of the software and how it improves infrastructure project performance in very real and meaningful ways."

Atanu Pattanayak
Vice President – India, Bentley Systems

Prasenjit Chakraborty & Nida Chikte

Architectural software is an integral part of any BIM methodology. Developed countries such as the USA., the UK and Singapore have mandated BIM processes for new infrastructure projects. Though India is still to frame a policy around BIM methodologies and mandate their use, most owner-operators of big infrastructure projects, be it private or public, are demanding BIM advancements.

Meanwhile, the adoption of architectural software in India has been growing at a steady pace. "The major growth in adoption is on large infrastructure projects such as airports and metros. We have seen the new tenders that are floated for design and construction of new metros mandating the use of architectural software and BIM processes," says Atanu Pattanayak, Vice President – India, Bentley Systems. Nagpur Metro is one such example. Incidentally, almost all the colleges teaching architecture have included the use of architecture software in their curriculum. This makes the student job-ready with minimal training required.

And, though adoption is steady, challenges remain. According to Greg Bentley, CEO, Bentley Systems, India faces challenges in its desire to become globally competitive in procurement transparency. For example, outcomes-based commercial models such as software subscriptions and cloud services are becoming the preferred choice elsewhere, but enterprises in India are still generally unable to take advantage. He added that for foreign companies, costs, other burdens of administration and regulatory compliance, while slowly modernising, still compare unfavorably. The upshot being that these challenges are minor compared to the scale of opportunities to contribute to ever-smarter infrastructure in India.

As far as how this relates to Bentley, in its most recent annual report, published in 2015 and reflecting 2014 numbers, it shows that India, along with the Middle East, Africa, Southeast Asia and China, led Bentley's

revenue growth. With one of the fastest growing economies in the world, India's demand for infrastructure will continue to accelerate, and this represents an opportunity for infrastructure software vendors like Bentley to provide innovative technologies to help its users in India develop better-performing infrastructure assets. "The level of adoption is reflected in that that 74 of the project submissions nominated to our annual Be Inspired Awards programme were from India-based firms – more than any other country. We have added to our human resources in India, including a development centre, and now have about 350 colleagues in India operating in 5 different offices," reveals Pattanayak.

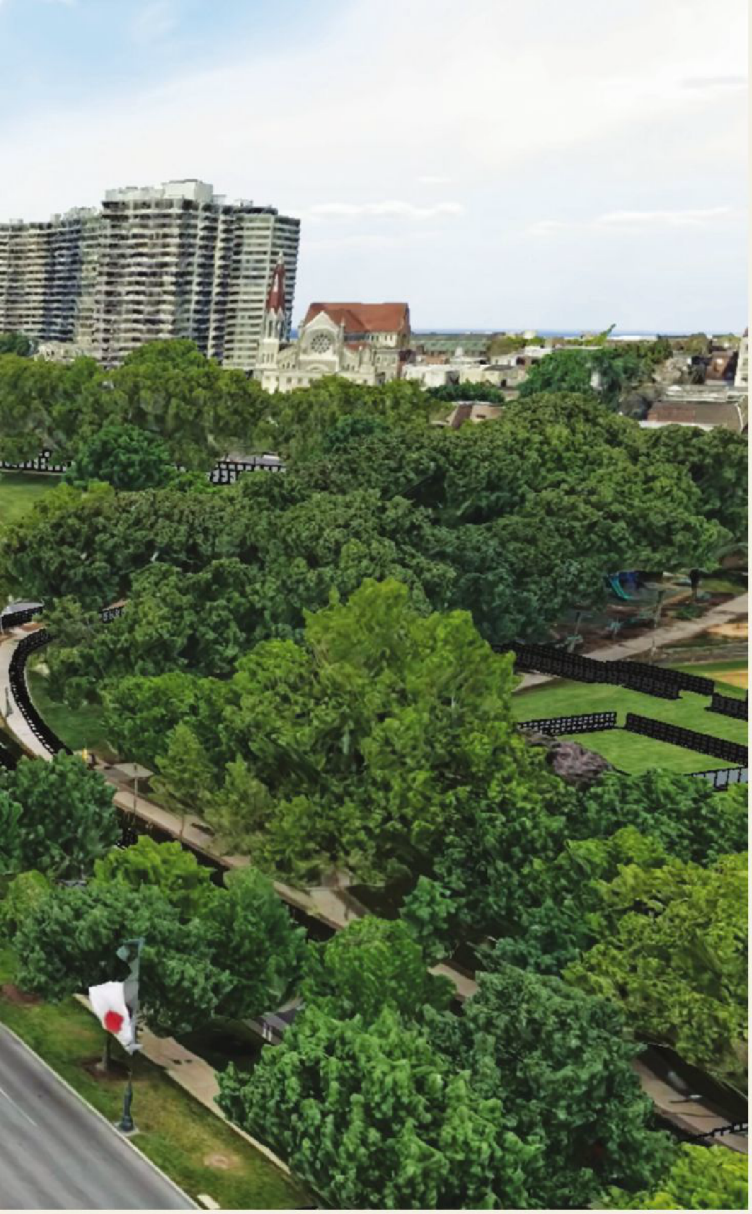
Sajeel Khanna, Sr VP, Design and Engineering, BluEnt, feels that most architects are not really interested in innovating, re-educating themselves, going back to college or learning new things. "As a result, implementation of good software is not pushed in architectural organisations because they are headed by highly experienced but old school individuals," points out Khanna. The scope of implementing software is huge. It results in cost savings, better control on projects, funds being calculated in a better way, timely delivery of projects, and better safety regulations and safety standards of projects as well as people working on multiple projects. Most of the projects can predict and plan timelines well.

However, when it comes to India there exist many challenges for adopting softwares. "All the project stakeholders need to align themselves to a common goal which is what doesn't happen. The company that funds the projects are interested in adopting such software to have better control of the project but the local partner that executes the project is not interested in these softwares because they don't want to be monitored," said Khanna. And, implementation of such software makes it difficult for them to deal with black and white components of the project.

IMPORTANT CHANGES IN THE RECENT PAST

Among EPCs and owner-operators there is a growing requirement to analyse their existing assets and see what can be done to extend the lifespan of these assets. In order to address the problem, software companies are providing solutions in this regard. For example, Bentley acquires Pointools software for point cloud processing & editing, Acute 3D and its reality modeling software, which it renamed ContextCapture.

"This software creates 3D representations from digital photography to help capture the geometry and condition of existing assets. Both Pointools and ContextCapture provide our users with real-world context for infrastructure design, construction, and operations. Additionally, the launch of our AssetWise platform to improve asset performance brought with it AssetWise APM for reliability-centered maintenance and risk-based inspection and AssetWise Amulet for asset performance modeling," says Pattanayak. He also adds, "Uniquely, with these offerings Bentley can now federate information technology with operational technologies for decision support, leveraging engineering content within environmental and economic contexts."



Moreover, their users have been asking for applications that make it easier to conduct walkthroughs and constructability reviews. "As a result, we have concentrated our R&D on developing applications that popularise the use of visualisation and clash resolution capabilities for identifying constructability and compliance issues," says Pattanayak. Bentley Navigator, for example, offers their users BIM review and collaboration, which enable them to get greater insight into projects and operations. By providing immersive exploration and investigation of the models and their embedded property data, Bentley's users can easily perform construction simulation and virtual walkthroughs – before construction begins. "They can then take this technology into the field using anyone of our Bentley apps, for example Navigator Mobile, to improve project coordination between the office, site, and field and gain insight into project planning and execution for faster issue resolution," claims Pattanayak.

According to Khanna, there have been a few interesting changes. "One that has caught my attention is the possibility of allowing international architects to participate in projects with tall building and skyscrapers. There is a lack of expertise in India. So, if that change is on the way in terms of legislation, I believe it will lead to engineering marvels in the country," he points out.

HOW TO CATER TO THE DEMAND?

Catering to the demands of architects, engineers and designers are purely strategies. Different companies adopt different strategies to convince them. Says Pattanayak, "We respond to our users demand for accurate information with integrity and mobility by providing applications that deliver all the information that they need to make the best decisions. To further empower our users, we introduced last year the CONNECT Edition of our software products through a series of CONNECTION Events held in 30 cities around the world, and 8 additional cities this year." The CONNECT Edition establishes a common environment to comprehensively support the delivery of infrastructure projects. This common environment unifies work across the entire project ecosystem and over the full lifecycle of the project. The result is improved performance, with infrastructure projects being delivered on time, on budget, and with less risk.

Similarly, BluEnt caters to the demands of architects, engineers and designers by sourcing, training and setting up the correct team work model so that it will be able to implement larger complicated projects. "We focus on the ability to coordinate with every project stakeholder which includes engineers and designers. We get them on a common platform so that everyone can give their inputs which are then put in the software and the model. At the end of the day the software or BIM model we are going to design is only good as the information you feed into it, which means every brick needs to be accounted for the model," explains Khanna. He believes that every brick should carry the cost of the energy value and all such parameters should be kept in upfront. Any lack of transparency causes an incorrect model. It's very important to define the goals of such a project upfront and to ensure full transparency and coordination. "There was a clear lack of skill set in India. Man force was not available to work on architectural softwares but now scenario is changing as many people from India are travelling back and forth to Singapore, which is the nearest BIM hub from India," Khanna points out.

When asked to comment as a software developer, how do you programme software to be user-friendly? Replied, Pattanayak, "Bentley's CONNECT Edition software does this by providing a purposefully connected environment to improve the performance of infrastructure projects and assets from design through construction and operations." He also adds that application users benefit from a personalised experience with software, learning paths, and content tailored to their respective roles and direct connections to other users and Bentley colleagues. "Project teams leverage a collaborative framework to manage all project work and to unify participants across all stages of project delivery. And, lastly, enterprises gain visibility across their portfolio of projects, and better manage the work of their connected project participants," he says.

ADOPTION OF ARCHITECTURAL SOFTWARES IN INDIA

Khanna feels that the adoption of architectural softwares in India, specifically for Indian projects is regressive. "Traditional software like AutoCAD and line drawing softwares are mostly used in India. Few people in India want to invest in technology. They just want to get the work done," he points out.

Using high-end software reduces wastage. So the cost of making errors is usually factored to the cost of constructions as 5 to 10%. In India, people don't mind wastage in cost of construction. For example, if a wall has been constructed wrong because of the incorrect drawing, the site supervisor breaks it down and constructs it again. In other countries, environmental concerns such as landfills of waste material are high and cost of land is much lesser.

"In the US and other countries, you use software to make sure that tiles are cut properly, the correct amount of material is ordered so there is minimum wastage. Managing material efficiency is not practiced in India; this is possible through software," says Khanna.

Here in India, the consultants and designers of a project all work on different platforms. "Old civil engineers that you have in your project may not be comfortable with new software. Typically, they will not want to switch or learn, which means you will need a team translating their work back and forth leading to confusion," he points out.