AUGMENT
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Presenting
BIM MODELING

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BIM MODELING

Transforming Construction

HOW TECHNOLOGY IS TRANSFORMING CONSTRUCTION & FACILITY MANAGEMENT

For today's leaders of the construction industry, the drive for faster, more efficient delivery of infrastructure or building projects has never been more challenging. Efforts to improve efficiency are difficult in a market that is too often defined by low margins, aggressive procurement, skills shortages, uncertain work pipelines and complex supply chains.

In the construction and asset management industry, the use of a Building Information Model which is shared by partners is becoming more and more commonplace. The adoption of Building Information Modelling (BIM) requires organizations and individuals to change the way they work. They must accept that traditional roles within the supply chain and client organizations may need to be redefined to successfully implement the new processes and information management requirements of BIM. However, this approach offers multiple benefits including faster, safer and ultimately more efficient solutions for clients. As the construction industry is being revolutionized by the increasing adoption of BIM it's crucial that leaders are aware of this opportunity and what it may mean for their organization.

92%

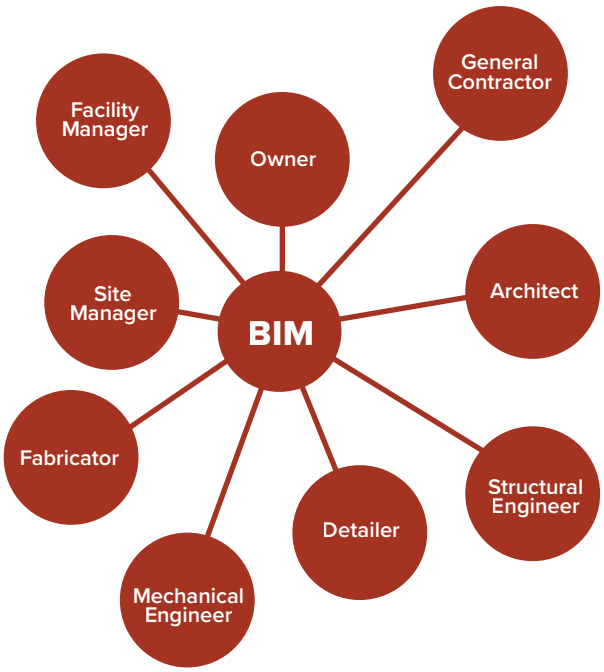
92 % expect to be using BIM within three years, and 95% within five.

In terms of BIM maturity, less than a third use one model through the life of a project or produce a format independent model.

WHAT IS BIM?

Building Information Modelling (BIM) is a collaborative way of working underpinned by digital technologies, which allow for more efficient methods of designing, delivering, and maintaining physical built assets throughout their entire lifecycle.

In essence, BIM is the management of information through the whole life cycle of a built asset, from initial design all the way through to construction, facility maintenance, and finally de-commissioning. It can be used for a wide range of projects such as new buildings or other infrastructure projects. It's all about collaboration - between engineers, owners, architects and contractors in a three-dimensional environment, and it shares information across these disciplines. BIM allows design and construction teams to communicate about design and coordinate information across different levels that has been unseen before. This information remains with the project throughout its lifetime. BIM is now becoming the standard of the construction industry. It is relevant for the majority of organizations working in the architectural, engineering, construction and infrastructure sectors, whatever their size, as well as contractors's clients who require their supply chain to use BIM processes and tools.



WHAT IS THE PROCESS OF BIM?

Plan

Inform project planning by combining reality captured and real-world data to generate context models of the existing built and natural environment.

Design

During this phase. conceptual design. analysis. detailing and documentation are performed. The preconstruction process begins using BIM data to inform scheduling and logistics.

Build

During this phase. fabrication begins using BIM specifications. Project construction logistics are shared with trades and contractors to ensure optimum timing and efficiency.

Operate

BIM data carries over to operations and maintenance of finished assets. BIM data can be used down the road for cost-effective renovation or efficient deconstruction too.

CREATING THE FUTURE OF FACILITY MANAGEMENT

BIM is revolutionizing the way projects are delivered across industries, adding intelligence and efficiency to project execution–and connecting teams, data, and workflows at every stage of the project in the cloud for better project outcomes. BIM Interoperability allows AEC/FM project teams to work and communicate fluidly across disciplines and industries, regardless of preferred software tools and vendors.

And because we understand moving to BIM can seem like a daunting task, we offer our help in creating your BIM models, setting up strategies that will help create an effective BIM vision, and managing your transition to BIM.

offering design and construction teams practical BIM project management, implementation strategy and transitional training.

BIM MODELING SERVICES

As data digitization is a cumbersome task, at Augment we take on digitization from the start. Our team works with a vast array of platforms, from Revit BIM modeling to a variety of industry-leading 3D BIM software that provide pre-construction project controls to building operations and digital facilities management. For existing facilities, we collect all existing documents (if you have any) & scan your building with drones and laser scanners to create an as-built BIM model of it. For new construction, we accompany our clients and model based on their needs.

BIM UPKEEP & TRAINING

As BIM is a format that will accompany the building throughout its life, Augment engages in assisting BIM project management, implementation strategy and transitional training. Any changes arising in the lifecycle of the building will have to be reciprocated on the model, and Augment is here to handle the changes your software can't.

Progress tracking or defect detection becomes possible during construction - and can be automated with drone scanning & laser scanning - assistance in operations & maintenance is possible as we help manage new software needs for specific tasks.

CONNECTING TO WIRETWIN

At Augment, we developed a software suite oriented towards BIM operations & maintenance that takes facilities management into the future. By leveraging Augmented Reality, the Internet of Things, Artificial Intelligence, and cloud computing, we help leaders of the construction industry optimize their costs and increase quality of life in their buildings.

Wiretwin is a web-based, 3D cloud facility powered by a database & data management interface that gives you, facility managers & owners, complete control over your facility and its data - all in BIM format. It allows you to manage, & operate different aspects of a facility from virtually anywhere; and all of that online, from your virtual facility.

THE BENEFITS OF BIM

IMPROVE QUALITY AND DELIVER EFFICIENCIES

• Better production quality is achieved, and documentation output is flexible and
exploits automation.

• Better design may be achieved as building proposals can be rigorously analyzed, simulations can be performed quickly, and performance benchmarked which enables improved and innovative solutions.

• It can assist automated assembly as digital product data can be exploited in downstream processes and used for manufacturing or assembling of structural systems.

• Improved lifecycle data such as requirements, design, construction and operational performance can be used in facilities management to help make efficiencies.

• It makes available computer simulations and 3D models, which can be used for design and structural purposes: infrastructure projects can be tested for long-term safety, earthquake impacts & structural viability can be simulated, sunlight analysis becomes possible (for energy simulation).

ENHANCE YOUR REPUTATION AND WIN MORE BUSINESS

• It can help mitigate risk, avoid fines, delays, and damage to brand reputation.

• It helps deliver better customer service – proposals are better understood through more accurate visualization.

• It can be used as a differentiator as part of the tendering process, by promoting the value of information regarding the asset at handover stage.

• It can be used as a strategic tool which helps organizations gain future projects.

SAVE TIME AND MONEY

• It can be used to invigorate a positive culture of collaboration between departments and the supply chain delivering greater efficiency for the client at reduced cost.

• Controlled whole-life costs and environmental data can be calculated which means that environmental performance is more predictable and lifecycle costs are better understood.

• It can be used as a differentiator as part of the tendering process, by promoting the value of information regarding the asset at handover stage.

• It is faster and more effective as information is more easily shared which can be value-added and reused.

BIM AND ITS GLOBAL CONTEXT

Megatrends such as demographics and urbanization have driven the need to adopt BIM, as has the need to transform and make construction more efficient. BIM is now at the heart of the future strategy for construction in many parts of the world.

Leaders from Europe's architecture, engineering and construction industry expressed their support of the European Parliament's decision to modernize European public procurement rules by recommending the use of electronic tools such as building information electronic modelling, or BIM, for public works contracts and design contracts.

According to the UN, by 2050 the world's population will be 9.7 billion. The global AEC industry must look to smarter, more efficient ways to design and build not just as a means to keep up with global demand but to help create spaces that are smarter and more resilient too.

BIM not only allows design and construction teams to work more efficiently, but it allows them to capture the data they create during the process to benefit operations and maintenance activities. This is why BIM mandates are increasing across the globe.

•The adoption of the Directive, officially called the European Union Public Procurement Directive (EUPPD) means that all the 28 European Member States may encourage, specify or mandate the use of BIM for publicly funded construction and building projects in the European Union.

• In the use of UK, Collaborative 3D BIM has become mandatory for government projects.

• In the USA the General Services Administration (GSA) has mandated that buildings designed through its Public Building Service (PBS) use BIM at the design stage as a minimum. In the USA BIM adoption is currently estimated at being in the region of 70%.

• Singapore has one of the most advanced construction industries in Asia and a 2013 survey found 76% of firms were using BIM. In 2015 BIM becomes mandatory for new building projects over 5,000m2.

• Public sector BIM standards or requirements are already in place for Norway, Denmark, Finland and Sweden. BIM is in place for the Statsbygg government property agency in Norway. Finland's Senate Properties, a state-owned enterprise requires IFC/BIM in its projects and intends to have integrated model-based operation in the future.

• In China, BIM has been included as part of its most recent National Five Year Plan and China is formulating a BIM framework.

• Brazil's National Department of Transport Infrastructure is embracing BIM in the hope of making 30% cost savings. Elsewhere in Latin America, Panama's ongoing project to add a new set of locks at either end of the Panama Canal has adopted BIM from the start, and a new airport for Mexico City will also use it.

• Dubai has had a BIM mandate since 2014 which applies to all buildings of 40 stories or higher, buildings of 25,000sqm, all hospitals, universities and public buildings.

The adoption of BIM by the construction and asset management industry requires organizations and individuals to embrace change and new roles within the supply chain.

BIM FOR OPERATIONS & MAINTENANCE

Although many people think about the power of BIM as a design tool, an owner will spend less than 10%-20% of the total cost of a facility on the design and construction phase. They will spend in excess of 80- 90% of the total cost of the facility after construction.

Long-term operations and maintenance are areas where BIM can help significantly. Once a building is complete, it then has to be operated & maintained. With BIM technology, that happens in the most optimal way possible. Once the infrastructure is built, referring to the BIM model allows the developer and facility managers to have the right tools and information to operate all the internal systems, or deal with maintenance issues. This is an invaluable tool for the life of the building which can allow for cost savings of up to 40 % on the operations & maintenance costs of a building, over its entire lifecycle if paired with the right tools.

Efficiency within the built environment is why, at Augment, we're committed to supporting an open and interoperable AEC/FM software ecosystem defined by seamless data connection.

Improved Collaboration

Collaboration is a key component of a BIM workflow. For facility managers, this means that they can exchange information with key people involved in the design and construction phases to get a better understanding of the building lifecycle. Besides, facility managers can also participate during the design phase for new and similar projects.

Smarter and Efficient Maintenance

Many facility managers struggle with the great challenge of developing an effective maintenance program. Facility managers and building owners can use BIM to include asset and product data in the maintenance program to develop much more effective and preventive maintenance.

This valuable data is safely stored in BIM models, and through the process of streamlining maintenance, facility managers can reduce the time, cost, and efforts it takes to accurately populate maintenance programs.

Effective Space Planning

A BIM model also facilitates the effective utilization of space as it becomes easier for the facility managers to visualize the building and the available space within the envelope. With access to accurate layout information, facility managers can optimize the allocation of assets, optimize evacuation routes, identify weak security points, and ensure ease of access, safety, and comfort for the occupants.

Facility managers are required to fully and completely understand every single detail of how space is used in a certain facility. They can use such details to reduce real estate costs and expenses and vacancy. BIM models can read area and room data to provide valuable insight to significantly help improve space management.

Reduce Energy Usage

Analyzing and comparing various energy alternatives is one of the essential tasks of facility managers. This goes especially for green buildings and facilities where reducing environmental impacts plays a crucial role in the wellbeing of everyone involved.

BIM can help with energy efficiency, reduce operating costs and environmental impacts, and effectively analyzing and comparing all the parameters and key metrics regarding energy and consumption of energy. This is especially important when it comes to energy savings and costs, as BIM can help facilitate various system retrofits and facility improvements.

Renovations and economical retrofits

Representing every aspect of a facility in 3D isn't a simple task at all, but thanks to a living BIM model, facility managers get an effective means to do so. They can use this real-time model to gather valuable data about every aspect of a facility such as relevant details about retrofit projects, the necessity and complexity of the facility renovation, the cost of retrofit projects, and information about existing conditions

This data can then be used to reduce the time, effort, and cost it would take to renovate and build retrofit projects. Dependable and more accurate data is of the greatest value to contractors.

Based in Luxembourg, Augment wants to change every aspect of how you manage, live or work in your facilities. You will be empowered with top-notch technology to enhance your wellbeing, allowing you to set your focus on what's necessary. In our quest for optimization and efficiency, you will discover the power of Artificial Intelligence and Augmented Reality combined, delivering the proper data right into your hands.

In today's digital era, our wellbeing and health have become a priority. With the rise of new technologies, we can finally make your lives a better place at the push of a button.

So, armed with technology in this quest for wellbeing, we believe that the best place to start increasing your comfort is your own home. But when it comes to your workplaces, you delegate your comfort to your facility managers.

Facility managers champion the need to maximize the level of comfort and efficiency you experience while working or living in buildings. They are the ones channeling this technological boom to help you reap its benefits in your everyday lives.

For this, we are inventing the future of living.

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