

A beginner's guide to

BUILDING INFORMATION MODELLING (BIM)

WELCOME

FROM PIERRE BOELS, ERA PRESIDENT

How often does a technology come along that has the ability to completely transform how we work? Building Information Modelling (BIM) is that technology - and it represents a remarkable opportunity for rental companies of all sizes.

For construction contractors, BIM gives them much greater control over a project. It enables them to identify and solve problems in the design phase, rather than on site. This significantly reduces down time on the one hand, while increasing productivity on the other.

So, for this reason alone, it is important to offer BIM to your clients in the construction sector - if you do not provide BIM support, they will find a rental company that does! However, there is an even more important reason to make BIM part of your core offering - it can revolutionise your relationships with your clients.

How is this possible, you ask? Fundamentally, BIM brings rental companies and construction contractors closer together. For the first time, it allows rental companies to engage in the design phase of a construction project, rather than much further down the line. This makes life easier for the contractor, while also streamlining the rental process for you. Furthermore, it strengthens your relationships with your clients and enhances customer loyalty. By becoming involved in the design phase, you can identify the optimum products for each stage of the construction process, delivering greater value for money for your customers.

Make no mistake, this is a seismic change in our industry - and it can seem daunting for smaller and medium-sized rental businesses. However, this document aims to make BIM accessible and easy for you.

In this guide, you will find an introduction to BIM and a more in-depth explanation of the main benefits of integrating BIM into your portfolio of services. You will also find case studies from pioneering rental companies, demonstrating different use cases for BIM.

With many European nations investing billions in major construction and infrastructure projects, BIM can help you win new business. BIM is going to be a key component in your future success - and the ERA is here to help you embrace this technology and gain the best possible advantage from it.

As always, we welcome your comments and feedback on this document. If you would like your company to be a case study in a future ERA guide, please get in touch.

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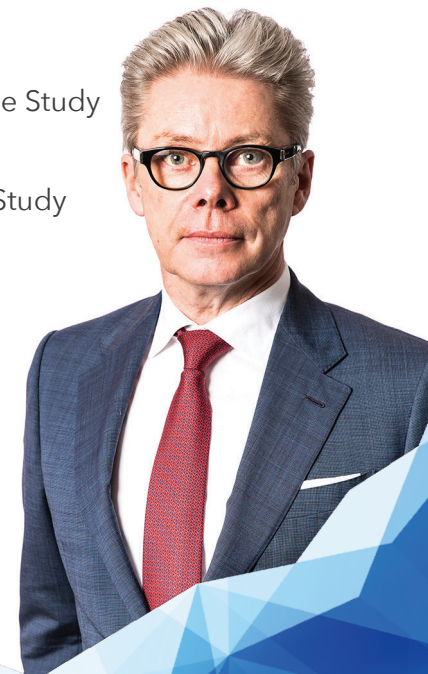
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INTRODUCTION TO BIM

Experts are saying that BIM is the biggest change to the way the construction industry works since the industrial revolution. But what is it, and how does it impact the rental sector?

WHAT IS BIM?

BIM is short for Building Information Modelling. BS EN ISO 196502 now defines BIM as “the use of a shared digital representation of a built asset to facilitate design, construction and operation processes to form a reliable basis for decisions.” Built assets include buildings, bridges, roads, and process plants.

BIM is the creation of 3D models of physical objects. It began as 3D models of buildings, but now includes plant equipment, machinery and even furniture. It enables all parties in a project to come together before construction starts. In this way, construction professionals and rental companies can plan and manage projects much more efficiently.

WHY IS BIM IMPORTANT?

BIM represents a huge opportunity for rental companies, because it brings the rental sector into these big projects at a much earlier stage. Before BIM, construction contractors were engaging rental companies long after the design phase. Now, the rental company is a partner during the design phase. This makes it possible to identify and address problems before they occur on the construction site. Fundamentally, it is moving the question from “how much will it cost me to rent this equipment?” to “Can you work closely with me on how we construct and maintain this building?”

Of course, the life of a building only begins during construction - afterwards, a building still requires cleaning and maintenance.

It is now common for a company to be responsible for both the construction and ongoing maintenance of a building. Through BIM, rental companies can ensure that the building is “equipment friendly”, meaning that machines for maintenance can access all the required areas, and that the floors can take the weight of the machines.

WHAT WILL MY CUSTOMERS EXPECT?

Your customers will expect you to provide them with BIM files of all the equipment you will rent to them for a given project. This could be anything from welfare cabins and generators through to powered access platforms and cranes.

You will therefore need to create and maintain a library of BIM files for your clients. You can host this yourself and share it on a one-to-one basis, or you can store the BIM files in the Cloud and provide access for your clients via a unique login and password.

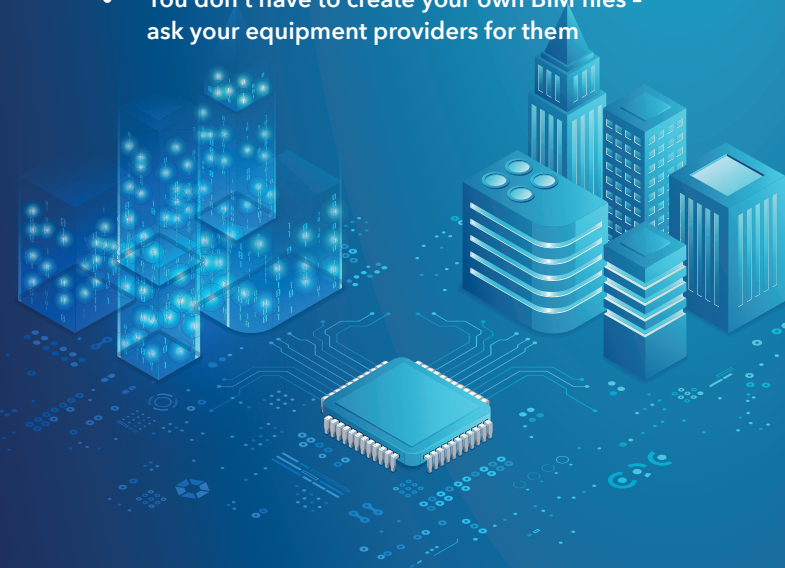
Your customers will also expect you to provide expert advice. For example, what powered access machines would be best for maintaining an atrium? Or, where is the best place to locate the welfare units? You should be prepared to answer these questions.

HOW DO I GET BIM FILES?

This is the easy part! You do not have to spend money or allocate resources to creating BIM files. Almost all of the major equipment manufacturers already have the BIM files for their machines. All you need to do is request the relevant BIM files for the machines in your fleet.

KEY POINTS

- BIM (Building Information Modelling) is the use of 3D modelling in construction
- BIM can involve you in a project at a much earlier stage than before
- BIM enables you to advise your clients and prevent construction / maintenance issues
- Use BIM to build closer and stronger relationships with your construction customers
- You don't have to create your own BIM files - ask your equipment providers for them



BENEFITS OF BIM

The proper use of BIM can bring benefits to the construction contractor, the maintenance contractor, and of course to the rental company. We outline some of the key benefits below.

IMPROVED PRODUCTIVITY

The biggest potential gain for construction companies is improved productivity. Using 3D models enables all parties to very quickly spot problems - for example, is an access point too narrow for the required machines? Fixing these problems in the design phase avoids significant delays and down time, which improves margins for construction contractors. In this way, BIM can help make your customers more profitable.

EQUIPMENT SPECIFICATION

There is always an element of guesswork involved in specifying which make and model of a machine is the right equipment for the job. By working with architects and civil engineers in a 3D model of the job site, you can use data to identify precisely the correct equipment. This can range from knowledge on total power consumption to ensure the right generators are on site at the right times, to exact information on working heights needed for powered access platforms.

PROBLEM SOLVING

The equipment rental business is the business of providing solutions. Using BIM enhances your ability to solve problems for your clients. This adds value and enhances how they perceive your brand.

REDUCED RISK

Architects can design beautiful structures, but sometimes also design in problems for the construction or maintenance contractor. They can accidentally create areas that are expensive and difficult to access. BIM enables involvement in the early design phase of a project, which can reduce the risk of creating "no-go" areas which cannot be accessed easily by machines used for construction and maintenance, such as lifting equipment.

CUSTOMER LOYALTY

Working with the client from the very early stages of a project will strengthen client relationships and lead to winning more new business, as well as higher customer retention rates. Ultimately, you are using BIM to make your clients' lives easier, and they should reward you by doing even more business with you in the future.

BETTER PLANNING

From an operational perspective, BIM enables you to more accurately forecast when and where your equipment will be deployed. This allows you to manage your rental fleet more effectively, and forward plan additional investment or cross-hire of equipment. In this way, longer term planning enables you to right-size your fleet in advance of a major project.



KEY POINTS

THE MAIN BENEFITS FOR CONSTRUCTION COMPANIES ARE:

- **Improved productivity** - problems are addressed in the design phase rather than in real time
- **Better specification** - identify the correct machine for each specific application
- **Reduced risk** - Knowing the capabilities of the machines ensures more efficient construction and maintenance

THE MAIN BENEFITS FOR RENTAL COMPANIES ARE:

- **Customer loyalty** - working more closely with your customers will make them more loyal
- **Problem solving** - by providing expert advice, you become a problem solver for your clients
- **Better planning** - by planning further ahead you can manage your fleet more effectively

CASE STUDY | ZEPPELIN RENTAL

Zeppelin Rental has won awards for innovation and is placing BIM at the heart of its digital strategy.

In 2015, Zeppelin Rental GmbH officially launched Project Solutions, its vision for a digital future. The first fruit of this was a website which enables visitors to click on products to find out more about their capabilities - and also how machines interact with each other. It was launched at Bauma 2019.

"This was only the beginning," said Hilmar Troitzsch, Head of Research & Development at Zeppelin Rental. "What we created next was a virtual construction site where we can meet online with our clients and explain to them our products.

"We started by thinking about which of our products would be most useful for the architects to have during the design phase of a project. We took that group of products and created them in BIM. After making the 3D models, the next question to answer is, what other data is needed on these models for BIM? We had a lot of different stakeholders, asking for different data they would like to see included. For example, the architect was asking for a 3D model, while the civil engineer was asking for performance data such as power consumption and load capacity of lifting equipment. Then the next client wants to know the weight of the machine and how many trailers you need to bring the equipment to the site. So for different clients we create different data sets within the models."

Using BIM has given Zeppelin Rental a deeper understanding of how its clients interact with its products.

"It has been a great learning experience for us," said Hilmar. "Normally you rent out the equipment and you get a good level of feedback on what the machines are doing. However, Zeppelin Rental is a big company, so you have one department for modular buildings and one for access platforms. On a virtual construction site, you can see how they all interact and work together and share project data."

Hilmar believes that BIM will change the culture of who the rental company considers to be its client. "In the future it will be increasingly important for a rental company to be present in the early design phase of a project," he said. "This means that the architect and the civil engineer become your clients as well as the construction contractor."

However, data has a value and must be protected. "You do not want to give your clients too much data or make all the data accessible to your competitors," he said. "You need the right infrastructure and systems to control the flow of data, to the right people at the right time."

COMPANY PROFILE

- Employs circa 1,800 people
- Operates 160 sites in Germany, Austria, Czech Republic, Slovakia, Denmark and Sweden
- Rental revenues of EUR 528 million in 2020

KEY POINTS

- Don't give all the BIM data away for free! Keep it away from your competitors
- BIM can bring different departments and teams into closer co-operation
- BIM provides better insights into how your equipment is used during a project
- Start thinking also of the architect and civil engineer as your clients
- Remember that different stakeholders will have different BIM data requirements

Picture source: action press/Christian Rudnik



Visit our library of BIM products

Niederstätter

FEEL FREE TO BUILD

CASE STUDY | NIEDERSTÄTTER

Based in Bolzano, Niederstätter is a family-owned rental company which operates the largest fleet of Liebherr cranes in Italy. It also has a specialist container division, providing mobile accommodation based on shipping containers.

Niederstätter uses BIM in its container division to optimise its internal processes. Anton Gistelnic, who is responsible for BIM, said: "We use BIM models now to plan container installations quickly, to move between variations more rapidly, and to make accurate quantity and cost estimations. It also allows us to save time during conversion of containers and site/delivery planning. Furthermore, it gives a professional result for our customers, who can see the installation digitally, or even in virtual reality if requested."

Starting in May 2018 the company built a container BIM platform in around six months, with help from a local research institute, Fraunhofer Italia. The platform enables Niederstätter to plan container installations in BIM and use them as a basis for cost calculation, as well as checking availability. "Each container consists of different elements such as windows, air conditioning, closed panels, insulation types, colours, and interior fittings," said Gistelnic. "BIM allows for rapid development of the model, and derived products like 2D drawings and lists of components."

Challenges included finding a method that was flexible enough to allow for all components to be inserted in the model, then adapted and quantified, without making the platform too complicated. Niederstätter is also exploring how to link the BIM platform to its ERP software, which will allow users to automatically check the availability of all the required components.

"Another challenge remains in making BIM processes accepted by all and implemented as an internal standard," said Gistelnic. "For now, they have proven their value especially on larger projects, but have many advantages for all project in general. In the meantime, we are looking into possible interesting implementations in our tower crane department as well. Here, BIM processes might help us in decision-making for site lay-out and crane selection."

For Niederstätter, the biggest benefit of BIM is the time saved in making drawings, as well as planning and executing container projects. "Although initial start-up requires human capital and investment costs like software, we think BIM has great potential for rental companies," said Gistelnic. "In any case, a digital twin allows us to develop bigger projects faster, more transparently, and to identify mistakes in advance before we are on site."

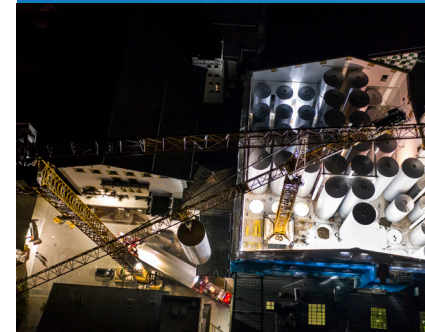
"The building companies will switch to digital technologies like BIM as obliged by law in the coming years, throughout Europe. As a professional partner for the sector we want to make the many advantages of these methods already available now for our clients!"

COMPANY PROFILE

- Founded by Maria Niederstätter in Bolzano in 1975
- Operates Italy's biggest Liebherr crane rental fleet
- Employs 70 people and turns over €30 million

KEY POINTS

- BIM will require up-front investment, but will deliver big benefits
- Adopt BIM now because soon, your customers will expect it
- Explore using BIM in other areas or divisions of your business





CASE STUDY | RIWAL

Aerial work platform rental specialist RIWAL worked closely with its customers and manufacturers of aerial lifts to create a free, online BIM library.

Based in the Netherlands, Riwal is a leading specialist in access platforms. The company adopted a collaborative approach to BIM which it says is creating new ways of working.

Riwal started by talking to its customers to find out how they wanted to use the BIM files and what data each file should contain. Kees van Benschop, Business innovation analyst for Riwal, said: "The customer needed certain machine performance parameters such as weight of the machine and its reach - both visually and as data. JLG made the BIM models available based on the customer's demand."

In 2019, JLG was followed by Genie and Skyjack who also created BIM files for Riwal. The company created a library containing its most popular machines. This is hosted at BIMObject.com as well as Riwal's own online customer portal, with all BIM files available for free download.

Riwal recognised the potential for BIM to be a game-changer for major construction contractors. "Our customers involved in construction are often also responsible for maintenance of the building for 20 to 30 years," said van Benschop. "It therefore becomes much more worthwhile to make small changes to the building design, which can significantly reduce the costs of maintenance. We became much more relevant to our customers at an earlier stage of the process. We can make sure that they won't lose any time during the construction phase."

"We are still speaking to our customers who use the equipment but also to the architects and real estate companies. It gives us the possibility to look at the entire life cycle of the building so not only construction but in the design phase start looking at the maintenance for the long term."

BIM is also enabling Riwal to help clients to meet their sustainability goals, by demonstrating that all-electric access platforms can often replace diesel booms and scissors. This also extends to providing advice on electricity supply to ensure the machines can be recharged on site. "On some sites there are also noise restrictions, and we can provide solutions for that," said van Benschop. "Using BIM we can give them alternative fuel options, so by sharing knowledge they can make better choices. Our customers don't need a machine, they need a solution. Through BIM we add value and that helps us to become the preferred supplier to them. We are only at the beginning of this journey. Anyone can supply a machine but ensuring that they supply the best machine for each job is what makes a real difference. I want to be the guy bringing the best solution not just machines at the cheapest price."

COMPANY PROFILE

- A global leader in the provision of access platforms and lifting equipment
- Depot locations in 16 countries including Europe, Middle East, and Asia
- More than 20,000 machines in its global rental fleet

KEY POINTS

- BIM can help construction contractors to make better design decisions
- Listen to your customers to understand how they want to use BIM
- Work closely with OEMs to create the best possible BIM files





SUMMARY OF THE KEY POINTS

This page provides you with a handy summary of the key points from all of the case studies. This includes identifying what approach to BIM is right for your business, how you deploy BIM, and how you maximize the benefit.

BENEFITS OF BIM

- BIM can help construction contractors to make better design decisions
- Making changes in the design phase can cut building maintenance costs
- BIM can help your customers switch from diesel to electric machines
- BIM transitions you from an equipment supplier to a solutions provider
- BIM provides better insights into how your equipment is used during a project
- BIM can bring different departments and teams into closer co-operation

DEVELOPING YOUR BIM STRATEGY

- Adopt BIM now because soon, your customers will expect it
- Listen to your customers to understand how they want to use BIM
- Start thinking also of the architect and civil engineer as your clients
- BIM will require up-front investment, so be prepared to pay for it
- Work closely with OEMs to create the best possible BIM files
- Explore using BIM in other areas or divisions of your business

ABOUT ERA

The key mission of ERA is to promote the rental concept in order to facilitate a continued growth of the rental industry by creating an open European market, at a much larger scale than any national market. To achieve this goal, ERA acts as the representative association of the equipment rental sector at European level, complementing the activities undertaken by national rental associations locally.

OUR WORK FOCUSES ON 4 MAIN AREAS:

- Promotion of the rental concept
- Rental market statistics and data
- Equipment technology
- Sustainability