

# EFFECTIVE DATA MANAGEMENT

WHITE PAPER

NIGEL REES, PRODUCT DIRECTOR CLOUD SERVICES AT ALLPLAN

# EFFECTIVE DATA MANAGEMENT THE KEY TO FUTURE CONSTRUCTION PROJECTS

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"Having all the information right at your fingertips within the model, while retaining an overview in Bimplus, significantly improves response to issues. There is no longer a need to search for an email or document that lists what needs changing, as everyone can view the progress of each activity in the issue manager. It is all about working smarter."

Nigel Rees, Product Director Cloud Services at ALLPLAN

### INTRODUCTION

As the drive towards increasing digitalization within the construction industry gathers pace, construction professionals are finding themselves in the role of information managers. Digital working methods such as Building Information Modeling (BIM) and emerging technologies such as automation, artificial intelligence, and big data all rely on high-quality, well-structured project information to be effective. Yet even before the shift to digital design and construction, information has been a critical success factor in projects – incomplete design data, ineffective change management processes, and problematic information exchange among teams have often led to issues such as delays, overspend, and rework. The need for effective data management is therefore not a result of digitalization, but rather an essential component of delivering quality projects on time and to budget, irrespective of the working method used. Using digital approaches simply magnifies the detrimental effects of poorly managed data.

However, the disruption of the architecture, engineering, construction, and operation (AECO) industry through digitalization is no longer avoidable – working in 3D and using BIM methodologies has become increasingly expected by clients worldwide. The use of BIM on public-sector projects is mandatory in many countries, with this trend set to continue. Private-sector clients are also looking to leverage the efficiencies of BIM, as well as take advantage of digital facilities management technologies for their assets during operation. Even without the need to fulfill client requirements, construction professionals face a range of pressures – such as the scarcity of skilled staff – that make finding efficient working practices imperative. Those who adapt and implement new ways of working are well placed to benefit from further industry disruption in the future.



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### UNLOCKING THE BENEFITS OF BIM

Securing these future advantages requires not just early adoption, but also a change of approach. BIM is the foundation of many of the changes within the industry, driving the use digital workflows and emerging technologies as well as new ways of working with both internal team members and external stakeholders. How construction professionals interact with each other and deliver projects is on the cusp of a major change as a result of BIM and increasing digitalization. However, to truly unlock the benefits of BIM – the efficiency, innovation, and enhanced quality it is meant to deliver – requires improved collaboration among the project team. Yet this collaboration cannot happen if information cannot be easily and seamlessly shared between the team members, or if information is missing or of poor quality. Managing data more effectively is therefore critical for integrating more effectively with other sector professionals, ensuring a smooth project workflow, and maximizing the advantages of BIM.

### MANAGING DATA EFFECTIVELY FOR BIM

If sharing, coordinating, and managing information in a BIM framework is essential, achieving this requires more than just a file-based data system. On any construction project, there will be data coming from multiple model sources, programs, and locations. However, connecting modeling software to the multitude of managed and unmanaged programs used in a project can quickly lead to

mismanaged data. File-based systems exacerbate this problem: the data contained within them will need to be made available repeatedly, which overwrites the files that use that data multiple times. This allows for errors to occur easily, especially when changes happen frequently – as they often do on projects. In addition, there is less data security when using file-based systems, as the information in the files is quite easy to intercept, decompose, or corrupt. These limitations mean that file-based systems are less suited to a seamless exchange of information between multiple stakeholders.

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**Databases reduce data redundancy because they host the information once and make it available to the functions that need access, rather than overwriting files repeatedly**

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A common data management platform that uses a relational database is a better choice for this purpose. As it is designed to ensure that there is data integrity and continuity, they reduce the risk of data loss and corruption and make the process of exchanging information much simpler and easier. For example, databases reduce data redundancy because they host the information once and make it available to the functions that need access, rather than overwriting files repeatedly. They are

The Swiss engineers from WaltGalmerini used Bimplus for the Cantonal Hospital St. Gallen  
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also able to create layers around the data that ensures only those who are authorized to access the information can do so. With the increasing need to share information, ensuring this continuity and security is a critical factor for companies who want to adopt new ways of working in the most secure and efficient manner possible.

#### A DATABASE DESIGNED FOR CONSTRUCTION

A relational database platform is also particularly suited to the nature of construction projects. The data is not only well-organized, but also has pre-defined relationships that allows objects in a building model to be represented with all the attributes associated with them. This concept has been incorporated into ALLPLAN's Bimplus data management platform, which ensures a data-rich model with interdependencies irrespective of the source of the model or the information related to it – such as documentation, for example. Using the industry standard IFC data exchange interface, information is neutralized so that it can be

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**Maximizing the data that is available to the project team and being able to easily share project information are critical to improving collaboration, driving innovation, and minimizing risk.**

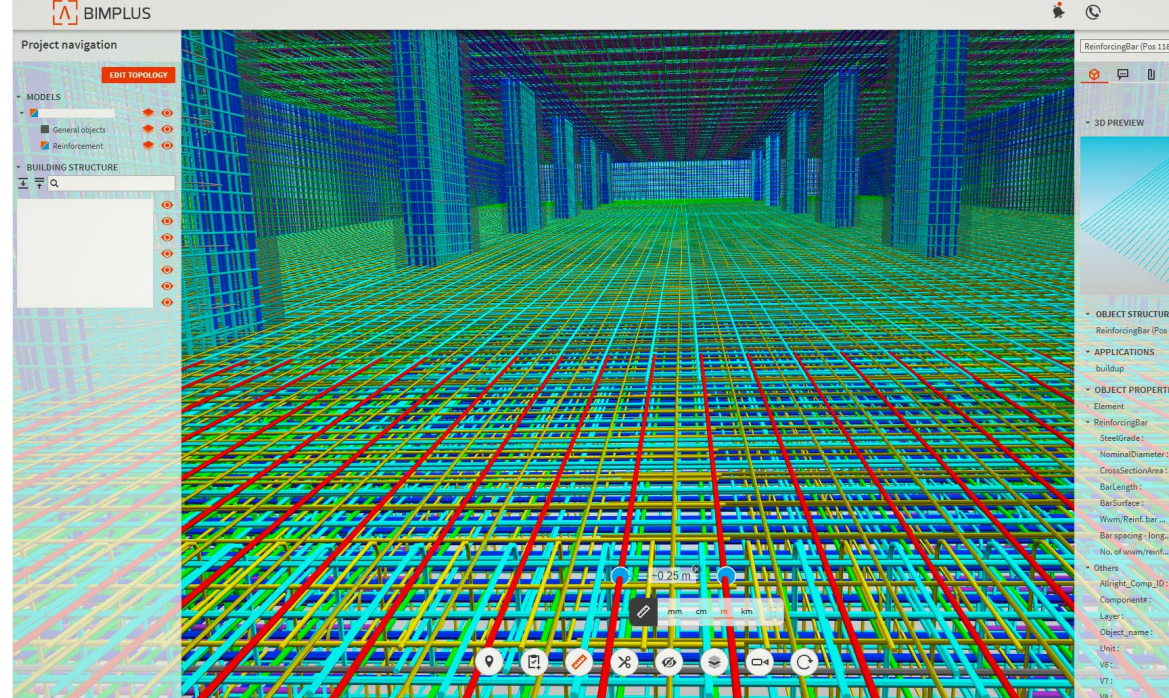
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imported or exported into a format that fits the purpose of the content. Using a powerful API, the data can also be connected to different software and become the data host for any process that requires it. For example, the information could be used for collaboration and issue management, or for applications such as the manufacturing of precast concrete elements.

Maximizing the data that is available to the project team and being able to easily share project information are critical to improving collaboration, driving innovation, and minimizing risk. Quick and easy access to the required data also boosts productivity and informed decision-making. Within Bimplus, the data structure allows models to be compared using real building objects within a federated model set – the single source of truth that helps the team members to understand the design status in a holistic context. For example, the building services model can be visualized alongside the current architectural or engineering model, helping different disciplines understand how their activities overlap and affect each other. It also gives access to additional information – objects in Allplan can have attachments where supplementary data is stored in Bimplus, such as calculation results from structural analysis software. With in-built cloud support, any project team

Allplan Bimplus enables all project participants to access the central BIM model of the New Lock Terneuzen and optimize their own processes accordingly.

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member can access the project data at any time, from any location, in a reliable and secure manner. The federated model approach therefore creates an environment that provides all the necessary information for successful planning.

#### IMPROVED ISSUE MANAGEMENT

Another area that significantly benefits from effective data control is issue management. This is an incredibly important workflow that can suffer from poorly managed data, leading to further delays and problems. Without an issue management system, data is received in multiple formats by different people – several emails may be received, phone calls taken, and instructions given from different parties who require changes for different reasons. The result is that it is not clear who should make changes, at what stage these are to be made, and who then carries the responsibility of taking these changes forward.

Bimplus brings clarity and transparency to the issue management process. Issues can be created in Bimplus or Allplan, assigned to the relevant person, visualized, annotated, assigned a deadline, and signed off, as well as easily tracked throughout the entire process. Any incoming files and information can be imported centrally into Bimplus, validated by the Project Manager or BIM Coordinator, and then allocated to the associated issue. By keeping data centralized and organized, managing issues and changes is more effective and efficient, which in turn improves productivity.

#### GOOD DATA MANAGEMENT MEANS BETTER PROJECT OUTCOMES

Bimplus offers a unique solution for reliable and secure data management, issue management, and BIM execution. By incorporating the principles of relational databases and customizing this

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**With the ability to easily share accurate data with any stakeholder, even from an early stage of the project, misunderstandings are minimized, transparency is maximized, and productivity is optimized.**

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for BIM-related activities, the data in Bimplus is always true, always secure, and always available. The result is a reliable data source for any discipline requiring access to the data held within – and therefore, an efficient and effective data management process. With the ability to easily share accurate data with any stakeholder, even from an early stage of the project, misunderstandings are minimized, transparency is maximized, and productivity is optimized. Companies that adapt and move to more effective digital management and collaboration methodologies will not just gain competitive advantages, they will also ensure better project outcomes for their clients.

Bimplus helps build one of the largest locks in the world, the New Lock Terneuzen in the Netherlands.

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### SUMMARY

Companies that adapt and move to more effective digital management and collaboration methodologies will not just gain competitive advantages – they will also ensure better project outcomes for their clients. Bimplus offers a centrally managed database containing the 3D model, 2D Design information and all associated documentation. This means that project data is coordinated and used effectively, with everyone using the most up-to-date information. Adoption of a self organising and transparent setup lends itself to efficient processes such as issue management, ensuring the whole team is clear about who is responsible for each

task. With the ability to easily share accurate data with any stakeholder, even from an early stage of the project, misunderstandings are minimized, transparency is maximized, and productivity is optimized. In turn client requirements, such as project delivery timeframes and budgets, can be easily monitored leading to a higher rate of success. With the increasing use of BIM, the need to deliver quality projects efficiently and cost-effectively, and the continued technological disruption of the AECO industry, an openBIM collaboration platform like Bimplus is a powerful tool for delivering projects successfully.

## ABOUT ALLPLAN

ALLPLAN is a global provider of BIM design software for the AEC industry. True to our "Design to Build" claim, we cover the entire process from the first concept to final detailed design for the construction site and for prefabrication. Allplan users create deliverables of the highest quality and level of detail thanks to lean workflows. ALLPLAN offers powerful integrated cloud technology to

support interdisciplinary collaboration on building and civil engineering projects. Around the world over 500 dedicated employees continue to write the ALLPLAN success story. Headquartered in Munich, Germany, ALLPLAN is part of the Nemetschek Group which is a pioneer for digital transformation in the construction sector.

### ALLPLAN GmbH

Konrad-Zuse-Platz 1  
81829 Munich  
Germany  
info@allplan.com  
allplan.com

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A NEMETSCHKE COMPANY