

BIM: Changing the way architects and builders work

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The construction of a building does not only start with its design by architects and engineers. It also depends on determining a broad array of factors, including the price of materials, labour, the writing of specifications and of the building contract, as well as the careful orchestration of all of the activities that are part of the building process. The trouble is that the organisation of these activities is still labour intensive. To address the increased complexity of buildings, a type of software, called 'Building Information Modelling' (BIM), has gradually been developed and introduced in the construction industry, in recent years.

In the [building](#) sector, the introduction of BIM can be a challenge, especially for big companies, according to Carlos Barcena, head of the R&D projects department of Dragados, a large general construction contractor based in Madrid, Spain, and one of the partners of the DIRECTION project. "We have to integrate systems, new tools, and new procedures," he says.

However, this approach is beneficial. "We are involved in some networks in Spain tackling the issue of implementing BIM in our companies," he adds. And it has paid off. Last year, the company had to start the construction of a [complex](#) building, but were faced with too many inconsistencies. They then delayed the building for three months while implementing BIM. He concludes: "We were able to catch up and saved time and money."

Unlike many software packages used in industrial design, BIM is not just a new technology, argues Ezio Arlati, a professor of architecture at the Polytechnic University of Milan, Italy. "It is a process, and it is important to implement the process, and not the technology." Essential to the process is the reliability of a very large set of data and their management. "You have to create a transparent process for managing the data sets for their flow along with the design and construction of the building," Arlati adds.

An important aspect of BIM is the possibility of modelling the entire building process, using the parameters of the project. This allows the anticipation of pitfalls, one of the reasons of the success of BIM. "The advantages are based on the elimination of all areas of waste: wasted time, wasted money, wasted materials, and waste caused by mistakes," says Arlati, who is also the vice president of the Italian chapter of BuildingSmart International, an organisation that supports the worldwide use of BIM.

Easy access to documents and information is the key that makes BIM attractive. "You have to manage the data sets so that it is transparent for every stakeholder: the client, the designer, the construction entrepreneur, and the supply chain," notes Arlati.

BIM is changing the approach to implementing a new building project, thus changing the work of architects, designers and [construction](#) companies. "Some of their roles will change, but expertise will remain the key," says Radbouw Baayen, a technical advisor at Stabu, a foundation based in Ede, the Netherlands, that develops information systems for the [construction industry](#).

BIM has made the evaluation of the entire costs associated with the building more precise. "Traditionally, choices in the building sector were only based on the price for buying a building; now we can estimate the total cost, including the cost of the operation during the entire life cycle of the building," he says. With his approach one can avoid unpleasant surprises. "You could have a building that is cheap, but you can run into problems with the cost of managing the building, something you could have resolved at the beginning of the design process," says Baayen.

Adoption of BIM in the building industry is not yet universal, however. Baayen concludes: "We have the early adapters, and you have the followers, who do not yet understand what BIM can bring to their work."

More information: [www.direction-fp7.eu/Partners/ ...nsortium/DRAGADOS.kl](http://www.direction-fp7.eu/Partners/...nsortium/DRAGADOS.kl)

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