

A new collaboration era for the building sector

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Building projects require processing and communication of large amounts of complex data. Now, software solutions make it possible to retrieve details of a given project at any time.

The building sector has traditionally been fragmented. Many different actors are involved at different stages, from the design to the performance monitoring stage. They typically work separately at different times of the development of the building and rarely collaborate. The trouble is that it is not standard practice to perform overall simulations of the project before it starts.

Many factors can contribute to a waste in resources and time: information might be lost along the way, work duplicated, and mistakes made, but only discovered during on-site implementation.

Solutions to facilitate information collection and sharing can be tested in collaborative projects. For example, the EU-funded **DIRECTION** research project constitutes an ideal test base because it is based on a holistic approach for very low energy new buildings. To do such test, the Italian project partners of the engineering consultancy EnginSoft, located in Trento, Italy have developed a content management platform dubbed **BIXS** [Building Information eXchange System]. The BIXS platform is a content management system organised as a tree of folders including data such as perspective drawings, plans, installation, monitoring and costs-related information. "It is a first attempt to change the way of working so to make it more interchangeable," explains Silvia

Demattè, R&D engineer at EnginSoft.

This initiative has been developed in the wider context of the Building Information Modelling [BIM], which has yet to be widely adopted by the industry. BIM is typically identified both as a process as well as a concrete tool to generate and managing building information in an interoperable and reusable way. There is currently a global effort to develop open standards and tools to support the use of BIM, called the building SMART initiative.

"BIM tends to be made more complicated than it needs to be," highlights Lars Bjørkhaug, product manager at Catenda, in Oslo, Norway, a spin-off from the Norwegian research organisation Sintef. "In reality BIM is a method combined with a group of standards that say which part of the information to transfer from one party to the other, how to do it and in what language," he adds, "BIM data is therefore anything that you can establish in a way that can be used by somebody else in the workflow."

EnginSoft originally planned to develop a BIM but decided for a BIXS instead. The reason for this choice is that BIXS does not require uploading data in a specific format but only in a specific folder. By contrast, a BIM requires information in a consistently formatted way. "The different project partners have their own working habits and data saved in different file formats like Excel, Word etc. and it is difficult to implement a standardised procedure without homogenous or compatible templates," explains Demattè.

Experts point to the advantages of such an approach. "Content management [such as BIXS] is an important part of BIM in terms of trying to collect all different pieces of information so there are less chances of making mistakes and more of using the right information," says Martin Simpson, visiting professor in innovation at the University of Salford's School of Built Environment, UK. "Nevertheless, a lot of the

problems that happen on site have to do with lack of coordination of information and the most effective way to do full coordination is to create virtual prototypes. If you first build in virtual space like they do in the aerospace industry for instance, you make mistakes in a virtual environment, where it is easier to correct them than in the real world," Simpson adds.

Other experts agree. "It is always useful to share information in a [content management system](#) and BIXS is a huge step away from using e-mail, the typical way of doing it", tells Bjørkhaug. He warns: "as long as the data shared is in document formats, there is no automatic flow of information from phase to phase or actor to actor. Information still needs to be read and reprocessed by humans."

Despite the advantages provided by BIXS in exchanging information between partners, it does not allow automatic information searching and sharing. For example, "there is no easy way to find out for instance how many electric pumps or temperature sensors are expected to be in the various buildings", tells Demattè. Typically, this information could be extracted from a virtual model, built on standardised data, not on information stored in folders with a tree structure. Demattè concludes: "In the future, we could think of collecting all the information in buildings virtual models."

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