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Summary

Open innovation in the building sector

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Open innovation means knowledge sharing and cooperation between businesses in the area of innovation, where appropriate together with knowledge centres such as sector research centres, universities and colleges. A quantitative survey by the Stichting Innovatie & Arbeid reveals that the building sector is not a pioneer in the area of open innovation (Verdonck, 2011). Therefore, in this study we looked for examples of open innovation among early adopters or pioneers in the field of energy-efficient building in general and the E level in particular. The E level is a measure of primary energy consumption of the housing unit and a parameter for the EPB (Energy Performance of Buildings) audit. The E level is a trigger for innovation, as is sustainable and ecological building of which the E level is one aspect. In interviews with field experts in firms and the sector in general, we looked for barriers to and levers for the achievement of open innovation.

In the building sector, cooperation takes place in three areas. There is cooperation be- tween manufacturers of building materials and technology, cooperation on site and cooperation between manufacturers and those on site. Within each project there is vertical and horizontal or B2B cooperation and cooperation with fellow enterprises. As the quantitative survey demonstrated, cooperation among early adopters of innovations, also exists particularly at B2B level with customers and suppliers. Cooperation is also limited to sharing knowledge and working together to develop improvements and innovations where there is no competitive disadvantage. Protecting in-house knowledge is the main barrier to cooperation between firms. This was also found in a previous study on cooperation between firms and knowledge centres (Verdonck, 2011) (summary in English (Verdonck & Hedebouw, 2012)). Success stories definitely exist in the building sector when firms offer complementary products or services and are able to maintain or expand their market share through cooperation. The "massive passive" project, a joint venture between a manufacturer of bricks and a manufacturer of insulation is a good example of this. Similarly, open innovation also exists in skeleton building. An example of this is a joint venture between a general contractor for skeleton building and a contractor for windows and joinery.

There are extra barriers for small firms, who find it more difficult to approach larger firms because they are more geared to mass production and less interested in tailormade solutions. This leads small firms to look for solutions with fellow SMEs, which is also easier thanks to a common business culture, less bureaucracy and greater flexibility. Successful cooperation is based on trust and that applies to all businesses. Although agreements are sometimes formalized, this is not essential for success. Instead of looking for cooperation, some firms opt to combine several activities in house since an interdisciplinary approach is required and

cooperation is not always possible. This applies to cooperation on site as well as between manufacturers.

The E level is a trigger for open innovation and also requires greater communication and knowledge sharing about implementation.

Some general contractors also try to keep as many trades as possible in house. Other contractors favour the building team method, bringing together all potential major players at the start of a building project. The initiative for this sometimes comes from the architect. The architect is a major communication channel for innovations from manufacturers and the site coordinator. A thorough approach is required in order to implement the new energy-efficient materials and technology effectively so as to achieve the E level. The fact that airtightness is a crucial factor in achieving the E level is vital to this. Manufacturers of materials and technology also use websites and living labs to raise awareness of innovation among potential customers. The innovations also generate increased demand for specialist training and interdisciplinary expertise. For the building sector, this is channelled and coordinated by the Building TASK FORCE with a view to harmonising building courses.

Open innovation in building is supported by the government in various ways. Several examples illustrate the diversity and can inspire greater achievement. For instance, some research centres share their knowledge with manufacturers of materials and technology, creating innovative products together, with the support of organizations such as provincial innovation centres. Provincial organizations for sustainable building are a source of inspiration for clients in the area of energy-efficient building and can lead to cooperation between building partners. The General Government Policy Service policy area - Sustainable Development Team and the Flemish Energy Agency (VEA) can also help to support open innovation.

Full details of the results of the study on open innovation in building are contained in the information dossier. The final section contains numerous suggestions from the interviewees about desirable support measures, in the hope of contributing to the continued expansion of open innovation in the building sector among the manufacturers of materials and technology and on site.

Keywords

Open innovation - technology transfer - research & development – building sector

Gert Verdonck (2012), Open Innovatie in de bouwsector. StIA/SERV, Brussels, September 2012