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## VALUE CO-CREATION IN A VIRTUAL SMART BUILDING SERVICE ENTERPRISE FOR ENERGY EFFICIENCY AND ECONOMIC SUSTAINABILITY

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### **Abstract**

Today, a new generation of software applications can be developed, as IT services developed by software providers can be integrated by solution developers in complex control and monitoring *Smart Building Management* solutions. This paper introduces the concept of *Virtual Smart Building Service Enterprise* (SBSE) as a novel perspective to develop an innovated services ecosystem for smart buildings. The Virtual SBSE allows different stakeholder categories to interact in order to develop, publish, compose, discover, integrate and use specific functionalities exposed as services for smart building management. An extended implementation case study is developed around an open software platform for modelling, virtualising, and managing complex services, including energy consumption. It integrates in the operational loop a Smart Building Controller exposed as a service that home users can download, install and use in their homes for the control and monitoring of energy consumption, or for ambient comfort. Different schedules and policies for individual devices or groups of devices can be defined based on daily working or living user schedules, so that the users may evaluate and adjust energy cost based on their own preferences, achieving their energy efficiency goals. The Virtual SBSE concept and the energy efficiency case study presented in the paper demonstrate how the easy open integration of diverse information systems enabling the creation of new smart building management services and involving users in value co creation can be attained.

*Key words:* energy efficiency, smart building, smart building management, value co-creation

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