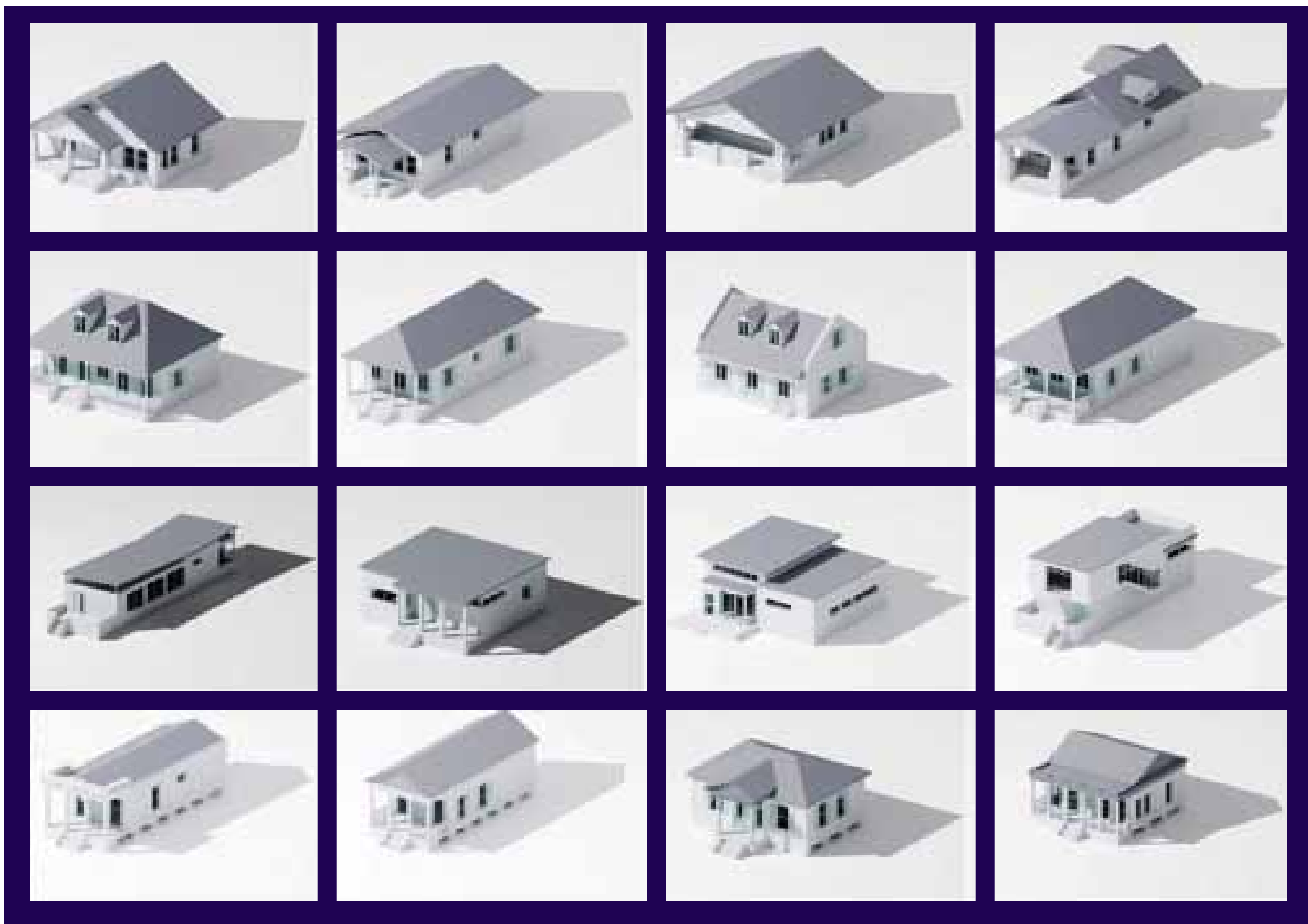




Visual Analytics for Informed-Decision



Energy efficiency heavily depends on effective building construction. It is more appropriate if one can predict energy efficiency of the house before building it. Here simple application of the Nearest Neighbors lazy learning techniques improve estimating the energy efficiency of a building. Visual analytics tools considered a smart solution as a function of modeling parameters by using Machine Learning framework in a suitable way. It is a powerful way to improve energy saving in building construction and making informed decisions.

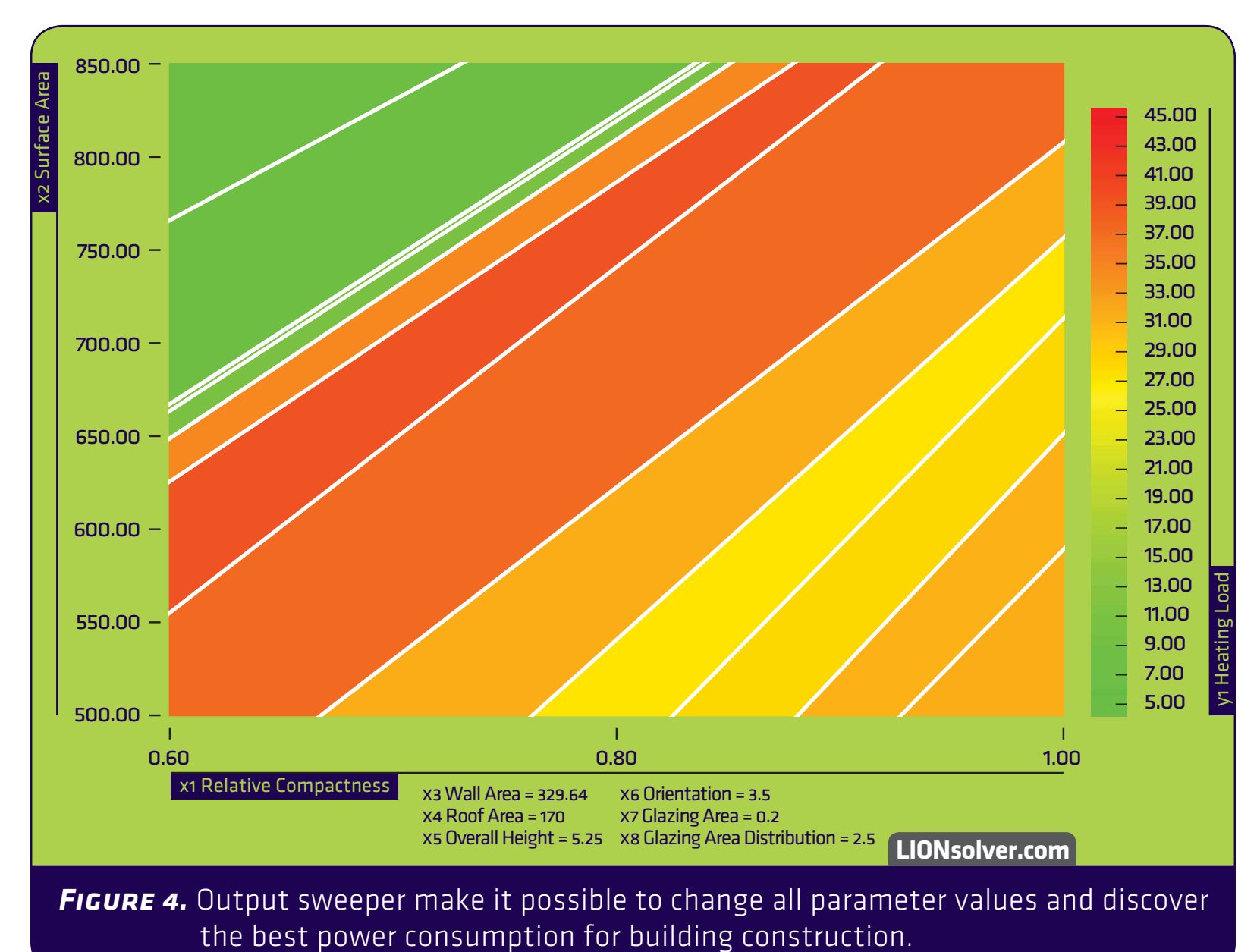
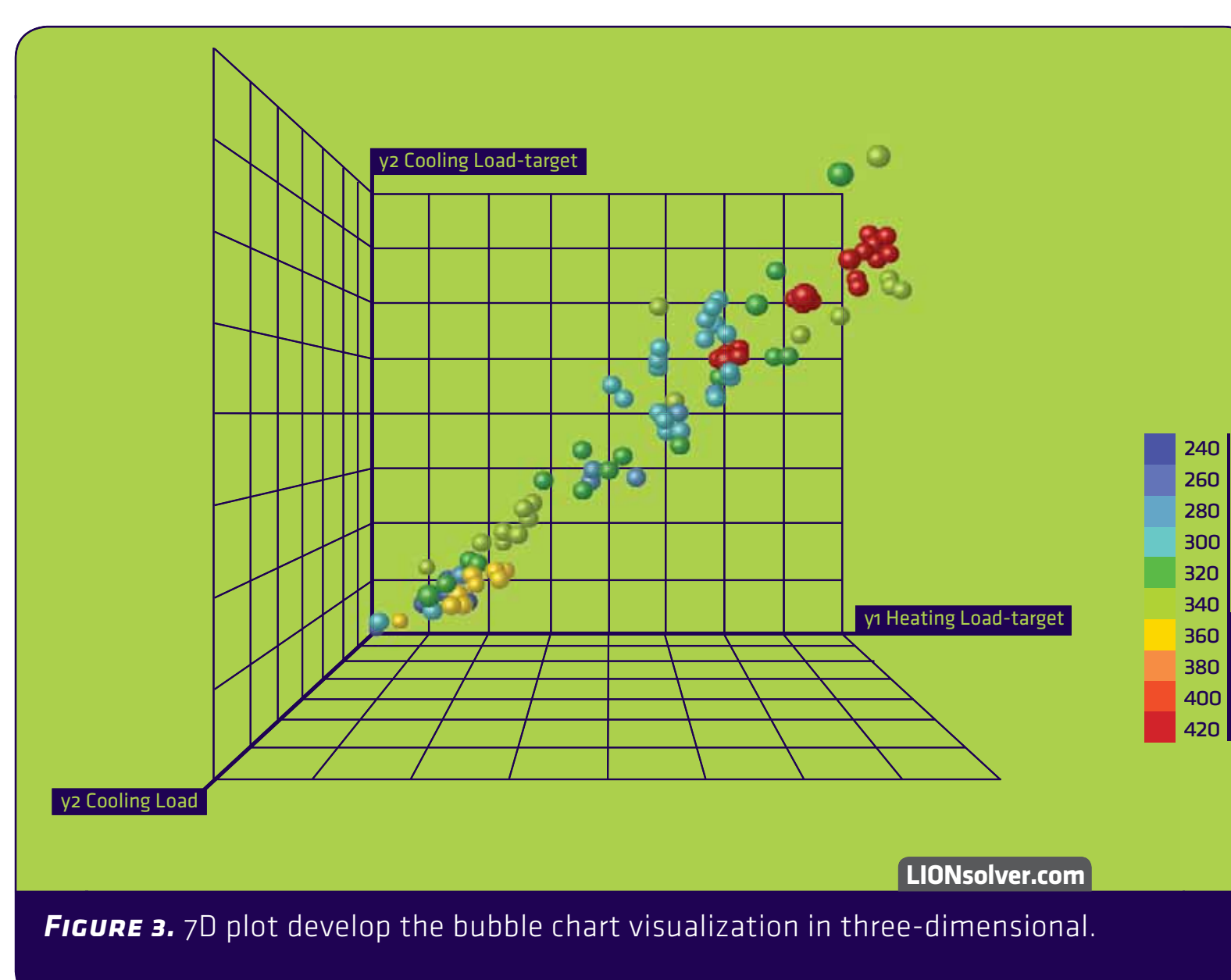
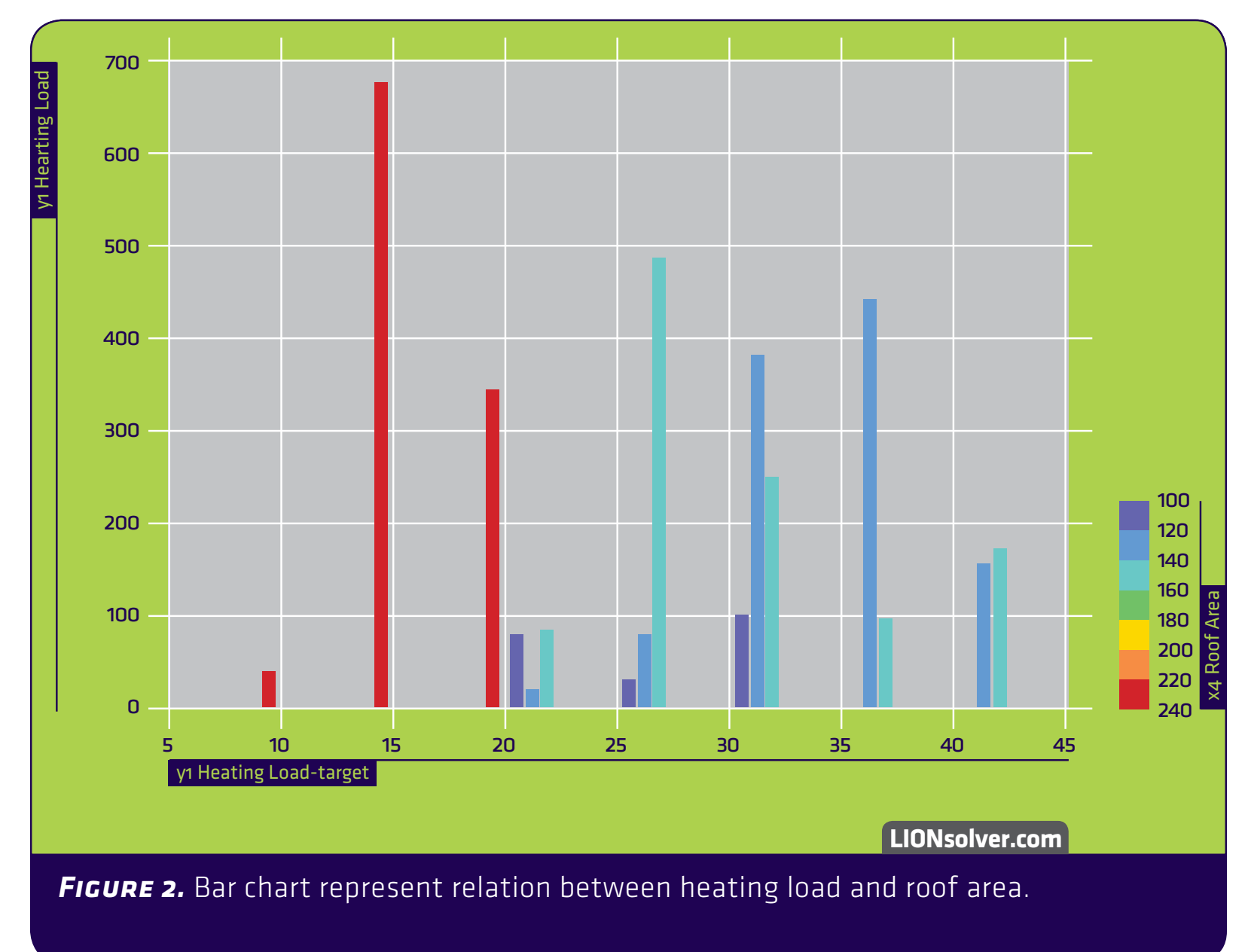
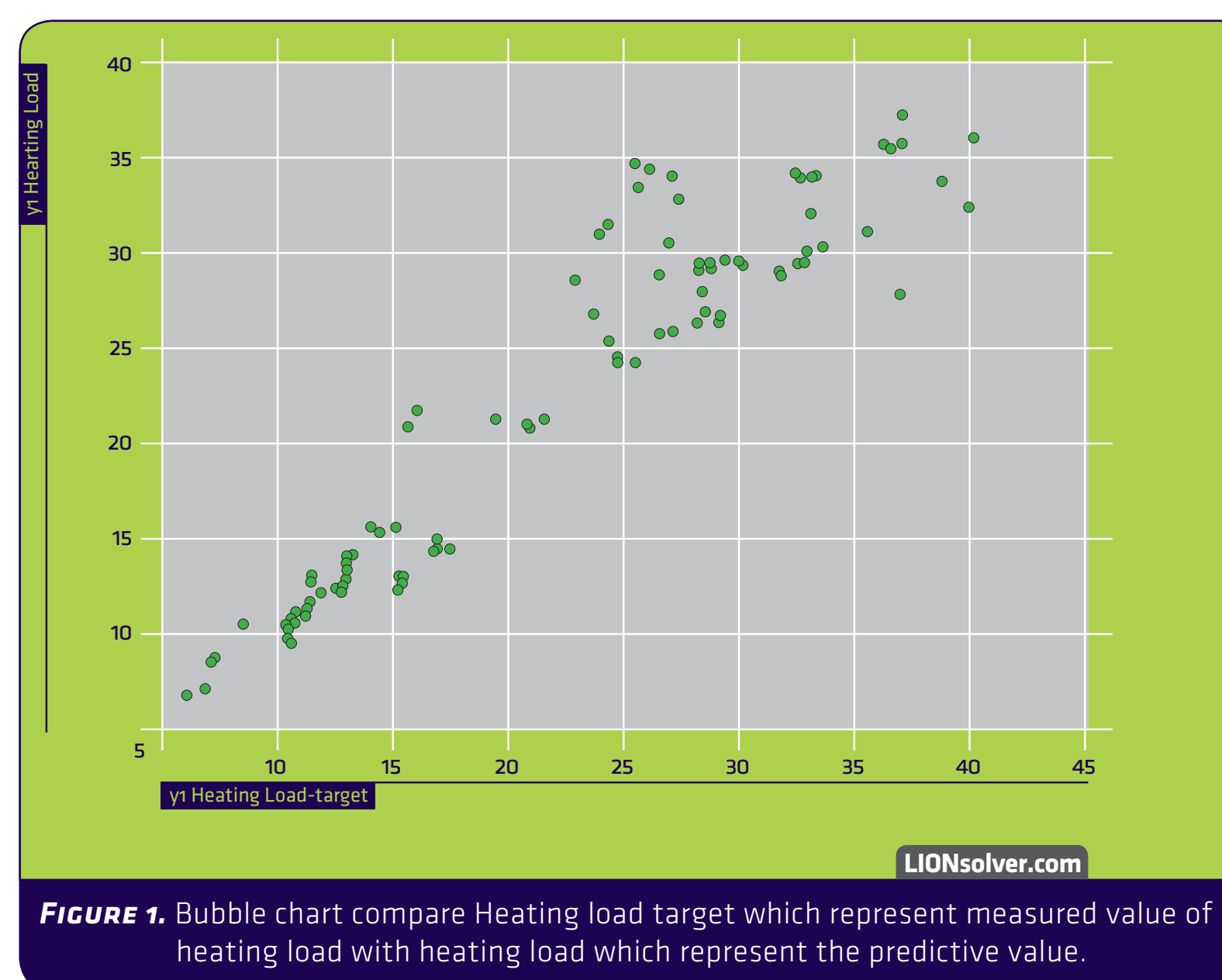
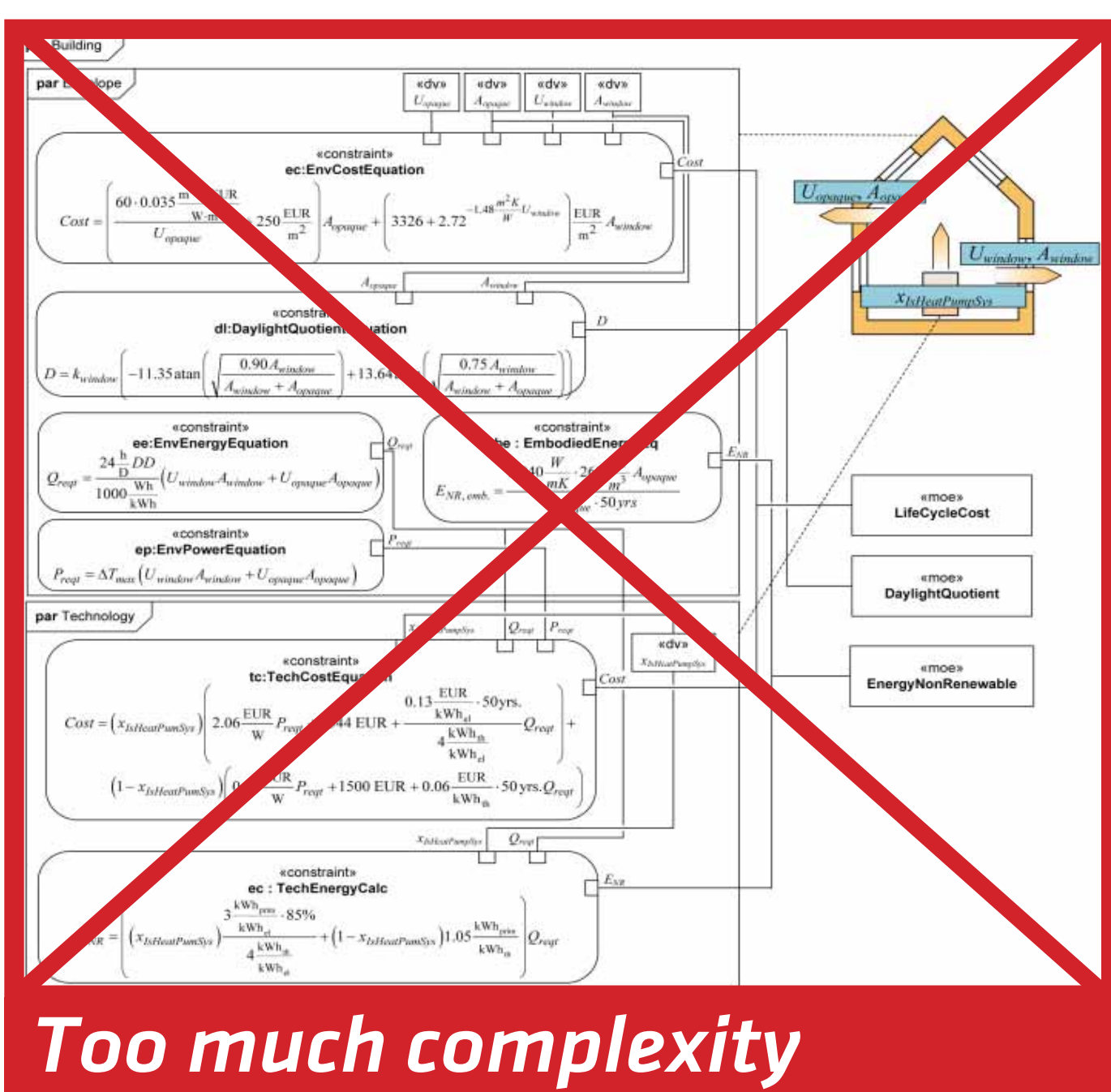
"LIONsolver with a novel implementation of machine learning plus optimization provides a highly advanced environment for predictive analytics. In this poster a case study from the LIONbook is presented where the energy consumption for a new house project is predicted. The predictive analytics environment of LIONsolver in this case study has transformed the optimal design from a very complicated and time consuming process to a very speedy and simple strategy for design and decision-making."

The main objectives are;

- Optimal design of a building to decrease energy consumption
- Predict the energy consumption for a new house project
- Visualize, Analyze big data and get valuable insight from it
- Controlling cost

Machine Learning and Intelligent Optimization software for modeling, problem-solving and visual analytics

Improving building construction by using K Nearest Neighbors model in LIONsolver platform is a solution to big data analysis in order to optimize energy efficiency. It enables better prediction of energy consumption by visualizing and getting insight from available data. After importing data, data analysis tool model, visualize and explore data in abstract forms such as Bar charts, Bubble charts, Pie charts, Histograms, Radar charts, Line plots, and simple filtering options like parallel filters. It helps to focus on objectives in a speedy and flexible environment. It designs, builds and implements machine-learning engines that apply adaptive learning to complex systems, datasets and provides powerful visualization of data. The data which shown in the following graphs are samples of assessing the heating and cooling load requirements of buildings as a function of building parameters in order to construct energy efficient building.



Battiti, R. and Brunato, M. (2013). The LION way. Machine Learning plus Intelligent Optimization, Lionsolver Inc., CA, USA.

