# A Decision Support System for the Optimization of Electric Car Sharing Stations

*Completed Research Paper*

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## Abstract

*Electric car sharing is a mobility alternative addressing the world's growing need for sustainability and allowing to reduce pollution, traffic congestion, and shortage of parking in cities. The positioning and sizing of car sharing stations are critical success factors for reaching many potential users. This represents a multi-dimensional challenge that requires decision makers to address the conflicting goals of fulfilling demands and maximizing profit. To provide decision support in anticipating optimal locations and to further achieve profitability, an optimization model in accordance to design science research principles is developed. The integration of the model into a decision support system (DSS) enables easy operability by providing a graphical user interface that helps the user import, edit, export, and visualize data. Solutions are illustrated, discussed, and evaluated using San Francisco as an application example. Results demonstrate the applicability of the DSS and indicate that profitable operation of electric car sharing is possible.*

**Keywords***: Electric car sharing, decision support system, optimization model, design science research.*