

Case Study Innovation Management

Case Study Background

The electromobility ecosystem

When thinking about the future of individual mobility today, we cannot ignore the idea of electromobility. The electromobility debate frequently revolves around drive systems and the likely moment at which electric drives will outstrip or indeed completely replace the combustion engine. But electromobility is a topic which requires systemic thinking, i.e. viewing the vehicle as part of an ecosystem.

Electromobility must be understood as a holistic concept, from appealing vehicles, rapid charging, driving pleasure and autonomous driving to tailor-made mobility services, batteries and power sources from renewable energies.

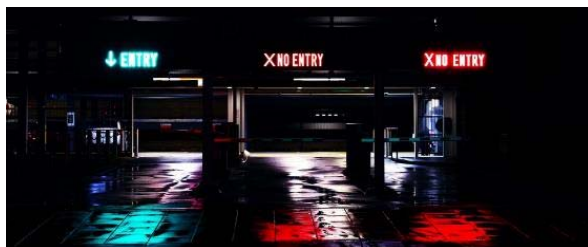
But electromobility extends far beyond the vehicle. This ecosystem includes components as diverse as vehicles, power supply and transport infrastructure, which must be networked and interlinked in order to enable sustainable mobility beyond established industrial sectors. The focus should always be on the users themselves and their mobility needs.



The electromobility ecosystem

Electromobility not only concerns mobility as such, but also the stationary vehicle.

Drivers in Germany spend a total of 560 million hours looking for free parking spaces, so that even minor efficiency gains would result in enormous savings. According to the renowned economic research institute Prognos, an optimized parking space search would save 125 million litres of petrol, 78 million litres of diesel and 500,000 tonnes of CO₂ per annum. The ideal scenario would be the following: Strictly speaking, electromobility is about getting from A to B, meaning that the driver would like to get off in B and not in B', just because that is where the only free parking space is. Ideally, the



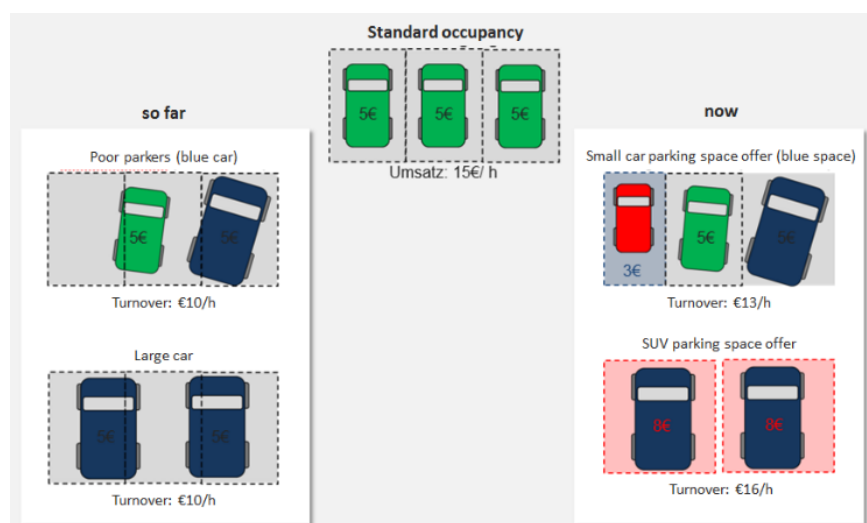
vehicle would automatically look for an adequate parking space once the driver has gotten off in B. That said, it is always important to also bear in mind the underlying business models in order to find the ideal patent position when looking at the various stages of autonomization. Car parks are an important starting point for making parking more efficient. However, especially in prime locations, there are still many car parks with outdated equipment, resembling dark labyrinths rather than smart places which offer a sense of wellbeing.

Car parks as investment objects

Car parks are regarded as an alternative investment among investors in operator-run properties, office buildings or commercial real estate. The focus is on the potential return on a car park property. The macroeconomic framework conditions for car park investments are comparatively good. Car registrations are on the up and parking fees in prime locations rise significantly faster than inflation. In addition, there is a tendency for municipalities to increasingly restrict free roadside parking, while at the same time placing a greater focus on paid parking. There is also widespread acceptance for car parks to offer additional services beyond the provision of temporary parking. Modern car parks are increasingly becoming service stations for drivers and car-sharing providers. City locations are ideal as they benefit from a complete and diverse portfolio of customer sources, including retail, restaurants as well as cultural and healthcare establishments. User preferences must also be taken into account when looking at the location. Difficult to access, convoluted and dark car parks are met with little or no acceptance from users, even if they are located right in the city center.

With hospitals, for example, a distinction must be made between different groups of users such as staff, patients and visitors, and their respective preferences. Company car parks should be available to employees, customers and visitors, while car parks in the city center would be used by office employees during daytime and by restaurant and cinema visitors in the evening, for instance. Exactly the opposite is true in residential areas. Another differentiating criterion is parking duration. A car park for permanent parkers is characterized by different preference structures to a large shopping center with high continuous throughput during opening hours. Operator companies typically earn their profit with a combination of car park advertising and different fee models. A certain feel-good factor plays an increasingly important role for the acceptance of car parks.

In contrast to other operator-run properties, there is no such thing as an ideal size for car parks. Commercial success and therefore return on investment depend to a significant extent on whether the location is within strategic proximity to customer sources. Such customer sources include



city centers, airports, hospitals or railway stations. Ultimately, the goal is to optimize the use of the available parking space in order to maximize return on investment. From a cost perspective, the technical equipment of a car park is a critical factor. Floors, coatings (for protection from salty snow

water), barriers, management systems and payment machines must be maintained and ideally be closely linked to the business model. Fitting a typical car park with new car park technology can cost a quarter of a million euros. From the investor's perspective, frequency of use and parking space occupancy require seamless documentation. In fact, a car park is not just a piece of concrete users enter in order to park their vehicles. In order to optimize car park use, we must establish the exact vehicle movements and user preferences.