

**Andreas Landgraf**

# Taxonomy of a Fast Data Business Model in the Mobility Market

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BACHELOR THESIS

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accomplished at

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by  
**Andreas Landgraf**

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## **ABSTRACT**

Today, the market around mobility is under heavy change. The industry is preparing the change from fossil fuels to their alternatives. Large funds are raised to build new products based on electricity, either with rechargeable battery packs or solar energy. Another field of research and development is autonomous driving. Google and Tesla are prominent examples of companies developing technologies and prototypes of future autonomous cars. The information technology used in such cars is using data analysis and artificial intelligence to observe, measure, predict and control traffic situations. This technology is influenced by one of the trending technologies of the early 21st century, Big Data. The basic research in data analysis had its crucial test in many Big Data related projects and products, like Facebook and Twitter. A part of the data analysis process are classification algorithms used to classify the input data for targeted further processing. Decision trees are one of the algorithms of classification. They are very precisely, but tend to overflow. This thesis will introduce the taxonomy of a business model, related to Open Innovation, for developing a new decision tree algorithm for the mobility market. Therefore, the data analysis process up to classification algorithms are introduced. The major decision tree algorithms are discussed in detail to build up the characteristics of the new decision tree algorithm. Furthermore, the Open Innovation model is introduced to carve out the assets and drawbacks of this model. Based on that theoretical information, the taxonomy of a preliminary business model is developed and visualized using the business model canvas. To prove this concept, expert interviews and questionnaires were used to gather feedback and new ideas. The collected information is used to modify the taxonomy of the business model. The resulting business model canvas shows the possibility of implementation.

**Keywords:** Decision Tree, Open Innovation, Business Model Canvas, Serious Gaming, Automotive

## ZUSAMMENFASSUNG

Der Automobilmarkt ist mit dem Ende der zweiten Dekade des 20. Jahrhunderts stark im Wandel. Die Industrie bereitet sich auf das Ende der fossilen Brennstoffe vor und untersucht eifrig Alternativen. Große Investitionen werden gemacht um neue Produkte basierend auf Elektrizität zu kreieren. Diese werden entweder betrieben mit Solarenergie, oder hoch-entwickelten Akkumulatoren. Ein weiteres Untersuchungsfeld ist jenes des autonomen Fahrens. Unternehmen wie Google und Tesla entwickeln Technologien und Prototypen welche die zukünftige Generation des Automobils bedeuten kann. Die verwendete Informationstechnologie basiert einerseits auf künstlicher Intelligenz und andererseits auf strikte Algorithmen der Datenanalyse, mit deren beider Hilfe es dem autonomen System ermöglicht die aktuelle Verkehrssituation zu messen, vorherzusagen und zu kontrollieren. Diese Technologien gehen auf jene von Big Data verwendeten Algorithmen zurück, welche Erfolge feiern konnte bei Unternehmen wie Facebook und Twitter. Teil dieser Algorithmen sind Entscheidungsbäume. Diese werden zur präzisen Klassifizierung auftretender Phänomene eingesetzt. Diese Arbeit entwickelt ein Konzept eines Geschäftsmodells anhand des Business Model Canvas, welches die Entwicklung solcher Entscheidungsbäume für den Automobilmarkt mit Hilfe von Open Innovation ermöglicht. Die wichtigsten Algorithmen der Entscheidungsbäume werden erläutert und auch die Prozesse von Open Innovation. Beides fließt in die Erstellung des Konzeptes ein, welches im Anschluss durch die Sammlung von Informationen aus Fallstudien, Experteninterviews und einer Online-Umfrage abschließend überarbeitet wird. Das entstandene Konzept zeigt die Möglichkeit der Umsetzung eines solchen Geschäftsmodells, weist jedoch darauf hin weitere Untersuchungen und die Erstellung eines kompletten Geschäftsmodells zu erwägen.

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