

# E-Commerce in Car Retail: The Information and Pre-Sales-Phase

## Masterarbeit

zur Erlangung des akademischen Grades „Master of Science (M.Sc.)“  
im Studiengang Wirtschaftswissenschaft der Wirtschaftswissenschaftlichen Fakultät  
der Leibniz Universität Hannover

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Hannover, den 31. März 2016

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# 1 Introduction

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## 1.1 Motivation and Relevance

In statistical terms in recent years the use of the internet by individuals as well as companies has steadily increased. Therefore the internet has become indispensable for everyday life.<sup>1</sup> Various surveys regarding internet usage in Germany and generally internet penetration rates around the world evidence the steady growth and continuously increasing relevance of the internet.<sup>2</sup> After overcoming some barriers, such as its initially limited availability, improving data security and the related or resulting increase in the level of trust, however, the internet is not only applicable as a pure communication and information channel, but also in the context of web-based purchasing of products and services, the so-called e-commerce.<sup>3</sup> A BITKOM (2013) study showed that in 2012 more than two thirds of the German population had already purchased one or more products and services via the internet.<sup>4</sup> Furthermore the revenues and the market potential in the field of e-commerce are constantly growing and therefore no company should deny itself of the relevance and potential of this new sales channel. The growth rates of e-commerce compared to traditional commerce lead to the fact that online trading is taking away sales from the traditional retail market and will continue to do so at an increasing rate in the coming years.<sup>5</sup> As a result, it can be stated that the e-commerce has developed and established itself as an important sales and distribution channel. In the future, especially against the background of the upcoming waves of digital natives and the growing penetration rates of smartphones a further intensification of the relevance of e-commerce will emerge.<sup>6</sup>

In contrast to this digitalization of commerce, purchasing processes and distribution structures of various product groups,<sup>7</sup> the automotive industry has been dominated and challenged mainly by the increasing pace of innovation cycles, expanded product portfolios, changing legal regulations, pressure from competition, shrinking margins and the resulting consolidation of dealer networks.<sup>8</sup> As a result of these comprehensive developments and peculiarities, a competitive strategic stalemate on the product, production and development levels may be seen.<sup>9</sup> Subsequently, the majority of car manufacturers are able to offer a wide variety of high-quality models at competitive prices and thus strategic degrees of freedom for gaining competitive advantage remain almost exclusively in the distribution, sale and retailing of automobiles.<sup>10</sup> In the field of car retailing, however, in particular the changes in the purchasing behavior of consumers have to be acknowledged, since they have become more

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<sup>1</sup> Cf. Meier & Stormer, 2012, p. 128

<sup>2</sup> Cf. Internet World Stats, 2015 ; Statista, 2016

<sup>3</sup> Cf. Heinemann & Haug, 2010, p. 38

<sup>4</sup> Cf. BITKOM, 2013, p. 7

<sup>5</sup> Cf. Heinemann, 2015, p. 1ff.

<sup>6</sup> Cf. Heinemann & Haug, 2010, p. 17 ; Heinemann, 2015, p. 4f.

<sup>7</sup> Cf. Heinemann, 2015, p. 7

<sup>8</sup> Cf. Arthur D. Little, 2014, p. 7

<sup>9</sup> Cf. Betz, 2003, p. 1

<sup>10</sup> Cf. Dudenhöffer, 2001, p. 401

discriminating and have become more price-sensitive and with the relevance of the use of the internet, these developments of the value system have intensified.<sup>11</sup> Consequently, the central challenge of optimizing the value creation stage of distribution is determined by a customer-focused response to those changes in customer behavior and the necessity to reduce the high distribution costs within car retailing.<sup>12</sup> In this field of tension between customer- and cost-orientation, e-commerce and online distribution are of paramount importance, as by means of a commercial use of online media both cost reduction potentials can be realized and customer satisfaction may be increased.

This subject as well as different advantages and potentials of the use of e-commerce in automotive retail have been discussed in the scientific literature as well as in professional practice for over two decades.<sup>13</sup> Despite optimistic forecasts and identified potentials for the development of e-commerce and the internet in the automotive economy as an important sales and distribution channel, the application of e-commerce is mainly present on the established internet-based used car markets to date. As early as 2002, half of all used cars were sold via these online marketplaces and in 2011 nine out of ten cars were sold or mediated online.<sup>14</sup> Starting from such developments on the used car markets it may be assumed that the direct sales of new cars are a logical consequence of such a process. Accordingly, predictions by various experts in 2002 for the year 2007 predicted that almost 3% of all new cars would be purchased directly via the internet. Dudenhoeffer et. al (2010) even assumed a potential market of nearly 385.000 vehicles, which counts for about 30% of private cars on the German market and a sales potential of 8 billion Euros.<sup>15</sup> Moreover, different studies have predicted that e-commerce will introduce diverse influences and developments to the entire distribution landscape in automotive sales. These estimates and forecasts have been missed by far and the retailing of new cars on the internet is not prevailing. The fact that these estimates and forecasts did not materialize has varied backgrounds. For example, cars are heterogeneous, highly sophisticated products, which require extensive advisory service and belong to a special product category, in which a very special shopping experience of an emotionally charged product are determining, especially for the German customer. Moreover due to the high monetary and emotional value it can be stated that the vehicle should be inspected personally and physically before making a purchase decision.<sup>16</sup>

Despite this several manufacturers are repeatedly trying to establish a direct internet-based distribution channel by means of isolated pilot projects, concepts and models. However, such

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<sup>11</sup> Cf. Bauer, et al., 2000, p. 402 ; Arthur D. Little, 2014, p. 7

<sup>12</sup> Cf. Diez, 2006, p. 299 ; Diez, 2006, p. 403

<sup>13</sup> Cf. Diez, 2006, p. 299, in which he assumes that a complete execution of the buying process through online media and a corresponding integration of settlement systems may result in a potential cost reduction of up to 70% of total process costs in automobile sales

<sup>14</sup> Cf. Heymann, 2002, p. 1 ; Autoscout24 Media, 2013

<sup>15</sup> Cf. Heymann, 2002, p. 1 ; Dudenhöffer, et al., 2010, p. 83

<sup>16</sup> Cf. Heymann, 2002, p. 5



a specific approach could not assert itself hitherto and so there are currently only few opportunities for a direct purchase of new cars available on the internet. Contrary to the expectations of the use and the potentials of the internet as a distribution channel the manufacturer continues to utilize the medium internet more as an information and communication channel, with relatively few links to sales, since they are mainly trying to serve the customers at the traditional stationary distribution at the dealership.<sup>17</sup>

This means that the internet gets applied more in the field of initial business contacts and therefore represents a first phase of the buying process, the so-called information and pre-sales phase and is there sustainably applied. Referring to the information, selection and decision making processes of this first phase the internet is of high relevance and influences the decision processes of the customers significantly. Diverse studies have proven the relevance of the internet, since about 90% of new car buyers inform themselves via the internet intensively before the actual purchase decision or as part of the purchase process and another study states that a car purchase without the internet is hard to imagine.<sup>18</sup> Starting from this relevance of the internet at this stage of the purchase process, several new competitors such as information brokers and internet intermediaries have formed, substituting different tasks and activities of this phase with internet-based solutions. Furthermore, these actors disengage activities from the classical tasks of the manufacturers and dealers, and deliver this functionality unbundled in a new stage available on the internet. Proceeding from these developments and characteristics various automobile-related informations from various stakeholders exist on the internet. These extensive and manifold available informations on the internet need to be researched, analyzed and interpreted by the potential customer to derive a decision regarding the selection of a vehicle and a suitable provider. If this information gathering and evaluation is handled efficiently and effectively the complexity of a decision regarding a product is reduced and the result may be more appropriate than buying a car traditionally at a dealership without such extensive information processes.

After this short introduction to the topic and the field of tension of e-commerce in car retailing the aims of this thesis are presented in the next chapter.

## **1.2 Objective and Scope of the Study**

The thesis in hand intends to deliver insights, based on the above-mentioned brief introduction of developments, relevancies and characteristics for the following three major goals:

1.) Presentation of the status quo of e-commerce and the medium internet within car retailing in Germany

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<sup>17</sup> Cf. Arthur D. Little, 2014, p. 7f.

<sup>18</sup> Cf. Landmann, 2013, p. 11 ; google automotive, 2010, p. 2

- Within the representation of the relevance of the thesis subject was increasingly pointed to the results of past studies in which was seen that e-commerce or the internet was mainly used for information, communication and advertising purposes. Regarding the scope of this study should be examined to what extent such an appraisal has still validity. This includes a thorough analysis, presentation and classification of the web-based concepts of manufacturers, authorized dealers as well as of the new competitors such as information brokers and matchmakers. Furthermore this can be subsumed under an analysis and presentation of direct and indirect sales models.

## 2.) Highlighting the impact of e-commerce on purchase processes

- For this the automotive purchase process has to be classified first, to then be described and depicted, before finally is highlighted to what extent such a process can be virtualized or substituted, illustrated or even extended via the medium internet

## 3.) Derivation of a process model which is able to optimize the information, selection and decision processes within the information and pre-sales-phase

- Building up on the prefatory analysis and the first two goals it is the focus and therefore the major goal of this thesis to contribute to the development and optimization of an internet-based process model which designs and shapes the information gathering in the first phase of the purchase process, the so-called information and pre-sales-phase.

Then the suggested model is examined within the scope of a multiple case study research, connected with a detailed analysis of the different internet-based offers of the stakeholders by utilizing the previously defined criteria. Based on the corresponding results the central intention of the empirical study is to examine the applicability and the value of the postulated process model as well as to derive and identify recommendations for the different stakeholders.

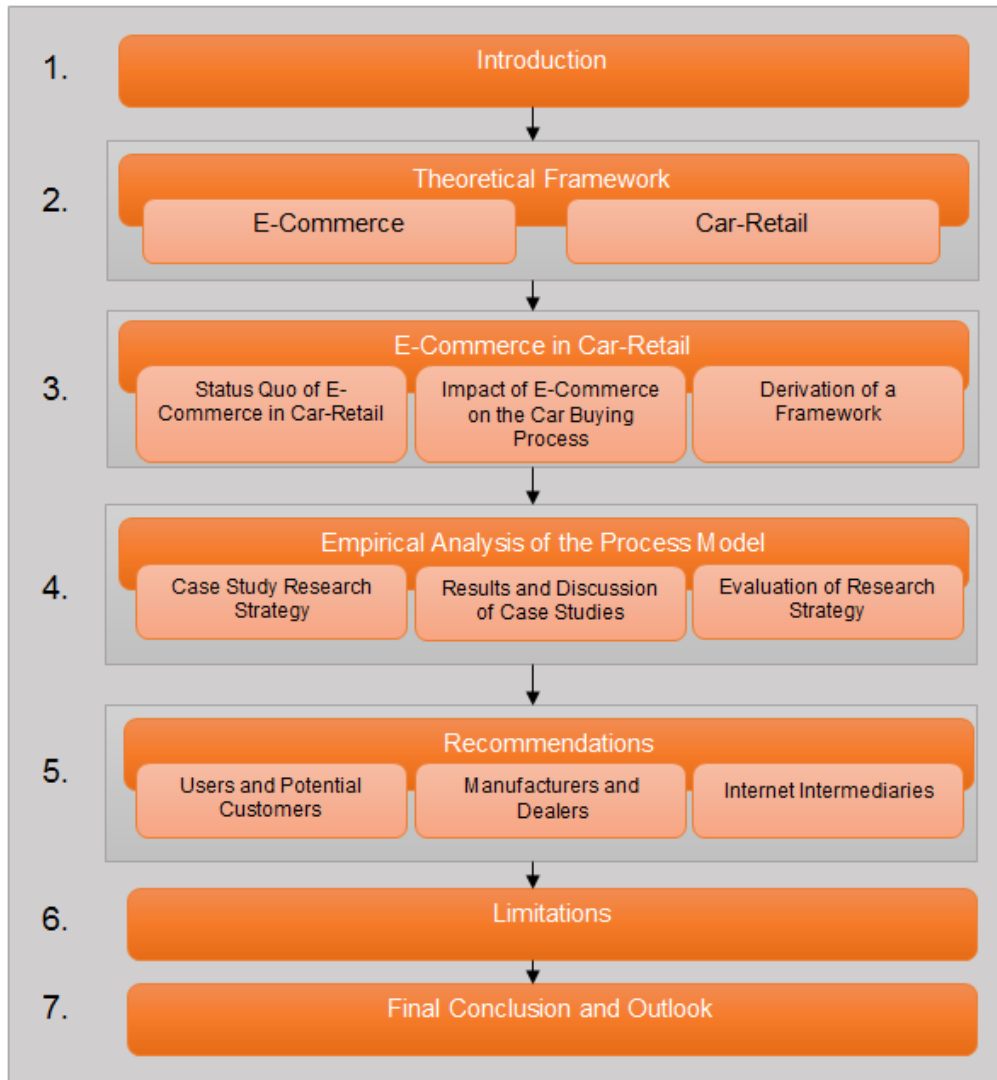
Based on the previously made statements, the main and general research question which is to be answered by the empirical case study research and is expected to provide potential for relevant implications on a practical as well as on a theoretical level is:

*“How can the internet-based process, in the sense of an e-commerce understanding, of the information and pre-sales-phase be optimized and structured within the automotive buying process from the customer’s perspective by utilizing a modified process model?”*

As incorporated in the formulation of this research question, this study aims at merging and combining the three broad research fields of e-commerce, car retailing and purchase behavior research.

### 1.3 Structure of the Thesis

The structure of the present study is subdivided into seven thematic sections as illustrated in figure 1.



**Figure 1: Structure and Procedural Approach of the Thesis**  
Source: Own Illustration

Following the introduction, chapter 2 provides fundamental knowledge about electronic commerce and car retail. Within that section a definition and demarcation of electronic commerce takes place and within a more in-depth analysis the peculiarities and a classification of e-commerce is presented. In addition the benefits and some facts and figures about e-commerce are highlighted. Thereafter the automotive industry and its actors are characterized and defined. The section then concludes with a presentation of the traditional structures of automotive sales and future challenges and trends within the field of car retailing.

In chapter 3 an analysis and description of the status quo of e-commerce in automobile sales is presented. Initially, a brief introduction and a typologization of the approaches and

business models of different stakeholders are carried out. To this end, the websites of the manufacturers and dealers are examined and subsequently Internet-based direct sales models are depicted from a theoretical and conceptual perspective. After this a comparison of the two approaches of *BMW* and *Mercedes-Benz* is followed by a delimitation of these concepts with the views and practices of other volume and premium manufacturers. In addition to direct sales models the indirect sales models of new competitors and their inherent advantages are then to be presented.

After the analysis and presentation of the various actors and their business models a consideration and presentation of the automotive buying process is strived. To this end, the purchasing process will first be described and classified in general before then it will be shown how such a process may be virtualized or substituted, supported or expanded via online media. Also, induced or fundamental changes of the buying process and peculiarities of the information and pre-sales-phase, triggered by the medium internet, will be presented here. This is followed by short interim conclusions including the assessment and summary of the results to this point.

Thereafter, the derivation of the framework for the empirical study is described. As part of this process models are first generally defined before the waterfall model of software development is considered in more detail. Based on this, the model will then be redesigned and derived to restructure and optimize the internet-based expiration of the information and pre-sales-phase. This is followed by a presentation of the derived process model, including the associated phases, phase objectives and milestones. Then in view of the empirical study diverse analysis and evaluation criteria referring to the online media used within the process model are worked out and presented, which in the end should allow the review and formulation of recommended actions.

Chapter 4 then covers the empirical study of the postulated process model within information and pre-sales phase of a new car purchase. The first stage of this chapter elaborates on the decision for the chosen qualitative analytical method of case study research design, describes peculiarities of the case study research strategy and the research process of the empirical study. After this the depiction of the single cases, followed by a presentation of the single case results and rounded off by a cross-case summary, discussion and interpretation of the results is presented. This chapter is completed by the evaluation of the research quality.

Chapter 5 then comprises the derivation and presentation of the policy recommendations from the results of the empirical study and subdivides them into recommendations for the users of the model, producers and distributors as well as internet intermediaries.

Chapter 6 contains a critical examination of the procedure of the empirical study and further describes potentials for optimization in future studies that are based on this thesis.

The study closes with a final conclusion which summarizes the most important results as well as a brief outlook presenting potential issues that require further investigation.

## 7 Conclusions and Outlook

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The present study attempted to answer three different objectives that build up on each other and to further achieve a corresponding gain in knowledge. It was found that the third objective is significantly influenced by the first two objectives. At first the currently embodied status quo of e-commerce in car retail in the German market was to be investigated. Based on this the impact of e-commerce on the automotive buying process on a theoretical level was examined. Proceeding from these two objectives the information and pre-sales-phase should be considered in more detail and furthermore a process model should be developed by means of which the complex information, selection and decision-making processes of this phase can be structured and optimized. This final and overarching objective tries to answer the initially posed research question.

Referring to the first objective an institutionally-oriented analysis of the situation of the German internet-based market was pursued. To this end, this analysis was based on an initially defined and declared typology of online distribution and according to the definitions of e-commerce. At that point it was found that the websites of the manufacturers and dealers may be classified as either online-information-sites or quoting-sites, since on the majority of the websites vehicles could neither be purchased nor ordered online. Otherwise was initially assumed that particularly the pilot projects of *Mercedes-Benz* and *BMW* could potentially represent approaches which incorporate direct sales of new cars on the internet by the manufacturers, in the shape of an online-transaction-site. Starting from this assumption, online direct sales models were presented theoretically before the purchase processes and concepts of the two producers were described and analyzed comparatively. Regarding these web-based online direct sales models it could be established, with reference to the initially developed typology and the definition of e-commerce that these models also tend to be classified as an online-quoting-site. Such a classification was made because it was determined that none of the manufacturers can ensure a seamless online media purchase process of a new car, since within both concepts at least the signature of the contract must be carried out at a stationary dealer or by postal services. Moreover both projects did not offer the complete range of models and payment options were artificially reduced. In conclusion it can be stated that internet-based direct sales are not established and provided by the manufacturers and dealers in the sense of a transaction-site. In addition, these players continue to utilize the internet as an additive channel of information, communication and marketing in order to subsequently serve the customer via the fixed network of stationary dealers.

At the same time an analysis of the indirect sales models and new competitors was conducted. For this purpose, both information brokers and matchmakers were initially defined and delineated, before the business model and the buying process of a matchmaker were investigated in more detail. Concerning the matchmaker, it was discerned, with reference to the typologies, that numerous internet intermediaries may also be classified as quoting-site, since their services – apart from product and pricing information – consists merely of some specific distributive functions. Although these new web-based competitors

provide an online-based negotiation of individual price and delivery conditions, the purchase is not completed without media disruption and the customer must sign the final purchase agreement in cooperation with the stationary dealer mediated by the matchmaker.

To sum up the results of the first objective of this thesis it can thus be stated that, starting from an institutionally-oriented approach, the majority of stakeholders in car retailing does not offer the functionalities or may be classified as a transaction-site, since blind purchase or options to purchase new cars online in terms of a narrow definition of e-commerce are not ensured.

Concerning the second objective, it was examined from a theoretical perspective to what extent the distributive functions of the automotive buying process can in principle be emulated by online media in an adequate manner. For the purpose of such a function-oriented analysis, the "internet capability" of cars as well as the possibilities of digitalization of the automotive buying process were investigated. In the course of said analysis, it was established first of all that e-commerce and the internet have changed traditional purchasing processes of many products significantly. With respect to a more specific analysis of the automotive buying process the following results were highlighted. In each of the three phases of the automotive buying process a variety of distributive partial services can be mapped to and supported by online media in an appropriate manner. Moreover, the internet adds value to the end user due to its multimedia, interactive and networked characteristics with respect to individual distribution functions and processes within the phases of the buying process in relation to traditional stationary rendered services. Although it could be concluded that such an improvement and added value is set by the particular extensive and of sales efforts independent information as well as a large number of experience reports by owners of specific cars, and the general increase in convenience. On the contrary had to be concluded that critical and neuralgic points remain, which necessarily require a physical performance by the traditional stationary distribution and preclude the extent of a complete virtual handling respectively completion of the automotive buying process

The main objective of this thesis built up on the knowledge and results of these two preliminary objectives. To summarize these it was derived from the institution-oriented and function-oriented analysis that the information and pre-sales-phase has demonstrated the highest e-commerce maturity in relation to the other phases, because the various stakeholders are most likely to support or map functions of this phase and further the neuralgic points, especially the availment of a test drive are dependent on the personal preferences of the user.

Starting from these findings and building on the preliminary research question the information and pre-sales-phase was investigated in more detail. To this end internet-induced developments and changes as well as the internet-based sales process of the information and pre-sales phase were presented and explained. At that point it was possible to present the significant influence exerted by the online media of various actors and institutions on the complex information processes of this phase. Additionally, a classification and theoretical

introduction of the online media or websites of different actors and institutions to the individual distributive subtasks and sub-processes of the first phase of the automotive buying process was presented. Based on this classification it has been shown that a variety of stakeholders, in particular manufacturers, matchmakers and information broker offer or map diverse functions and provide comprehensive informations on their websites, which can affect and influence the decision-making process of the individual customer. The resulting diversity of information can lead to inefficient results regarding the decisions of potential automobile buyers for a vehicle and an appropriate dealer.

For this reason, a procedural model of software development, the so-called waterfall model, was modified to bring the information gathering and the complex selection and decision-making processes of the information and pre-sales phase in a proper logical order. Furthermore it was assumed that such a model would increase the efficiency and effectiveness of the automotive purchase decision and the underlying processes as well as the corresponding results of the information and pre-sales-phase in which case the satisfaction of the customers would improve. To this end the developed process model was then tested in an empirical case study research for its applicability, effectiveness and efficiency. At the same time, a deeper analysis of the embedded units of analysis was carried out of, inter alia, vehicle configurators and brand and cross-model filter systems of various stakeholders to derive practical recommendations.

With reference to the initially posed research question of whether and in which form such a procedural model optimizes and structures the internet-based processes investigated, in terms of e-commerce, of the information and pre-sales-phase in new car sales must be answered differentiated. On the one hand it can be constituted that the developed process model is basically suitable to structure and optimize the complex information and selection processes of the individual and automotive customers. This is mainly attributable to the documentation of single processes, phase-specific goals and milestones and moreover to the allocation as well as phase-specific recommendation of online media and websites of the diverse actors. On the other hand, weaknesses of the developed procedural model have also emerged within the scope of the empiric investigation. Closer examination of these weaknesses based on a form of applicability check and a detailed analysis of the information offerings, has to be outlined that individual phase-specific recommendations for online media usage were not suitable to ensure the achievement of the corresponding phase objectives or milestones completely and sufficiently. In the detailed analysis it was highlighted that some model assumptions, especially about the information potential of individual websites made in the theoretical conception and development of the process model, could not be confirmed. Especially regarding the second phase of the model weaknesses could be identified. For instance it became evident that an assortment function, uninfluenced by economic interests of the provider, is only possible by utilizing the filter system of the information broker *ADAC*. Based on these findings it had to be recognized that the derivation of a result set, therefore can in principle be achieved through the services of the *ADAC*'s and the derivation of an evoked set can be assisted by the services of matchmakers only in terms of pricing informations. With regard to phase 3 it was outlined that in addition to the vehicle

configurators of manufacturers', the corresponding counterparts of the matchmakers should be made use of since these allow for relatively easy comparisons of the basic models and the standard equipment and can therefore facilitate the decision for a model variant. Referring to the last two phases and the selection of a suitable provider it has also been outlined that the acquisition of offers should not be conducted using solely the services of internet intermediaries, but as well the web-based options for obtaining offers and quotations on the OEM websites and their respective dealers. This can be explained by the fact that today the manufacturers allow for a relatively comfortable and quick acquisition of quotations for individually specified vehicles on their websites and by their affiliated dealers. Moreover in one case of an offer obtained from the authorized dealer mediated by the OEM the final cash price was actually more favorable than the one provided by the internet intermediary. The initially created procedure model was then revised based on these findings and outcomes. As a consequence and result it can be stated that especially the revised process model optimizes the information and selection processes of the customer by arranging and associating the core competencies of the different actors with the goals of the specific phases. For instance the prospective buyer may utilize the assortment functions provided by intermediaries, review in-depth product information from the manufacturers, configure his dream car using their high-quality systems in an explorative way and close to his needs, then choose one product alternative by physical evaluation via test drives and finally identify a dealer offering favorable conditions. Overall, the empirical results demonstrate that potential car buyers should use several websites to gather and evaluate extensive information in order to positively influence their automotive buying decision.

Finally, it can thus be concluded that in particular the revised process model is able to structure and optimize the complex information, selection and decision-making processes of the information and pre-sales phase when preparing the purchase of a new car. Beyond this the effectiveness, efficiency, satisfaction and the quality of the purchase decision and the successive phases of the purchasing process are increased. Furthermore, the applicability of the selected and modified process model was proven.

In addition to these results concerning the applicability and effectiveness of the process model an extensive examination of the embedded units of analysis was carried out which enabled the derivation of substantial practical recommendations for the various actors of car retailing. These recommendations are aiming particularly at the optimization and improvement of individual attributes of the vehicle configurators, filter systems, websites and response time to web-based requests. Furthermore they imply improvement of the overall internet-based concepts and business models of the investigation units.

Apart from these practically-oriented findings, significant scientific insights were gained in the present thesis. Specifically, it has been demonstrated that a process model of software engineering can in principle be used for the modeling, structuring and optimization of micro-economic purchase decisions.

In summary can thus be stated that an advancement of knowledge both of practical and scientific terms was achieved by the present thesis.



In conclusion, it can be expected that the topic and research field of e-commerce in car retailing will remain a significant focus of future studies and publications with a tendency to rise in importance. Especially the fact that many forms of new competitors with growing market potentials are undergoing a process of further maturing of their functions and acceptance from the users, their overall potential is increasing. Furthermore the growing acceptance and importance of organizations like *Tesla Motors* with their innovative business concepts will increase the pressure on manufacturers to cope with and react to the market power of the matchmakers and other players with different business models and concepts. Additionally different studies highlighted the relevancy of the approaches of technology companies in stating that about 49% of consumers would be willing to switch from their current brand to a company like *Apple* or *Google*, if they would start producing and offering cars. This is mainly attributable to the fact, that the concepts of these are more customer-centric.<sup>509</sup> Regarding these and further diverse challenges and threats to manufacturers, for example *Volkswagen's* emission scandal, they should attempt to answer these threats with innovative web-based distribution solutions in the future, which are fostering the relationship and convenience of customers. In addition, the manufacturers should continue to track and analyze the matchmakers' activities, as well as implement additional pilot projects in order to identify a web-based approach which is able to capitalize on the potentials of a manufacturer's direct sales. However, particularly the functions of the affiliated traders should be discussed within the scope of these future studies, since the dealer network needs to be integrated into the corresponding concepts. Furthermore the development of internet intermediaries is of interest in future, since the awareness, popularity, acceptance and willingness of customers to buy cars using their services will increase in the future. As a consequence the research field of e-commerce in car retailing is not only of theoretical interest but of practical importance with a high potential for financial relevance to certain parties, stakeholders and organizations.

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<sup>509</sup> Cf. Caggemini, 2015, p. 29