Do we really know which vehicle attributes are important for customers?

Milena Kukova[1,2]
*milena.kukova
@horiba-mira.com*

Cyriel Diels[2]
ab3566@coventry.ac.uk

Patrick Jordan[3]
patrick23@edu.mdx.ac.uk

Maria Franco-Jorge[1]
*maria.franco-jorge
@horiba-mira.com*

Jamie Anderson[1]
*jamie.anderson
@horiba-mira.com*

Husni Kharouf[2]
aa1092@coventry.ac.uk

[1]*HORIBA-MIRA, United Kingdom*

[2]*Coventry University, United Kingdom*

[3]*Middlesex University London, United Kingdom*

Abstract The automotive industry is facing multiple challenges. Moving towards more environmentally friendly vehicles, new models of vehicle ownership, and associated changes in consumers' expectations and attitudes are amongst the most significant ones. Understanding how these trends are affecting customers' expectations is fundamental for attracting and retaining consumers. Although researchers have explored automotive purchase factors for many years, there appears to be little agreement regarding the relative importance of these factors, and often incomplete and contradicting findings are observed.

This paper reports preliminary findings from two studies designed to better understand vehicle attributes influencing customers' purchase decisions and satisfaction. The first study consisted of a review of sources to develop a comprehensive overview of relevant and clearly defined vehicle attributes describing the automotive product. The resulting list was applied in a second study to evaluate in an automotive context the idea that the importance of product attributes varies throughout the customer journey. Results indicated that the relative importance of vehicle attributes dramatically differed depending on the stage within the customer journey. The findings are discussed in the context of managing the product evaluation and development process.

Keywords *Customer satisfaction, Product attribute, Customer journey, Purchase factors, Automotive*

Introduction

Technology has changed every aspect of our lives, including the way we purchase products. Online comparison tools provide a quick and easy way to compare and evaluate complex products, such as vehicles. Customers seeking to purchase a new vehicle no longer rely on information provided solely by a dealer. They conduct their own research and try to predict how the actual product would perform and thus, reduce the risk from their decision (Cui, Lui, & Guo, 2012).

The way customers purchase vehicles has also changed. Personal lease plans are the preferred mechanisms for the majority of new car buyers: (Whichcouk, 2016). However, these customers rarely turn into owners. In a similar way, people living in urban areas where traffic, demand for parking spaces and cost of ownership are high, purchasing a vehicle may not be attractive. Companies like Zipcar, Car2Go, City Car Club and Uber provide a variety of options to use a "pay-as-you-go" car (e.g. Rogowsky, 2016). Together, these trends indicate a shift from purchasing a mobility product towards purchasing Mobility As A Service (MAAS) (Godlevskaja et al. 2011, Eurotransport 2014). Nevertheless, however, customers still need to make a decision what vehicle to choose although the

relative importance of vehicle attributes may be changing as a consequence of these developments.

Given the changes currently disrupting the automotive industry, it becomes increasingly necessary to capture and understand customer concerns, such as needs, motives, and values (Desmet, 2003) in order for automotive products to stay relevant. Understanding customers, however, is challenging as their judgements are based on subjective reasoning (Reid, Frischknecht, & Papalambros, 2012). Previous studies have proposed frameworks for designers to target specific aspects of product design that consumers perceive in products (Noble & Kumar, 2010) and translate consumer responses towards specific vehicle attribute into actionable engineering aspects (Yadav and Goel 2008). The "House of Quality" is an example of this approach, though which consumers' subjective responses are targeted by measurable engineering characteristics, likely to influence those responses (Hauser and Clausing 1988). This method classifies consumers' responses, or attributes, depending the level of detail – primary (e.g. Good appearance), secondary (e.g. Interior Trim), tertiary (e.g. attractive non plastic look), etc. (Hauser and Clausing 1988). However, for this approach to be successful it is imperative to understand which attributes are important for which

customers and when.

For years, companies such as Cap Gemini, JD Power, Trend Tracker, KPMG, Harris Interactive, have conducted large-scale consumer surveys with the aim of capturing relative importance of various vehicle attributes over consumers' purchase decision. However, the relative importance of vehicle attributes is still far from clear. Contradictions and issues were observed with regard to the vehicle attributes used in these studies examples of which are illustrated in Table 1. To ease comparison, only two sources for each year were selected, with their top three important attributes. The sources were compared considering the following aspects: 1) year of data collection, 2) method used and location, and 3) important vehicle attributes.

As can be seen in Table 1, for 2011, Cap Gemini (2011) reported that reliability of a brand was the most important attribute followed by safety and vehicle price. KPMG (2011), on the other hand, reported fuel efficiency, safety innovation and vehicle styling as the top three important factors. Similar contradictions can be observed for 2015. Auto Trader (2015) ranked colour, size, and brand as most important while Harris-Interactive (2015) ranked cost of purchase, fuel efficiency, and overall quality as the most important purchase factors.

Adoption of different attribute terms such as "safety" (Cap Gemini 2011) and "safety innovation" (KMPG 2011) creates uncertainty as to whether these terms refer to the same attribute. Typically, no descriptions

or definitions of these attributes are provided, which renders their meaning ambiguous. Evaluation of attributes in different level of detail, also creates obstacles in comparison. An attribute as vehicle styling (KPMG 2011) target primary attribute category (Hauser and Clausing 1988). The colour attribute (Auto Trader 2015), however, is a tertiary attribute, as it could be positioned, within the vehicle styling (primary attribute), exterior (secondary), colour (tertiary). Evaluation of vehicle attributes with different level of detail may leave gaps to how important were other aspects of vehicle styling to consumers, beside colour.

Comprehensive review of the vehicle attributes reported from Cap Gemini (2011) and KPMG (2011), presented in Table 2, create an impression that not all vehicle attributes were evaluated. Cap Gemini considered the price of the vehicle, emissions and brand name, while KPMG did not report the importance of these attributes. Similarly, KPMG reported the importance of ergonomics and comfort and telematics attributes, which were not presented in Cap Gemini's report.

The difference in importance of attributes presented in these studies may be a result of different sample sizes and sample characteristics such as type of consumer groups. It could also be a result from incomplete attribute evaluation, as observed in Cap Gemini and KPMG reports or be related to selective reporting of attributes (e.g. top 9 most important attributes (KPMG 2011)). The difficulty in comparing studies is further amplified by the different terminology used to refer to supposedly the same attribute (e.g. "safety" and "safety innovation"), which may or may not differ. Comparisons, in such cases, may not be valid. Collectively, all of the discussed issues make comparisons between studies problematic.

Table 1. Contradictions in relative importance of attributes across consumer studies.

	Method	Rank	Important purchase factors (attributes)
Cap Gemini 2011			
Data collected 2011	Survey	1	Reliability of brand
	Global	2	Safety
		3	Price of vehicle
KPMG 2011			
Data collected 2011	Survey	1	Fuel efficiency
	Global	2	Safety innovation
		3	Vehicle styling
Auto Trader 2015			
Data collected 2015	Survey	1	Colour
	UK	2	Size
		3	Brand
Harris-Interactive 2015			
Data collected 2015	Survey	1	Cost of purchase
	UK	2	Fuel efficiency
		3	Overall quality

Source: Cap Gemini website, (Cap Gemini, 2011), KPMG website (KPMG, 2011), Auto Trader (Auto Trader 2015), Harris Interactive website (Harris Interactive 2015)

Table 2. Full list of important vehicle attributes reported by Cap Gemini (2011) and KPMG (2011).

Rank	Important purchase factors	
	Cap Gemini 2011	**KPMG 2011**
1	Reliability of brand	Fuel efficiency
2	Safety	Safety innovation
3	Price of vehicle	Vehicle styling
4	Fuel Economy	Environmental friendliness
5	Quality of exterior styling	Ergonomics and comfort
6	Quality of interior styling	Build-in navigation, technologies, etc.
7	Extra options at no cost	Telematics/ personal assistance services
8	Product features/options to fit your needs	Use of alternative fuel technologies
9	Low emissions	Enhanced vehicle lifespan
10	Brand name	

Source: Cap Gemini website, (Cap Gemini, 2011), KPMG website (KPMG, 2011)

The available academic literature does not clarify which attributes are important for automotive customers either. Actually, comparisons between academic studies and industry reports were found to be even more difficult to make. This is partly due to the fact that academic studies focus on specific subjects such as the evaluation of attributes for a specific brand (e.g. Stylidis, Hoffenson, Wickman, & Söderman, 2014; Waligóra & Waligóra, 2007), one specific attribute evaluated in depth – e.g. product aesthetics (Yadav, Jain, Shukla, Avikal, & Mishra, 2013), sound quality (e.g. Cerrato, 2009)or target specific part of the automotive product as interior dashboard (Ahmed & Yannou, 2013; Huertas-Leyva, 2011), or vehicle seats (Erol, Diels, Shippen, Richards, & Johnson, 2014). An additional complication is the effect of time. In academia, often the year of publication is not the same as the year responses were collected due to the long period of time required for publishing or because researchers analysed previously collected responses (e.g. Baltas and Siridfakis 2013, Choo and Mokhtarian 2004). As the importance of vehicle attributes also reflect trends, economic status, political issues, and technological developments by the time findings reach publicity, they are already dated. Furthermore, vehicle attributes used in academic studies suffered from the same issues found in industry reports. Although references from these studies clearly stated the sources from which these attributes were derived, these attributes were also dated.

Relevant and comprehensive attributes describing modern vehicles were not found in either academic literature or recent industry reports. Therefore, the development of a comprehensive and well-defined list of vehicle attributes is necessary to fully capture what is actually important to customers.

Attribute importance over time
Attribute importance is measured with aim to identify which vehicle attributes are important to customers and influence their purchase decision (pre-purchase attribute importance) (e.g. Harris Interactive 2015), or evaluate the satisfaction of the vehicle during ownership (post-purchase attribute importance) (e.g. JD Power customer satisfaction studies). The common model of pre and post purchase stage of the customer journey, used to explore how attribute importance vary over time (e.g. Mittal, Katrichis, & Kumar, 2001), may no longer be sufficient. Whereas in the past, the pre-purchase stage was largely related to a dealer visit, today it is preceded by individual research, largely spent online (Syncapse, 2013). As a consequence, the customer journey could be separated into 3 phases – research, dealer visit and ownership.

Research (indirect product evaluation)
The evaluation of the product at this stage is based on information presented in a numerical format as vehicle dimensions, internal space, and fuel consumption figures. High-quality images and virtual 3D models assist in gaining insight how the product would look like in reality (e.g. Nissancouk, 2016; Fordcouk, 2016). The access to owner's reviews assists customers to predict what ownership would be like

and decrease the risk in their decision (Cui et al., 2012).

During the research stage, although limited from sensory experience, customers use visual cues as much as possible to try and predict certain product qualities (Creusen and Schoormans, 2005). Although virtual and interactive environment could compensate in a way for the absence of information from other senses, rich emotional experiences are difficult to achieve compared to direct, in-person product evaluation is able to do (Schifferstein and Spence n.d.).

Dealer visit (direct product evaluation)
During a dealer visit, consumers have the chance to experience a chosen product in person. Such evaluation consists of simultaneous sensory experience, which can create powerful impact over the customer (ref). This experience can be relatively short in time, however, during which the customer has to predict whether the product will satisfy the various needs. Taking into consideration the complexity of modern vehicles, certain aspects of the car might be difficult to be predict in the longer term (e.g. intuitiveness of the infotainment system). Furthermore, a vehicle can be experienced in a static mode (in the showroom), and in dynamic mode (a test drive)(Abbott, 2009) . At a dealer, where customers perceive a lot of information, from all their senses, across different aspects of the vehicle, may create the perception of so much information in relatively short time overwhelming result in remembering little details, or key attributes (Schifferstein and Spence n.d.).

Post purchase (routine product interaction)
With a purchase, customers enter a long term relationship with their chosen product, the product manufacturer, and the dealer providing the after purchase customer service. During this stage, customers interact with the product more frequently, executing routing operations, discovering more details about the purchased vehicle, creating memories. With time, the owner may develop affection and even feel attached to the car (Dant, 2004; Sheller, 2004). Main contributors to attachment were found to be related to exceptional functionality of a product or memories built through product's lifecycle (Mugge, Schifferstein, & Schoormans, 2010). Product attachment and affection can be powerful tools used in favour in strengthening the customer–brand relationship (Kumar, Townsend and Vhrhies, 2014; Mugge, Schifferstein, & Schoormans, 2010), and influence re-purchase (Baltas and Saridakis, 2013).

Thus, the way consumers search for their new vehicle today, as supported by both academic and industry research studies, create indirect and direct product evaluations occurring during online research and dealer visit respectively. Following on from this, the customer journey can be separated into 3 stages – research, dealer visit, and ownership. To date, the reviewed academic literature and industry research studies, have failed to recognise this division of the customer journey into the proposed 3 staged customer journey. It therefore has also failed to explore how

attribute importance may change during the different stages of the customer journey.

To test whether such differentiation of the customer journey is valid, relevant up to date vehicle attributes are needed. Therefore, Study 1 was designed to develop comprehensive and well-defined list of vehicle attributes. The list was then applied in a second study to explore how these attributes change over the hypothesised stages of product experience in the customer journey.

Study 1: Development of a vehicle attributes list

Aim and methodology
The aim of this study was to develop a comprehensive list of vehicle attributes which could be applied for the evaluation of modern vehicles. Due to the existing gap between perception of attributes from consumers and industry professionals, the list of vehicle attributes was aimed to achieve an acceptable level of understanding from both consumers and industry professionals.

A deductive approach was adopted with the aim to identify all relevant vehicle attributes from all levels of detail and the variety of terms used to refer to them. The selection of these attributes was irrespective of the aims or purpose of the reviewed studies. This allowed identification attributes with different level of detail. Five main information sources were used: academic literature, industry reports, automotive magazines, automotive websites and manufacturer's brochures. The reviewed academic literature covered a variety of research fields such as marketing, ergonomics, product development psychology (e.g. Wiseman,1971; Choo and Mokhtarian, 2004; Yadav and Goel, 2008; van Rijnsoever, Farla and Dijst 2009; Baltas and Saridakis 2013, Wu, Liao and Chatwuthikrai, 2014). Industry reports included freely accessible reports published by Auto trader, Cap Gemini, JD Power, KPMG, Harris Interactive and Trend Tracker. The selection of automotive magazines and websites, was based on the most purchased magazines for 2014 in the UK - Top Gear, What Car?, Auto Express and Autocar (Mediaweekcouk, 2014) and most visited websites for 2015 in the UK - AutoTrader.co.uk, Motors.co.uk, Parkers.co.uk, Car Buyer.co.uk (Alexacom, 2015). The two best-selling manufactures for 2015 – Ford and Vauxhall were selected to explore attributes used in their brochures and websites. The developed draft attribute list was verified though consumer and expert interviews conducted in 2015, in the UK.

Procedure
Temporary categories were created to group synonyms referring to the same attribute (e.g. Appearance, Styling, Design, Aesthetics). The most appropriate and accurate attribute term in the automotive context was used to define the primary attribute category. Once the primary category was defined, the same approach was used to define relevant secondary attributes. This procedure was repeated for all temporary categories.

To verify the developed list of vehicle attributes, create relevant attribute definitions with acceptable level of understanding from both consumers and industry professionals, 13 consumers and 3 expert were interviewed. To avoid single word responses from participants and receive a comprehensive explanation about the various attributes, adaptation of the laddering technique was used. This technique has been used to explore how consumers' interpret product attributes into personal values and associations (Reynolds & Gutman, 1988). In the context of this study, this technique was used to capture core aspects of primary attributes and to explore their respective secondary attributes. To ease analysis, each interview was recorded and later transcribed.

Participants
Thirteen volunteers participated for this study, from which 10 were male. Participants owned/leased vehicles of different sizes (vehicle segment) and ranged from affordable mainstream brands to luxury premium brand vehicles, purchased brand new or second hand, under private or in a company scheme. None of the participants who volunteered for this study received monetary rewards but they were offered snacks and drinks to minimise the formality of the interview, and increase their willingness to share more details. The experts from different expertise in the automotive industry – vehicle dynamics, ergonomics and human factors.

Analysis
Nvivo, a software for qualitative data analysis, was used to import transcribed recordings and group responses for each attribute. The analysis consisted in comparison of primary and secondary attribute categories formed as result of literature with consumers' and experts understanding of these attributes. The definitions for each attribute were a combination of consumers' own definitions, dictionary definitions in automotive context, experts' definitions and the interviewer's own knowledge.

Results
The various sources used to identify relevant vehicle attributes, revealed that an attribute strongly related to technological development, has not yet been considered among vehicle attributes. Security, or more specifically cyber security, although receiving significant attention in all industries, including the automotive one, was still portrayed by manufacturers as locking mechanisms, alarms and immobilisers (e.g. Fordcouk, 2016, Mercedes-benzcouk, 2016, Peugeotcouk, 2016). Cap Gemini (2014)reported that although consumers are willing to share private data, they also express concern about who has access to it. This attribute has not yet been reported as important for customers purchasing new vehicles and perhaps not considered for evaluation so far. The increased software development in vehicles and connectivity features creates vulnerabilities similar to those that mobile devices and laptops have been experiencing for years – viruses, hacking, data gathering, and monitoring. With the recent evidence of software hacking on a Nissan Leaf (BBCcouk, 2016) and Tesla's malfunction on the self-driving feature (Ghoshal,

2016), security and data protection and associated attributes are likely to become increasingly important in the near future.

Once all primary attributes were identified, the outcomes of the interviews, assisted in aligning the secondary attribute categories into the respective primary attributes and defining each primary attribute category. The most difficult attributes to classify were safety, human-machine interface and vehicle dynamics. The challenges derived from the secondary attributes, as some of them could be classified under different primary attribute category. For example, the advanced driving assistance systems (ADAS), could be classified in both safety and in car technology. Because ADAS has been designed to prevent accidents, the most appropriate classification for ADAS, supported from experts, was in the safety category (Table 3). In- car technology, infotainment systems and human-machine interface were terms often used to refer to the user-interface through which consumers could manipulate various vehicle systems. However, in-car technology and infotainment were found to be inappropriate descriptors fort this category. Consumers understanding of the term in-car technology was inconsistent, as participants referred to various aspects of the vehicle as ABS safety feature, journey guidance (Sat Nav) and ADAS functions. Infotainment on the other hand, was not an appropriate term, as it represents commodity rather than an attribute (e.g. vehicle's brakes are commodity, braking is an attribute). Human-Machine interface (HMI), was the most appropriate term to describe the software aspects of the vehicles which provide user access to various vehicle functions. Vehicle dynamics, was an attribute category, which covered the in-motion aspects of the vehicle. The automotive experts had strong view on how this category should be structured, however, consumers participating in the study, did not perceive this attribute the same way and in such detail. For this reason, the secondary attributes, defined under vehicle dynamic, were based on the considerations from all reviewed sources used in this study and researcher's own judgement, to create acceptable level of understanding of these attributes from both consumers and industry experts. All primary attribute categories, their respective secondary attributes and developed descriptions are presented in Table 3.

Study 2. Attribute importance throughout the customer journey

Aim and methodology
The purpose of the second study was to test whether division of the customer journey to 3 stages would be valid and explore how the importance of vehicle attributes varies across the 3 stages. The same participants from Study 1 took part in this study.

Procedure and analysis
Prior to the interviews, participants were informed that the interview would discuss their past purchase experiences. This allowed participants to remember these particular events, ahead of the interview. During the interview were participant asked to freely describe their purchase experience and satisfaction from their current vehicle. To ensure, step by step approach, the interviews were semi-structured, and the questions were used to guide participants to a specific stage in their customer journey and explore it in detail. The analysis reflected the importance of primary attributes, analysed through Friedman's two-way analysis of variance in Spss.

Results
The outcomes of this study support the ideas that there is a difference between the two pre purchase stages (research and dealer visit), and that the split of the customer journey to 3 stages – research, dealer visit and ownership is valid. This was confirmed by the types of attributes evaluated specifically between the research and dealer visit stage. Attributes requiring direct product evaluation, such as comfort, were not considered by participants during the research stage, but were highly important at the dealer stage (see Table 4). Practicality was an attribute, which was important for participants in both the research and the dealer visit stage. However, during their research stage participants built only expectations for practicality of the vehicle, but could only evaluate the actual practicality at the dealer. Depending how closely their expectations were met from the actual product, would guide consumers' responses (Participant A).

"…we selected the cars we liked but when we went to the dealer, we discarded the other two as they were too cramped at the back"

Participant A

As opposed to expectations prior to Study 2, the importance of Vehicle Dynamics scored low in importance at the dealer, where participants were able to explore the various aspects of this attribute in-person. During ownership, however, this attribute became important (see Table 4).

Other aspects of the vehicle, which were not evaluated prior to purchase, become evident during the ownership stage and routine interaction.

"…the given figures stated that the fuel consumption was good…but in reality it was not good at all…"

Participant D

"…now you realise that on the weekends it will be more expensive….and…it is a challenge to drive it on electric engine (Hybrid Vehicle)"

Participant E

"…the back seats are quite spacious. I only discovered that, when my family visited last year"

Participant G

Security was an attribute were not mentioned or considered by any of the participants. Perhaps it is something that people take for granted or maybe it is

Table 3. List of vehicle attributes covering primary attribute categories, their respective secondary attributes and definitions.

Attribute and sub-attributes	Attribute Definition
Reliability — Frequency of breakdown — Durability (e.g. Battery life) — Robustness	The ability of a vehicle, which is regularly maintained, to perform to required standards over a set period of time. Strongly depended on its components and systems, within a vehicle which have to withstand repeat usage (Durability) or irregular extreme events (Robustness). Perception of reliability also derives from severity of breakdowns, Brand Image and owners' reviews.
Safety — Active Safety (or ADAS), (e.g. blind spot detection, lane keeping) — Passive Safety (e.g. Airbags, seat belts, etc.)	Vehicle's capabilities to prevent (active safety) an accident or protect its occupants from injury (passive safety), should an accident occur.
Security — Physical Security (e.g. immobiliser, locks) — Cyber Security (e.g. Firewall)	Resistance of the vehicle to physical criminal activities (as vehicle theft) or illegal penetration of vehicle's systems with the aim obtaining personal user data from the vehicle (cyber security).
Cost of ownership — Price (Monthly payments) — Running Costs (e.g. fuel consumption, tax) — Resale value (Depreciation)	Costs associated with obtaining the vehicle, operating it during its lifecycle (running costs), and disposing of it (resale value).
Vehicle Dynamics — Ease of driving — Road Handling — Ride Quality — Performance	Vehicle's behaviour while in motion, its responsiveness to input and feedback received during ride/drive.
Practicality — Boot (e.g. capacity, floor adjustability, size of boot door and boot opening) — Interior storage (e.g. glove box) — 3+ doors — 4+ seats — (flat) Foldable seats	Vehicle's capacity and flexibility of components to allow fulfilment of various situations for which the vehicle may be used.
Comfort — Driving Position — Seat Comfort — Interior quietness — Roominess (leg, head room front and rear) — Convenience (e.g. electric operation – mirrors; Driving Range, Recharging time EV) — Overall interior feel	The ability to have pleasant, pain free, driving/ riding position, allowing adequate reach and effortless operation of key controls for driver and all passengers.* * *Some aspects of comfort depend on length of journey – e.g. long term comfort*
HMI (Human-machine interface) — Quality of infotainment system (e.g. screen resolution, responsiveness, intuitiveness) — Media (e.g. DVD, CD, DAB, SD, Sat Nav) — Connectivity (USB, Bluetooth, Wi-Fi)	Integrated operating system, providing build-in journey assistance (navigation), media (e.g. radio) and connectivity options.
Build Quality* — Craftsmanship * *Definition adapted from (Stylidis & Wickman, 2015)*	Build Quality (or Technical perceived quality) is a complex attribute, which consumers build toward vehicles, based on visual cues, interaction, tactile/auditory feedback and interior smell, developing impression toward the overall quality of the product.
Interior/ Exterior Styling — Product Personality (Product Image) — Novelty — Design metaphors — Product forms (e.g. design principles – harmony, golden ratio, unity, symmetry) — Other – colours, colour combinations, textures, materials/ material combination, contrast	Styling relates to vehicles' visual design (interior and exterior), through aesthetic principles (as symmetry, unity), that impact consumers' judgements regarding different product aspects as novelty and product personality, creating differentiation, appeal or desire.
Brand Image — Country of origin — Brand equity* (e.g. Brand associations, personality) * *(Aaker, 1995)*	Brand image is the current perception consumers have toward specific brand, build though advertising, market positioning, personal experience, and brand equity aspects as personality, associations, etc.

difficult to evaluate.

Each attribute importance, and relevance for each stage of the customer journey is visualised in Table 4.

Discussion and implications

The implications of these studies could be used in various fields of research. The attribute list developed could be used by other researchers to ensure a complete and consistent evaluation of vehicle attributes. As technology develops constantly, this list should be updated as appropriate. To ensure consistent understanding of the evaluated attributes, clear descriptions containing the appropriate level of detail should be provided with the evaluation of various vehicle attributes.

The division of the customer journey into 3 stages enables us to understand how the importance of various attributes changes over time and with experience of using the vehicle. This might have implications, for example, for which attributes should be highlighted in marketing material and interactions at the dealership. It also gives an understanding of which attributes are most likely to drive brand loyalty in the longer term. The importance of these attributes may also differ between different groups of consumers (e.g. based on demographics or attitudes to cars and driving) and across different sectors of the car market (e.g. luxury, sports, family, budget). Moving forward, these are issues that we plan to evaluate in more depth.

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Table 4. Attribute importance across the 3 customer journey stages.

Vehicle Attributes	Pre-Purchase		Post-Purchase
	Research	Dealer visit	Ownership
Interior /Exterior Styling	★★★★★★	★★★★★★	★★★✩✩✩
Cost of ownership	★★★★★✩	★★★★★✩	★★★★✩✩
Practicality	★★★★✩✩	★★★★✩✩	★★★★★★
Comfort	✩✩✩✩✩✩	★★★★★★	★★★★✩✩
Vehicle Dynamics	★★✩✩✩✩	★✩✩✩✩✩	★★★★★✩
Reliability	★★★✩✩✩	✩✩✩✩✩✩	★★★✩✩✩
Build Quality	✩✩✩✩✩✩	★★★✩✩✩	★★✩✩✩✩
Safety	★★★✩✩✩	✩✩✩✩✩✩	★★✩✩✩✩
HMI	★★✩✩✩✩	✩✩✩✩✩✩	★★✩✩✩✩
Brand Image	★★✩✩✩✩	★★✩✩✩✩	✩✩✩✩✩✩
Security	✩✩✩✩✩✩	✩✩✩✩✩✩	✩✩✩✩✩✩

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