CREATING VISUAL BRAND IDENTITY IN AUTOMOTIVE DESIGN: A CASE STUDY ON VW MODELS

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'There are some brands who follow the design, and there are some other brands who define that design' T.D. 09.12.2012

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Approval of the Graduate School of Social Sciences

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ABSTRACT

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Throughout the history of the automobile industry, physical characteristics of the very products have signified brand identity, both explicitly and implicitly. With even more comprehension of brand and design as a whole in recent decades, some brands have been inclined to success than the others. In addition, automotive design is one of the strongest fields in design that the reflection of a brand relies on physical attributes of a product. Given the circumstances, this study mainly focuses on the brand identity in the automotive industry and its correlation with design characteristics. Distinctive, yet similar design approaches of the manufacturers have been analysed to support the executed research. Finally, Volkswagen Brand is discussed in further detail in terms of Visual Brand Identity creation; including the current product portfolio's design language, and also its correlation with other Volkswagen Auto Group brands.

Keywords : Automotive design, design characteristics, branding concept, visual identity, visual recognition, product design , design management

ÖZET

OTOMOTİV TASARIMINDA GÖRSEL MARKA KİMLİĞİ:
VW MODELLERİ ÜZERİNE BİR ÇALIŞMA

DALÇAM, Tuna

Master of Design, Tasarım Çalışmaları Bölümü

Tez Yöneticisi: Yrd. Doç. Dr. Can Özcan

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Otomotiv endüstrisinde, tarih boyunca, ürünlerin fiziksel özellikleri, markanın kişiliğini hem dolaylı hem de direk olarak tanımlayagelmiştir. Son yıllarda gelişen, marka ve tasarım konseptlerinin bir bütün olarak ele alınması ile, bazı markalar diğerlerine göre daha başarılı olmuşlardır. Bununla birlikte, otomobil tasarımı, marka kimliğinin ürünün fiziksel öğeleriyle yansıtılması açısından, tasarım dünyasında güçlü bir konuma sahiptir. Bu koşullar göz önüne alınarak, çalışma, otomobil tasarımında görsel kimlik ve tasarım dili arasındaki ilişkiye odaklanmaktadır. Çalışmaya destek olması açısından üreticilerin, hem birbirinden farklı, aynı zamanda da birbirine benzeyen, tasarım yaklaşımları incelenmiştir. İncelemeyi takiben, Volkswagen Markası'nın Görsel Marka Kimliği'ne olan yaklaşımı, güncel ürün gamının tasarım dili ve bunun VW grubundaki diğer markalar ile olan ilişkisi incelenmiştir.

Anahtar Kelimeler : Otomobil tasarımı, tasarım dili, markalaşma kavramı, görsel kimlik, görsel tanımlama, ürün tasarımı , tasarım yönetimi

*To **Lucky;***

The Eternal Guardian of Ege Çeşme,

whom we will never forget

and cherish thy memory forever…

PREFACE

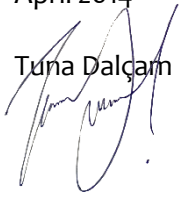
This study is the final proof of competence for obtaining the Master of Design (M.Des) degree in Design Studies, from the İzmir University of Economics (IEU) located in İzmir, Turkey. The research has been supervised by the IEU, Institute of Social Sciences and was executed in Turkey. The research has been executed both with theoretical and practical approaches in the regarding area of fields. The research focuses on Brand and Design concepts and their relation to the market and outcomes on a specific brand in automotive industry. Within the industry, this research endeavour specifically analyses the connection between the success of VW and its Visual Brand Identity. Amid the famous automaker brands, VW brand was a compelling choice for the case study for my personal opinions towards their design philosophy. After all, I have never wanted to speak their language regarding my disinterest in their 'humble' and 'boring' design.

Nevertheless, I would like to take this opportunity to express my gratitude to my thesis supervisor Asst. Prof. Dr. A. Can Özcan, The Head of Industrial Design Department in IEU, for his recommendation of the case study, which only made the research more thrilling and demanding, continued and valuable support, professional guidance, and constructive feedback on improving the quality of this final research paper.

A final thanks in this preface goes out to my family who stood by me during the time I have quitted my former job and decided to live abroad. It has been a great personal adventure and experience.

İzmir, Turkey
April 2014

Tuna Dalçam



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LIST OF ABBREVIATIONS

- **AG:** Auto Group
- **Audi AG:** Audi Auto Group
- **EAM:** European Automobile Manufacturer
- **FL:** Facelift
- **NPD:** New Design Process
- **PI:** Product Identity
- **PM:** Portfolio Management
- **VBI:** Visual Brand Identity
- **VI:** Visual Identity
- **VW:** Volkswagen
- **VW PC:** Volkswagen Passenger Cars
- **VW AG:** Volkswagen Auto Group

1 INTRODUCTION

Branding is an ancient concept, yet design is relatively a new one in comparison. There is, and has been, an irrefutable connection between these concepts. This work examined these concepts in product design and applied the methods/examples presented in the work in the automotive industry, in which, the very products of the firms physically project their brand characters, through design around the globe.

1.1 Research Background

At a glance, it is safe to claim that there are 3 different main automobile manufacturer origins, being, American, European and Far East, in terms of quality, craftsmanship, technology and recognition. Surely, there are several recognized brands from each automaker regions, but it has been, and still is, the German Cars that stand out for their desirability. There is no doubt that, especially, Korean automakers have been trying to keep up with their European rivals in all fields that define the desirability of an automobile. The competition between these regions' brands grew dramatically within the last decade. Although this research does not originate from the phases of this competition, it is one of the outcomes of what this work is based upon, which is brand and design as a whole.

Dividing the automaker industry into 3 different regions may not seem accurate, since there are dozens of other manufacturer origins, such as Kenya, Russia, Egypt etc., but

for all the above reasons and the scope of the work, that broad categorization initializes the argument.

For accuracy and focus a single brand; Volkswagen (VW) has been selected as a case study, regarding its success in brand image and credibility. Brand image, being one of the most significant feature of any firm in any business today, is characterized by, but not limited to, a high demand for that product in the market or in other words; desirability. Since it is compelling to achieve high desirability in such a competitive market, many different, yet similar, approaches have been introduced and executed by the automobile manufacturers.

The goal of the work is to find out the link between brand image and design characteristics of an automobile and how VW brand has comprehended these concepts that have forcefully created an artificial perception, an understanding of its brand image, thus; a Visual Brand Identity (VBI).

1.2 Research Objectives

- To gain a brief understanding of the brand and design concepts for VBI creation;
- To gain a thorough understanding of design language, recognition of an automobile maker through design and the significance of physical design features/ Visual Identity (VI) in automotive industry;
- To gain a brief understanding of the main factors of VW's success as a brand and thorough understanding of how design language has contributed in this achievement;
- To gain a thorough understanding of VBI determinant design features on current product portfolio of VW PC;

- To gain a brief understanding of VBI on VW Group brands.

Obtaining the set research objectives enables to comprehend the correlation between brand and design for VBI establishment/creation.

1.3 Research Question

Based on the given research situation and the set research objectives in the previous sections, the following main research question has been formulated (RQ):

How is VBI creation achieved in automotive design and how it is handled on VW models?

In order to give a comprehensive answer to the main research question and obtain the set research objectives a number of sub research questions have been formulated (SRQ1, SRQ2 and SRQ3 respectively) :

What is the connection between brand and design and how Design Management field comprehend these concepts?

What are the importance of design characteristics/features and how are they interrelated with brand?

What are the main design features of an automobile model and how they are executed/transformed in the entire product portfolio of VW brand?

The sub research questions have been raised for a number of reasons. The main reason is to support finding an answer to the main research question. In addition, some of the sub research questions have been raised to contribute to obtain the research objectives and some have been formulated for their practical relevance and value.

1.4 Research Strategy

The executed research can be categorized as an exploratory and constructive research. A few quantitative findings have been addressed from various sources to support the argument. However, the research as a whole falls under ***qualitative research model***. It has relied on gathering secondary data from a number of different sources, such as textbooks, academic articles, acknowledged books and websites. The secondary information is further supported by gathering subjective approaches through car magazines and other forms of critics on car designs. For obtaining the research objectives and answering the research questions, two analysis have been executed: an external analysis and personal analysis. The two individual analyses, external being the main, is expected to lead to a number of conclusions and possible direction for the future of VW Brand.

Given the research objectives, main research question and sub questions, the work will use some conceptions/terms as elements to formulate the VBI creation/establishment framework/processes;

- Brand
- Design
- Product
- Cognition and Semantics
- Identity

- Management

There is an incontrovertible truth that these conceptions alone formulate their individual definitions, frameworks and knowledge base. For accuracy, these conceptions and terms are formulated for the sake of VBI creation. In other words, it is highly unlikely for this work to comprehend these concepts to their full extend, nor it will satisfy for such readers who want to fully understand what branding conception means or how recognition process works in the human brain.

The body of work starts with the comprehension of these formulations, not the detailed definitions of the concepts themselves (brand and design concepts are discussed deeper than the others). Since the work is more about exploration, than a descriptive approach, it is essential to understand branding concept, but for all reasons that are pointed out, for instance; comprehension of brand image is much more crucial than understanding the branding concept as a whole.

Another misunderstanding would be about the term 'management', which is more about the sales, statistics, company goals and similar issues regarding Business Administration (BA) field, than it is about design. There is no question that these are not to be taken lightly or ignored for that matter, but here, the work merely needs its tools which creates a brand and design coherence.

Moreover, there is the concept of cognition (and semantics field), which is more of a neuroscience subject than it is about design. Though, any product needs a brain and its neuro functions to be recognized, or to communicate with. Which is why, it is essential for this research to address this conception for better understanding of the visual recognition of a product.

While the main body of the work, being the second chapter, focuses on VBI creation

objectives, third chapter on forward solely focuses on automobile design processes and how VBI is used.

The fourth chapter has been generated to point out the **methodology** of the case study. Although, all of the frameworks needed for the case study has been illustrated (alongside and/or following the literature review) in preceding chapters, certain details and the construction of ***VW PC Case*** has been pointed out.

The fifth chapter is solely executed on VW Group, with VW PC models being the main concern and in greater detail.

2 VISUAL BRAND IDENTITY (VBI) IN PRODUCT DESIGN

'The number one thing you don't want is for people to be indifferent about your brand' – John Morgan, The Brand against the Machine

In this chapter, the discussion will be focusing on brand and design and how they form and coincide with each other to create a recognition of that brand visually. How companies reflect their brand's core values through design? Why is it essential for a company? How design management aids the process? What are the basics for a product to be recognised and what are the primary cognitive processes? What semantics has to say in the matter? How companies determine the design language and how they reflect those throughout their entire product portfolios?

2.1 Branding Concept in VBI Creation

Branding, as we know it, finds its routes to the ancient Roman, if not to Etruscan, times when Roman soldiers and gladiators has been marked through a sigil or a seal carved into the body to represent their loyalty to their masters. Evidently, this form of branding has existed long before the introduction of *Modern Marketing* and *Design Studies*. Although the main reason for branding has not altered in any way, the modern definition for a brand would be, the process involved in creating a unique name and image for a product in the consumers' mind, mainly through advertising campaigns with a consistent theme. Branding aims to establish a significant and differentiated presence in the market that attracts and retains loyal customers (WebFinance, Inc., n.d.). Legally speaking; there is an internationally agreed definition for brands: 'a sign or set of signs certifying the origin of a product or service and differentiating it from the competition'.

Arvidsson's approach on brand, however, formulates yet another meaning to its character, by claiming it as an '*immaterial, informational object'*;

> *Brands are a paradigmatic embodiment of the logic of informational capitalism. First, because brands are in themselves immaterial, informational objects. They are part of the pro- pertied ambience of media culture in which life unfolds. As such, brands become valuable through their ability to manage and program human communication and appropriate the ethical surplus – the common – that it produces as a source of value.*
>
> *(Arvidsson, 2006, p. 13)*

In today's world of capitalism, there are hundreds of thousands, if not millions, of brands. Throughout the research, no web source or acknowledged work could come up with an exact count or interval to determine the quantity of brands known to mankind; thus it makes the competition even more *unrelenting*. Needless to say, there are only a few brands in distinctive fields that stand out for their various achievements which are known with a high brand value as a business commodity, high brand image as a consumer commodity, or in short as strong brands.

With the growing weight of brand value in financial decisions, throughout the 1980s and mid-1990s, number of companies capitalizing on their brands have increased. Even though the exact figures for this development has been difficult to attain, estimates claim that, in some sectors, most bid prices were motivated by the value of brands, jumping from 20% to approximately 70% within the given time interval (Arvidsson, 2006). So it is safe to claim that brand value's importance has grown significantly within a little over of a decade. Though, not all brands have endured to see today, even less achieve considerably high brand value and/or strong brand image in the market.

As pointed out earlier, 'value' and 'image' have their own influences on different areas/groups; thus they have slightly different definitions. While the value of a brand is more of a business term, than it is of its influence on consumers, the brand image is the impression of a brand's total personality in the consumers' mind with a set of campaigns and direct experience (WebFinance, Inc., n.d.). However, brand image forms a simplified

definition of the outcome of *'brand equity creation'*, which originally describes the value of having a well-known brand name, as consumers believe that a product with a well-known name is better than products with less well-known names. ((Aaker, 1991) (Leuthesser, et al., 1995) (Aaker, 1996) (Keller, 2003)). Aaker's primary definition for brand equity is as follows: "*Brand equity is a set of assets (and liabilities) linked to a brand's name and symbol that adds to (or subtracts from) the value provided by a product or service to a firm's customers"* (1996, pp. 7-8).

In his former work, Aaker discussed brand equity in detail (1991). Although the assets of brand equity are inclined to be a business approach, than a designer's approach, his formulation theoretically defines how a brand communicates with both the firm and the consumer. Thus, gives a perspective on how the designer should comprehend the brand phenomenon, in order to ease the communication process. Figure 2.1-1 shows a compact overview to illustrate how brand equity generates value.

At first glance, it may not mean much to a bachelor student or even some industrial designers, since both the work cited and the form of the figure means much more to a BA specialist. But, ultimately, a product design is crucial to a firm, thus to brand makers/creators/managers whose job is to glorify their brands by increasing its value and a product should reflect the brand's success. Both Aaker (1996) and Arvidsson (2006) stress the significance of design impact on/ contribution to the value of the brand in some level. So basically no designer has the luxury of avoiding the assets that have been pointed out, nor they can design without absorbing brand creation or its character. Kapferer's acknowledged book *'The New Strategic Brand Management'*, probably the most extensive and up-to-date work on brand phenomenon so far, takes another step further both by reminding us how complex a brand building is, both by giving even more

examples from the automotive industry and design's influence on consumer's recognition of the brand (2008), which will be discussed later on in this work.

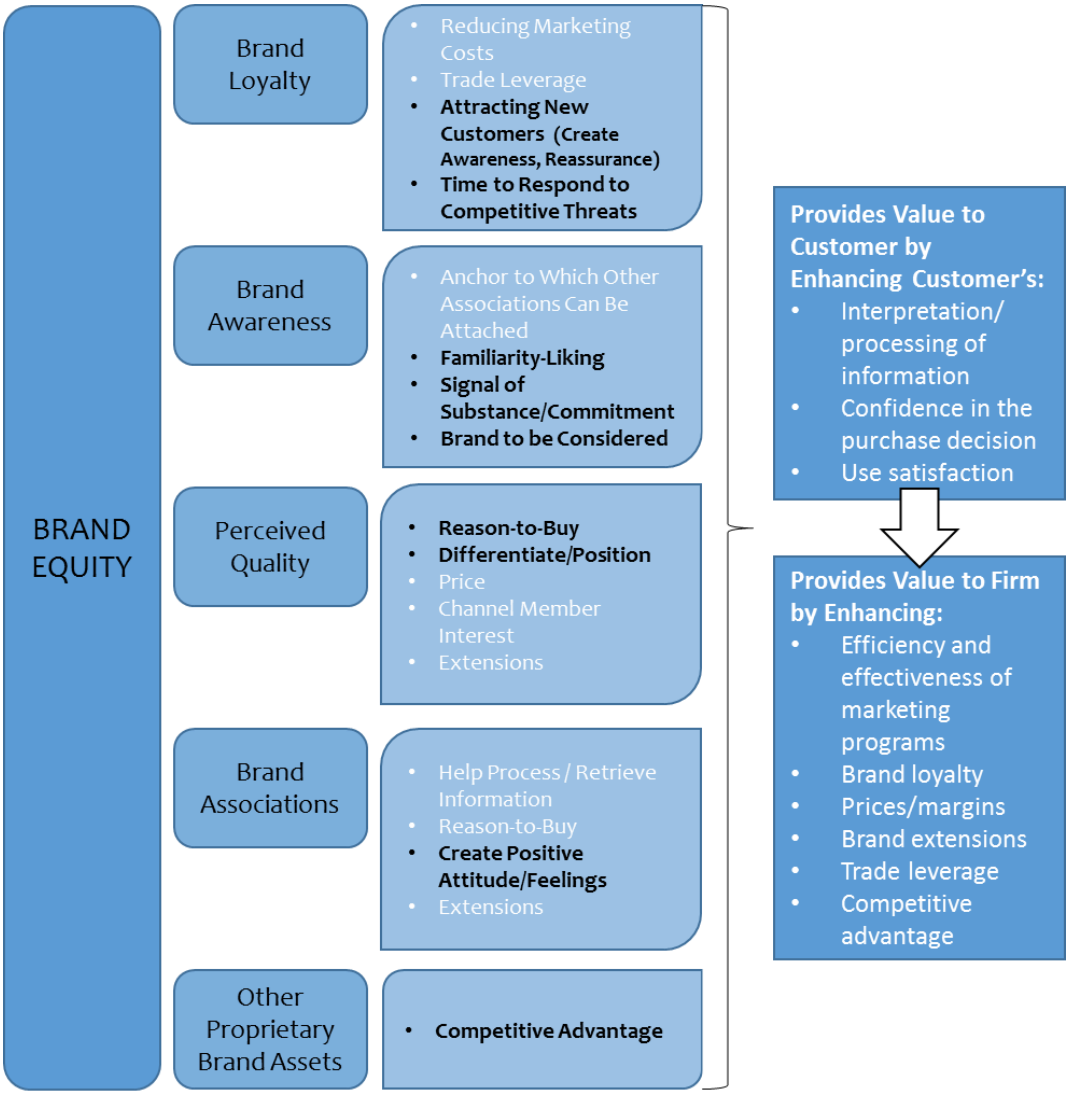


Figure 2.1-1 How Brand Equity Generates Value (Originated from Aaker, 1996, p. 9)

Back to the table, how should a designer start reading it? I strongly believe that, any work should set out to a journey from the easiest road possible, so I personally read the table as such (Figure 2.1-2). Although it may yet draw a raw framework on how a product

should be designed regarding brand's value, and eventually characteristics, it may help us understand how we should set out, no matter how hard the brand concept really is.

Consequently, comprehension of the brand phenomenon has been a complex issue for the firms, but why it is also important for a designer or what does it mean to a designer? How firms manage design or how design adds to brand value? What are the conceptual frameworks that aids firms managing design language? The following section will be focusing on addressing these issues by looking from the *'Design Management'* literature, which forcefully links firm and product, thus the brand and design.

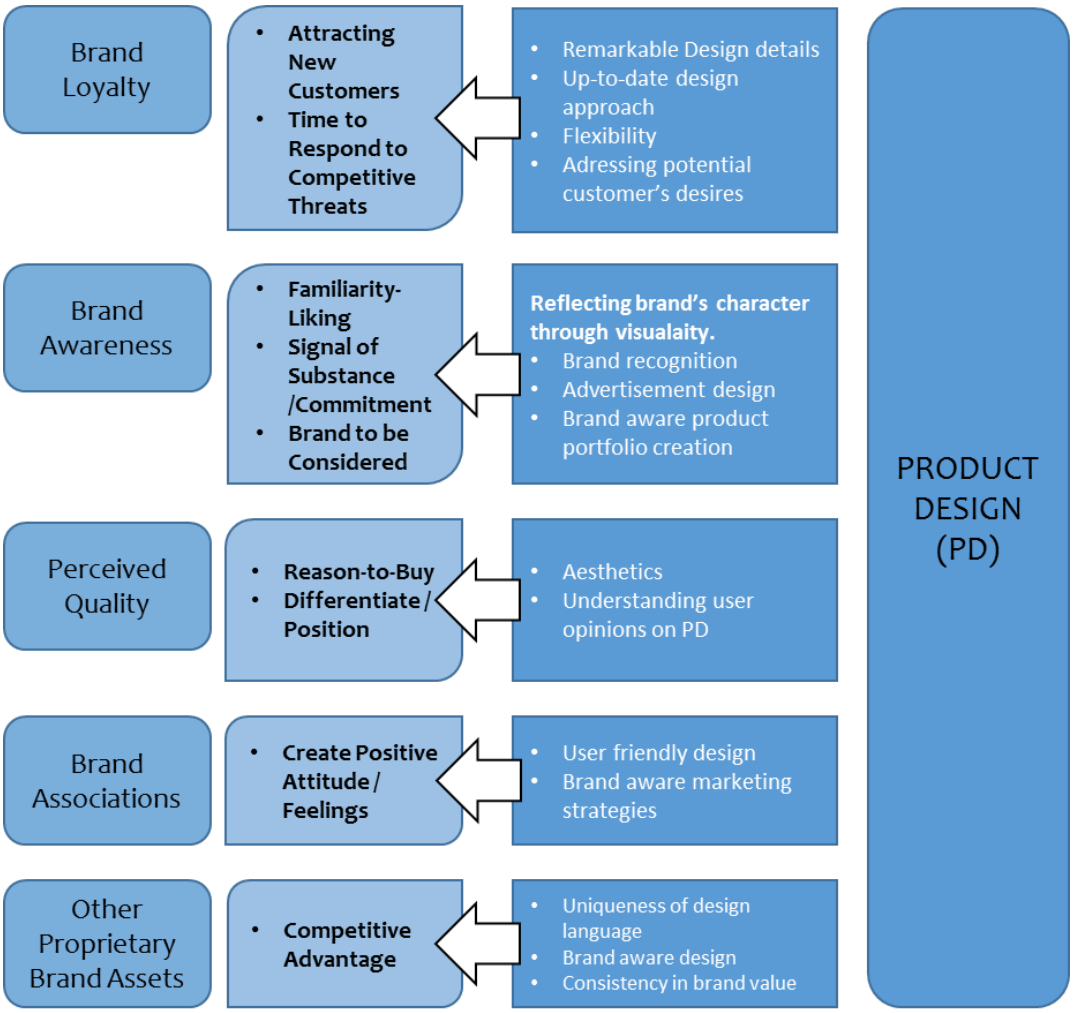


Figure 2.1-2 Product Design Essentials Regarding Brand Value/Characteristics

2.2 *Design Management Tools for Brand and Design Coherence*

The marriage of these terms, being design and management, is not very old, yet definition of *design* is still an ongoing debate, while the famous term *management* seems to form a more rigid structure, and clearer definition when compared to design. Figuratively, design management is kind of an *embassy* between firm and product; brand and design; owner and designer; business and art; engineering and aesthetics. *(Figure 2.2.1).*

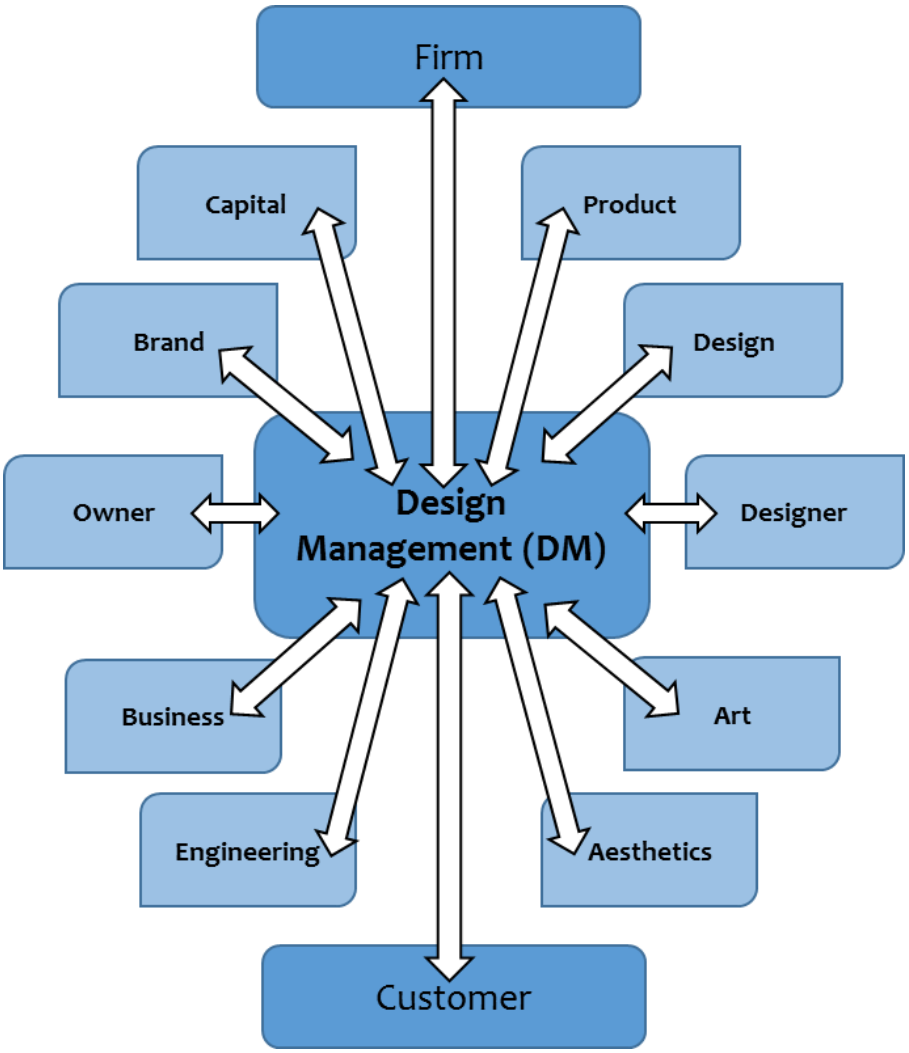


Figure 2.2-1 The Main Role of DM

On a deeper level, it seeks to monitor economic, sociocultural and environmental factors to form a network between design, innovation, technology, management and customers, by providing a competitive advantage (DMI, 2005). It is another field that is not merely connected to design studies, such as branding concept, but this doesn't make it any less incoherent. It is an interdisciplinary approach with BA weight to it. However, this weight may vary depending on the standpoint.

There is another question that might come into minds that the work has not given any solid definition for *design* yet, even though it has given some thought into *brand*. I have purposely kept that, since the design has many definitions and many professionals may define it differently than the other with or without the aid of authoritative definitions, not to mention the discursive nature of *Design Studies* itself. Is it mere aesthetics of a *thing*, (not even a product), mere art or something more?

If a designer turn back to his/her bachelor years, he would realize how independent he was back then, even though he/she would recall the limitations that his/her instructor has set for the assignments. And probably the definition would dominantly involve, creativity and aesthetics. Diving into the real world of design, nothing may seem like they were before: all these brand value figures, brand associations, company rules, set design philosophies regarding brands' values, budget limitations on design team, board decisions about new designs, never launched time-consuming concept designs, and any other department or rule that limits the design itself. Then he/she may ask the very basic question once again: What is design anyway?

Etymologically, it derives from the Latin *designare,* translated as 'to designate' and 'to draw' in English. So originally it involves two basic phases which are, to decide, plan or imagine something and then to draw, sculpt or create. Evidently, it is not an adjective that is exploited by the media to define the product (outcome) of the creative process behind it, yet, even the design specialists are inclined to use design as such. Dare I say, it makes *the design* primitive, lessening its true form.

A modern definition offered by The International Council Societies of Industrial Design (ICSID) saves design from the perspective of the output (product: the aesthetics and

appearance) (De Mozota, 2003). ICSID is an organization consisting of professional associations of designers worldwide.

> ***Aim:*** *Design is a creative activity whose aim is to establish the multi-faceted qualities of objects, processes, services and their systems in whole life cycles. Therefore, design is the central factor of innovative humanisation of technologies and the crucial factor of cultural and economic exchange.*
>
> ***Task:*** *Design seeks to discover and assess structural, organisational, functional, expressive and economic relationships, with the task of:*
>
> *-Enhancing global sustainability and environmental protection (global ethics)*
>
> *-Giving benefits and freedom to the entire human community, individual and collective*
>
> *-Final users, producers and market protagonists (social ethics)*
>
> *-Supporting cultural diversity despite the globalisation of the world (cultural ethics)*
>
> *-Giving products, services and systems, those forms that are expressive of (semiology) and coherent with (aesthetics) their proper complexity.*
>
> *(ICSID, n.d.)*

Given the detailed definition of design, including both its purpose and objectives, the question is likely to rise interrogating the existence of the *'Design Management'* discipline. Broadly, the definition of design by ICSID may push the term '*management'* out of the game since they have addressed that, design's multifaceted structure alone has a set of tools/objectives that involve management within. On the other hand, design is a concept, while design management is a business discipline which aims to bring firm, brand, product and customer together and the things that a designer needs to accomplish is different from mere artistry, thus; mere aesthetics of the outcome/output.

De Mozota (2003) has addressed the main design disciplines in his work;

- Environmental Design
- **Product Design** *(which the research will be focusing on after this point)*
- Package Design
- Graphic Design

Moreover, De Mozota mentioned about the basics of design education system for better understanding, including the master and doctor of arts degree knowledgebase, all of their relatively detailed context, which will not be discussed further in this research. However there is a part that is presented in her work, before getting into the DM territory, which is 'the matrix of design integration in a company (2003). She has addressed what are considered as product design, being, machines and commercial products (Table 2.2-1)

Table 2.2-1 The Matrix of Design Integration in a Company (Originated from De Mozota, 2003)

Function / Design	Graphic Design	Package Design	PRODUCT DESIGN	Environmental Design
CEO	Corporate Identity		***INNOVATION***	Work Spaces / Factory
Corporate Communicati	Corporate Identity			Event / Trade Show /
R&D Production	Technical Documentati	Logistic Packaging	***INNOVATION***	Factory
Marketing	Brand Graphics,	Packaging Product	***PRODUCT RANGE***	Trade Show / Store

Frankly, the discussion on design alone can continue for a lifetime and may even answer many questions and remove any obstacles that come on our path along the way but it would also lead the work away from its original goal, so this is where the debate on mere design knowledge/education ends.

Since the phenomenon of design and mere definition of product design is out of the way, we may move on to what *management* means:

> The organization and coordination of the activities of a business in order to achieve defined objectives.
>
> Management is often included as a factor of production along with machines, materials, and money. According to the management guru Peter Drucker (1909-2005), the basic task of management includes both marketing and innovation. Practice of modern management originates from the 16th century study of low-efficiency and failures of certain enterprises, conducted by the English statesman Sir Thomas More (1478-1535). Management consists of the interlocking functions of creating corporate policy and organizing, planning, controlling, and directing an organization's resources in order to achieve the objectives of that policy.
>
> *(WebFinance, Inc.)*

When design concept and management definition are put together, it literally creates an artificial bond between business and art/science: Eventually though, Design Management discipline is not superior to design, nor it formulates a wider knowledgebase than design, but, evidently, it simplifies *things* for company goals to be achieved and formulates a solid set of rules and processes for the outcome of a project to be more accurate. Then what tools does it supply for the sake of product design, thus; VBI creation? First we need to address what types of Design Management are there in practice.

In broadest sense, the design project can be managed in two ways: either the firm or company employs a design team within the company or through a subcontract, in other words an in-house or an external design team is empowered to decide the design of the final product.

De Mozota compared advantages and disadvantages of these two management processes (2003) (Table 2.2-2). In-house design management is widely famous in automotive industry, in which product design and brand bond is unquestionably

important, thus the aesthetics of the final product. Needless to say, many famous brands (with notable/strong brand images), regardless the sector, are inclined to keep the management solely in-house (e.g. Apple Inc.).

Table 2.2-2 Comparing Internal versus External Design (Originated from De Mozota, 2003, p. 190)

	Advantages	Disadvantages
In-house	• cost efficiency • accessibility • easier coordination • company retains control • design develops intimate understanding of company	• lack of creativity/new ideas • keeping the design team busy, e.g., ongoing development work • losing touch with external developments
External	• new inspiration • access to specialists' expertise relieves workload • accessibility of additional skills/staff • options of changing and exploring different options	• lack of understanding of company-specific issues • problems of everyday accessibility • problems of coordination with in-house design and/or other departments • potential lack of confidentiality • company needs skills to evaluate the design work • "not-invented-here" syndrome • problems with industrializing the externally developed design • loss of control and continuity in the relationship • credibility gap if design is too far removed from company's own style

On the one hand, it is well known that strong automobile manufacturers, if not all, invest extensively on in-house design management (e.g. BMW, Mercedes-Benz, VW Group). On the other hand, in some level, they also invest on external concept designs or even prototypes. This can implicitly or explicitly guide the design project. So, when looked

back, a design management process is sometimes not solely in-house or external. De Mozota has also stressed on the issue that, over the past ten years, external design management has grown and she links that need to the financial management strategies of the firms (2003). However, this claim may not be the main reason for strong brands. Needless to say, embracing and executing both management strategies is not in the grasp of every companies' financial power.

Figure 2.2-2 iPhone 6 Search Results from Google Search Engine

It is quite impossible to determine which rumour of a supposedly new product reflects the truth or not. When, for instance, '*iphone 6* 'is googled, the results are dazzling, and the result of an image search is even more confusing, since there are more than 20 distinctive, yet similar, concept design images of the same product[1] (Figure 2.2-2). There are more than 50 articles claiming that SET Solution (An Italian firm) has worked on a prototype of the next iPhone[2] (Figure 2.2-3).

Figure 2.2-3 iPhone Air Concept by SET Solution

To give another example, there is a legitimate claim for a BMW concept car design (Figure 2.2-4); BMW Pininfarina Gran Lusso Coupé by the long-established specialist car designer and manufacturer Pininfarina (Pininfarina, 2013).

[1] The quantity of different concept designs are determined by searching and counting the results of googling: 'iphone 6' under a minute.

[2] The quantity of the articles are determined by searching and counting the first 10 pages of the results of googling : 'iphone Air Set Solution'

We are very proud of this concept car because it expresses at best the aesthetic values that always inspired Pininfarina: the purity of the lines, the harmony of form, and balance. It underlines our expertise as a global designer and manufacturer of high-quality exclusive cars realized thanks to unique craft skills gained in over 80 years of activity. Furthermore, we are very pleased to work with a prestigious brand such as BMW.

Paolo Pininfarina, Chairman of the Pininfarina Group (Pininfarina, 2013)

Figure 2.2-4 The Pininfarina Design Team Involved in the Gran Lusso Project (Pininfarina, 2013)

Needless to say, powerful companies/groups have the luxury of adopting both design management models. The key points in any management model for a successful design/product development are strategy; organisation; processes and tools (Dong,

2009). Basically, these four key assets sum up the entire section, yet these four key points tells us the story figuratively, since it only formulates how a company should approach a supposedly new product. The next level of a product design needs to be taken literally/in detail, so that the characteristics of a product can be decided, which dominantly falls into the fourth asset: *tools (see Section 2.4 for further discussion).*

Consequently though, a design management is a multi-faceted and a complex issue and the processes involved are important for the manager and the designer to understand each other thus; for brand and design coherence;

- Creating and sustaining high brand value and awareness through the assets of brand equity.
- Comprehending the four key points of design management: strategy; organisation; processes and tools;
    - Monitoring and understanding economic, sociocultural and environmental factors for better understanding of customer's perspective of brand and how to improve it strategically (strategy),
    - Determination of in-house and external design management strategies regarding the company's needs and capabilities (organisation).
    - Creating a strong bond between the design team (both in-house and external) regarding company goals and company's financial power (organisation-process).
    - Determination of the strategic advantages and disadvantages of the brand and successful interpretation of these by the professionals for the best outcome possible (tools).

2.3 *Visual Recognition of a Product and Significance of Consumer Response*

When addressing the infamous concepts; brand and design, they are, or need to be, interrelated as it has been discussed earlier. The definition of design concept, which ultimately creates the product, is one thing but recognition of its outcome is another thing. Definitions are consistent in some cases (e.g. applied sciences) but the definition culture is somewhat different in Design Studies. Definition of a car for instance, may involve brand, experience of the product, interior design and exterior design. When pushed even further, we may even find out that the price, automobile segmentation, size, technical specifications and many other traits of the product may be included in the definition. This brings us to the *recognition process* thus; semantics territory.

Within various categories of consumer goods, it is not hard to distinguish the quality ones, whereas, some of them are also known for their recognisable design. This becomes a more sophisticated issue in automobile industry. In Karjalainen's work, the importance of brand identity is connected to the brand's core values which are; transformed into the design features by designers (2010). These design features, explicitly or implicitly *(see Section 2.4 for further discussion)*, carry the core values through semantic transformation (2007). As a reason, a successful design philosophy that can also be related to the consumer profile may lead to recognisable design characteristics. But how experts with semantic knowledgebase defines the recognition process?

- Oppenheimer *(as cited in* Karjalainen & Snelders, 2010*)* defines recognition process as *PRODUCT = LANGUAGE and FEATURES = TALKING.*

- Krippendorff (as cited in Karjalainen & Snelders, 2010) defines recognition *as a process of identification*

A framework has been introduced by Peirce and Peirce Edition Project (as cited in Karjaleinen et al. 2010); *The R-O-I framework* (Figure 2.3-1) in which; *R*, as a perceptible object; *O* as an object reference and *I* as the effect of sign.

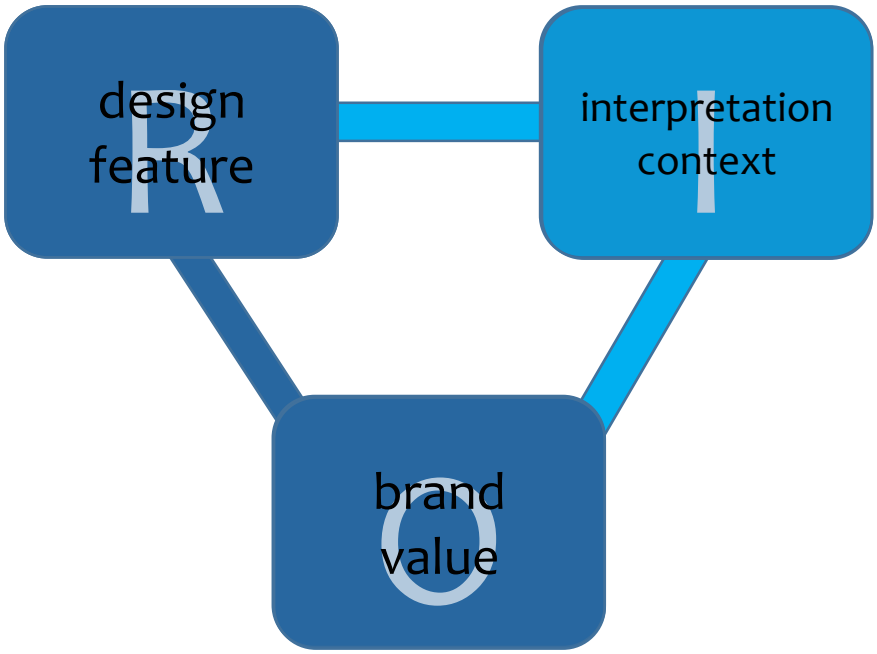


Figure 2.3-1 The R–O–I Framework for the Analysis of Brand References (Karjalainen & Snelders, 2010, p. 9)

In addition, within the last decade, the new objections have started to arise in the design management discipline. One being 'Is brand character/identity defined through physical design/aesthetics';

"To some extent, consumer attention can be produced by means of advertising, design and brand management in general. But it is generally recognized that, in the end, valuable consumer attention is the outcome of a social communication process which

retains a degree of autonomy" (Arvidsson, 2006, p. 7). And he continues as; "*...In general, product designers have come to rely much more on end-user feedback or even participation. One way of achieving this is to hire the kinds of people one plans to sell to. Fashion companies have done this for a long time*" (Arvidsson, 2006, p. 70).

So it is claimed that, the consumer response plays a crucial role in the recognition. Brand heritage or the ongoing design philosophy/approach can be considered as a key point in car-making thus; the recognition process. It is very obvious that, while some brands (e.g. BMW, Lamborghini, and Porsche) have strong consistencies in their design philosophies, some of them (e.g. Ferrari, Renault, and Opel) prefer to renew their portfolios in experimental ways. This mostly depends on the '*hidden agreement*' between the company and the consumer. Hidden agreement can be interpreted as the consumer response to that specific product. Did they like it? Have the design features been sufficient to reflect brand identity?

> *To make sure that the appearance of a new product has a positive influence on product choice, this should be tested with consumers. One should assess whether consumer perceptions of the functional, ergonomic, aesthetic, and symbolic value of a new product on the basis of its appearance are positive and correct. This can be done by asking consumers to judge the functionalities, quality, ease of use, and aesthetic and symbolic value of the product on the basis of its appearance only.*
>
> *(Creusen & Schoormans, 2005, p. 78)*

Given the primary semantic approaches, and significance of consumer response for a product, recognition process literally becomes a major communication objective between the company and the customer and it adds a new player to the VBI creation process; *Visual Identity (VI)*, which will be elaborated in the following section.

2.4 *Creating Design Characteristics for Product Identification*

Simply put, the identification process of a product (Product Identity: PI) consists of two major assets; Brand Identity (BI) and Visual Identity (VI) (Figure 2.4-1). As we have stressed the importance of transforming BI features into the PI, recognition process has shown that VI plays a crucial role. This shouldn't be interpreted as BI + VI = PI because, it may be misleading or even false. In other words, it is safer, yet more accurate to claim that BI and VI are the major tools to identify a product.

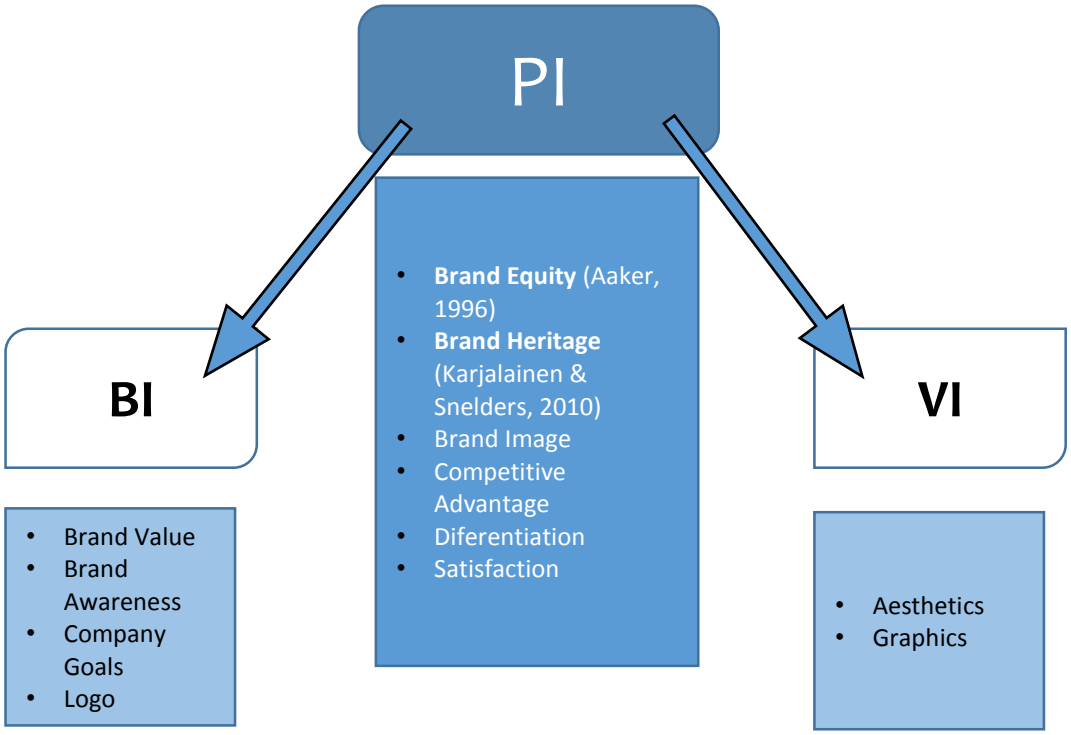


Figure 2.4-1 Product Identification

In some cases, BI can be stronger than VI (e.g. VW) or VI can suppress BI (e.g. Opel). On the other hand, there is a need for strong brand image for both cases and any PI that

lacks that trait is regarded as unsuccessful (or will be), which has been discussed in the earlier sections of the work.

Moreover, there is the fact that, not all the brands can innovate in the same way. While some brands need to focus on brand, some others may need to focus on design. Surely, neither of these approaches are eternal but it is suffice to say that, companies should know when to focus on which for a successful product innovation, since it has a great influence on brand equity (Beverland, et al., 2005). Beverland et al. has given the example of Rover, after BMW takeover. Regardless Rover's 1950s status of prestige marque, Brady and Lorenz (cited in Beverland et al.) points out that BMW could not revive Rover Brand to its glory through innovation since the gap between consumer-based brand meaning (consequently BI) and the launch of innovative products at the top end of the market was too great.

So then, how companies achieve a balanced mixture of both for the most successful PI recognition?

2.4.1 Brand Identity Essentials in Product Identification

When addressing BI, '*logo*', which is short for *logotype* is the only term that has not been mentioned up until now. Although it may also be regarded with VI, given the citations from acknowledged works throughout the research, it is dominantly linked with BI, than it is with the product or its visual characteristics *(See Subsection 2.4.2 for further discussion)*.

A logo is a graphic representation of a brand that represents the collection of experiences that forms a perception in the mind of those who encounter an organization (Budelmann, et al., 2010). A mere logo does not mean anything, with a weak BI (Figure

2.4-2). In their work, Budelmann, Kim, & Wozniak has adressed the BI recognition with 100 principles, under 34 categories (2010). These 34 categories include; imagery, color, dimension, simplicity, shape, story, process, production, trends, originality, and strategy.

Be that as it may, there are some companies that have spent extensively on their logo designs (Table 2.4-1). Surely though, these investments are not always for a mere logo change, but they are for *rebranding.* Rebranding is a marketing strategy which aims to move an established brand upmarket or give a fresh start that needs a new / differentiated identity through a change of logo, brand name, marketing strategy and advertising themes (Muzellec & Lambkin, 2006). Rebranding can be applied to the whole company; an ongoing project; an existing product or a whole product-line (portfolio). However, this strategy should not be considered if there is no need for it. Kapferer points out that Procter & Gamble Co., one of the world leading manufacturers of consumer goods, has rebranded one of their products in Germany that had been successful under a local name; *Fairy*, with their global name for the same product; *Dawn*, loosing approximately 60 % of the sales and wasted colossal investments to inform the name change (2008, p. 420).

> *Too often, a logo change is seen as a cosmetic, tactical choice, equated to changing out business cards. There can be a sense that either "we can change it later if we don't like it," or worse, that it generally doesn't matter much. Neither is accurate.*
>
> *Aside from the fact that a graphic identity can be very expensive to change (the production costs alone add up quickly), this way of thinking reveals a bigger problem. A graphic identity is a foundational element of establishing the promise of a brand in the minds of its customers. Changing a logo signals a change in the brand promise, and changing it on a whim risks eroding brand equity.*
>
> *(Budelmann, et al., 2010, p. 176)*

Figure 2.4-2 Logos. Brands. What's the Difference? (Budelmann, et al., 2010, p. 6)

To give an example, an extensive logo change, much less rebranding, is not very frequent in automotive industry, rejecting the minor changes in colour, addition/subtraction of the brand name or a 3D effect, which has been quite famous (Figure 2.4-3). However, graphics for model identification (the logo of a model(s)) may be updated or even changed from time to time. Surely, especially within the last decade, many brands have been sold to other car manufacturing groups (e.g. VW Group *aka VW AG*), but a total renewal for a logo does not happen frequently, nor a change in brand name.

On the other hand, Kapferer (2008, p. 16) refers to the results of a survey regarding characteristics of a strong brand in which, 'the strength of signs of recognition by the consumer (logo, codes, packaging) scored 39 out of 100, while brand awareness scored 65.

The very reason, I have stressed on the logo issue regarding BI is because, it is the one and only design feature that directly (explicitly) reflects brand on the product, ere product design. In other words, BI is more of a cognitive feature, than it is a physical one; it is personal experience, marketing strategies of the companies and our very own subjective ideas (perception) towards that brand which identifies a brand and logo is the physical representation of BI. Then, it is reminded and reconstructed/supported with a complementary VI.

Table 2.4-1 Top Ten Most Expensive Famous Logo Designs and Rebranding (Originated from Most expensive logo designs and rebranding of all time, 2013; 15 Most Expensive Famous Logos In History, 2013)

Company / Organisation	Sector / Industry / Institution	Logo	Rebranding Cost (Approx. Value)
Belfast City	Governmental		280.000 $
City of Melbourne	Governmental		625.000 $
LOCOG	London 2012 Olympics		625.000 $
PepsiCo	Food Industry		1.000.000 $
British Broadcasting Corporation	Mass Media		1.800.000 $
Australia and New Zealand Banking Group	Banking, Financial Services		15.000.000 $
Posten Norge	Postal Service		55.000.000 $
Accenture plc	IT services, IT consulting		100.000.000 $
BP plc	Oil and Gas		211.000.000 $
Symantec Corporation	Computer Software		1.280.000.000 $

Figure 2.4-3 Change in Brand Logos of Mercedes; VW and BMW (from top to bottom) over Years

2.4.2 *Visual Identity Essentials in Product Identification*

Let's assume that administration, marketing specialists and the design team fully comprehended the BI of the company. How do they physically reflect these on their products apart from the logo and more importantly; is visual representation really needed? Olazabal, Cava, and Sacasus (cited in Noble & Kumar, 2010) name physical features of a product as *trade dress* and support the idea that;

> ***Trade dress*** *is the application of various visual aesthetics (e.g., size, shape, color, texture) to build brand recognition and distinction without the use of logos or brand names (Olazabal, Cava, and Sacasus, 2005). Apple's product line shares common trade dress elements such as a minimalist yet stylish design philosophy, eye-catching colors, and organic shapes. Most consumers viewing an iPod device for the first time would be able to know it as a product of Apple Computers. Often, specific design features are associated with trade dress, from the distinctive grill of a BMW automobile to even the curl on a Dairy Queen ice cream cone.*
>
> *(Noble & Kumar, 2010, p. 646)*

In the previous subsection, we have pointed out that BI is not directly physical; it is VI creation that assist it to be so. If we turn back and remember how Budelmann et al. (2010) comprehended BI, we may well remember that, imagery, colour, dimension, simplicity, shape, story, process, production, trends, originality, and strategy are some of the essentials of BI creation. Surely not all of them are directly visible on a product, but, for instance, simplicity, originality, shape and colour are such traits that can be obvious in VI creation and can easily be used for product identification. Before moving on to these, we have to address theoretical framework examples on the subject.

Surely, we have mentioned aesthetics of a product, but very little thought has given to it. Candi (2010) developed a three-dimensional deconstruction method for design emphasis (Figure 2.4-4). These three dimensions are:

- *Functional Design:* concerned with utility and performance
- *Visceral Design:* concerned with appealing to human senses (Norman as cited in Candi, 2010)
- *Experiential Design:* concerned with message, symbols, culture, meaning, emotional and sociological aspects (Pine and Gilmore as cited in Candi, 2010),

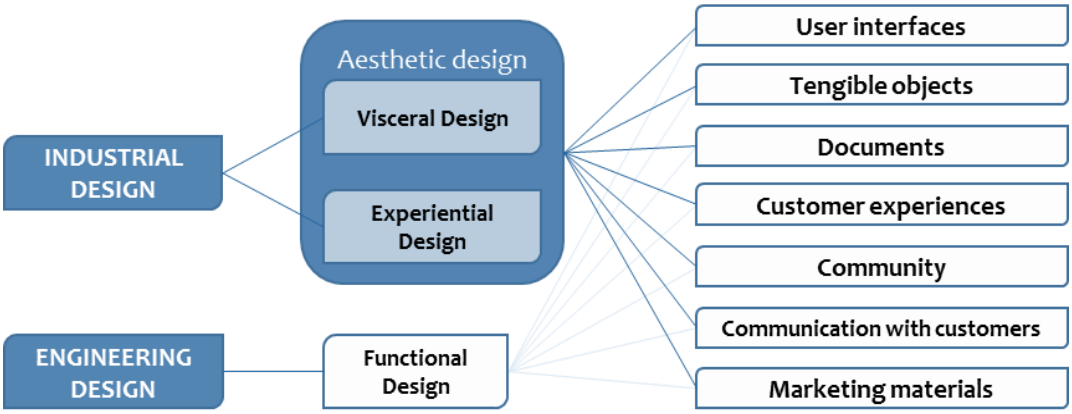


Figure 2.4-4 Framework of Service Aspects to which Aesthetic Design Might Be Applied (Originated from Candi, 2010 p. 1051)

Candi's work (2010), however, focuses on new service development thus; a wider approach, and it relates the success of this framework to effective marketing, publicity communication, and branding, which has been discussed regarding BI, so it is not merely concerned with product identification. Rest assured, user interface and tangible objects (e.g. logo, shape, simplicity, and originality) explicitly contribute to VI.

The explicit and the implicit design features/cues define the visual characteristics thus; VI of a product (Karjalainen, 2007; Karjalainen & Snelders, 2010; Zhou & Chen, 2009) which, in turn, linking VI and BI for product identification. In Zhou et al.'s work, there are three methods portrayed that can be applied in PI design in practice: (1) creating explicit product form features for recognition, (2) creating implicit product form features for recognition, (3) Function design surrounding brand core value (2009).

Alternating design features in a specific product, such as, product body shape (or edges as Zhou et al. points out), bonnet design, specific rims etc. are called implicit design cues. When these specific design features are used consistently in the entire product portfolio, they become explicit design cues. In other words, while an explicit feature may help

define BI (repeated over the entire portfolio), an implicit feature is likely to help define PI (Figure 2.4-5). If we put this in other words, each product will have implicit design cues to identify that product with a less influence on BI, while the explicitly conveyed design features throughout the entire portfolio, or repetition / evolutionary (not revolutionary) changes to it identifies brand. On the other hand, revolutionary changes could also help define the BI of a product, which, eventually, turns into an explicit feature of the brand regarding its constant revolutionary design approach *(see Section 3.3 for further discussion)*. If that brand is to abandon its revolutionary approach, than it may create confusion in a consumer's perspective, since the brand has left its former approach.

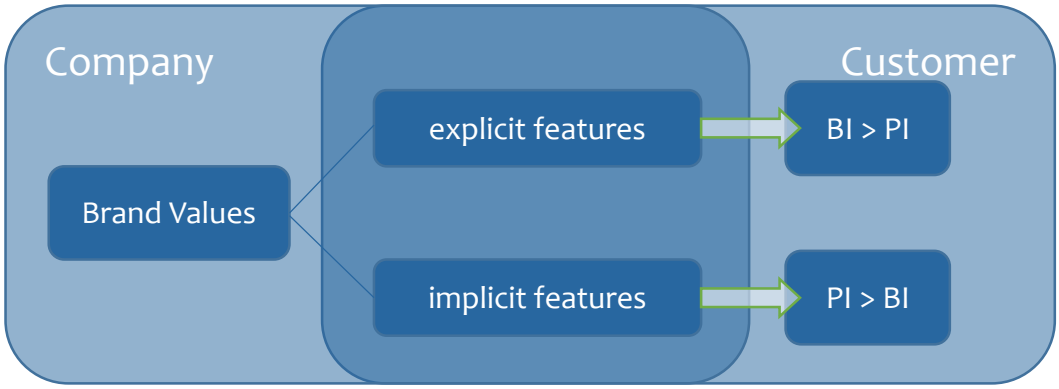


Figure 2.4-5 Conceptual Framework of Transference of Brand Values into Design Features for Product Identification

Kajaleinen et al. (2010) has done a case study on Nokia and Volvo design strategies under six principal design studies (Figure 2.4-6). Though, Nokia brand is not what it was used to be after emerge of high-tech touch screen display smartphones. They have observed and made a comparison between their philosophies, which in turn theoretically define character of their products. While Volvo relies on more consistency and explicit design features, Nokia has chosen a more flexible, in other words experimental, philosophy.

Although Nokia products have explicit features, as well as Volvo's products (Figure 2.4-7), Volvo has given more dominance to it (Figure 2.4-8)

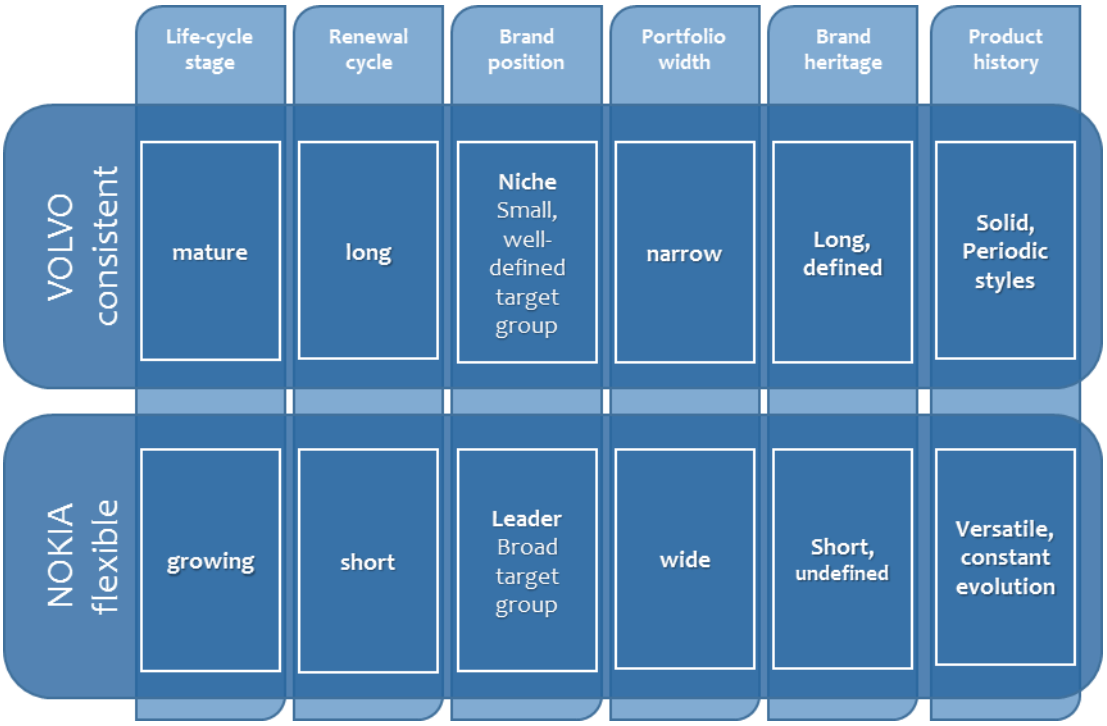


Figure 2.4-6 The Key Drivers behind Nokia and Volvo Strategies (Originated from Karjalainen & Snelders, 2010, p. 16)

Figure 2.4-7 The Evolution of the Early Nokia Design Features in the Late 1990s (Karjalainen & Snelders, 2010, p. 14)

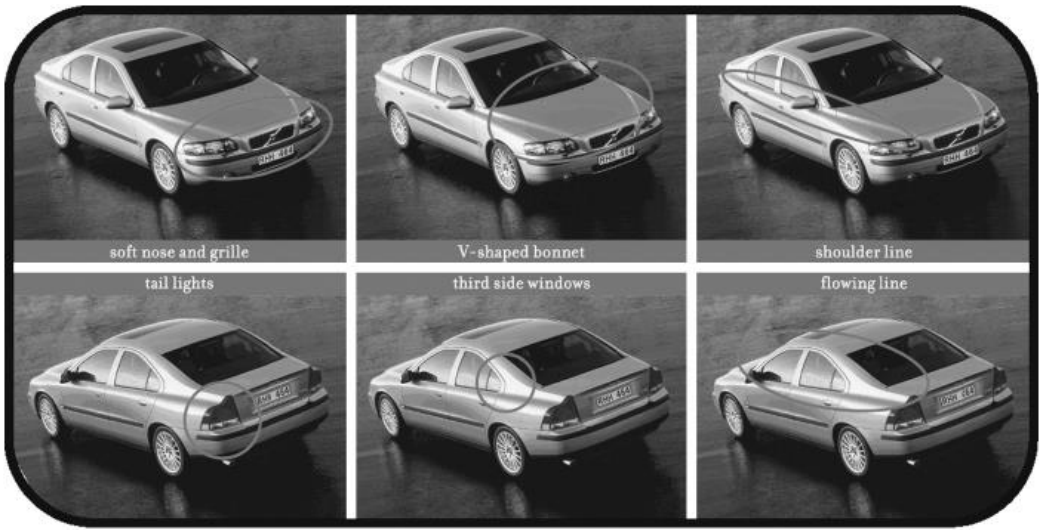


Figure 2.4-8 Volvo Design Features Represented in the S60 Model (Karjalainen & Snelders, 2010, p. 15)

One might argue that this comparison is somewhat irrelevant since each companies are from very distinctive markets, yet, in my opinion, this is exactly the point of the work, being; *'a product is a product regardless the market it serves'*. Also, a similar comparison can also be made between Apple products and Samsung products, in which, Apple would take Volvo's place, while Samsung would be playing Nokia *(see Subsection 2.4.3 for the comparison)*.

So, theoretically, a brand should decide which strategy is more suitable for their products to be recognised and, hopefully, accepted by the customers. When achieved, it is even harder to sustain or even statistically rocket the capital values in the market. Literally speaking, *New Product Development (NPD)* process has to be executed regarding; brand heritage; existing product portfolio and customer desires / complaints / likes.

2.4.3 *VBI Oriented Product Portfolio Creation and Product Life Cycle*

Rest assured, a brand recognition can be achieved/strengthened by successful marketing strategies and even relying on a single product, yet this is not an eternal state. Many works (e.g. Karjaleinen et al., 2010; De Mozota 2003; Kapferer, 2008; Aaker, 1996) have stressed the importance of product portfolio/line in different levels. Aaker points out that "*The power of a brand to extend itself depends on the breadth of product lines that can be related to the core brand identity in tens of the latter's value proposition and basis of relationship* (1996, p. 272)".

Evidently, portfolio management (PM) is important for brands. Not only it opens more space for explicit design features to be accommodated, but also its ability to reflect the goal of covering the market in terms of both volume and adaptability to changing behaviours (De Mozota, 2003). By doing so, it spreads the financial risks over multiple products. However, such as innovation, not all brands can enter every segment, nor they can / should enrich their product portfolio for more profit.

Moreover, product life-cycle also affects the design philosophy and, in turn, a successful design philosophy (that strengthens BI through explicit and implicit features, creates clear PI) helps to increase the longevity of the product (De Mozota, 2003) and/or visual brand recognition (Karjalainen et al., 2010). Product life-cycle is dependant to the maturity of the market. Karjaleinen et al. compare automotive and mobile phone industry regarding this dependant (2010). Since Mobile market was not well-defined at the time of the study, automotive market showed maturity, since segmentation was relatively well defined and almost each model of any brand had rivals from other

manufacturers. In other words the market standards and customer demands are well controlled and understood.

Apple Inc. has been trying to achieve such maturity in the mobile device industry by having started to alter the meaning of, specifically, *smartphone* in 2007. Although no empirical study or an academic framework has been found on Apple product portfolio strategy, it would be both illuminating and for the reason it will let us briefly understand the difference between a mature and immature industry. As a consequence, an overview on two leading mobile device manufacturers' portfolio strategies has been carried out. The portfolios are solely kept to the devices with touchscreen capability, omitting the other products from both brands.

While more complexity and flexibility is introduced with Apple iPhone's ground breaking operating system and inside technology, the overall design of the product (and the usage of the operating system which is known as iOS today), was very easy to recognise, relatively simple but explicitly original. The same design philosophy has been carried to brand's latter products, being, iPod touch, iPad, iPad mini, which eventually created iDevice product line (which includes, smartphones, tablets and touch-screen mp3 players) (Figure 2.4-9 and Figure 2.4-10).

Samsung Group has responded to this change in the market with its own *Galaxy* product line (Figure 2.4-11). Although, both brands has had different product portfolio strategies, both of them has become successful in terms of profit and, relatively, recognition. But in terms of VI, even with a few seconds of observing, Apple has managed to create a set of explicit design features (e.g. same size and shape Home button in the lower end of the screen in all devices regardless the size, identical curves on all edges of the products). It needs a more detailed research for understanding the design language of the Galaxy

products, since almost each product has a distinctive feature than the other (e.g. Changing size and shape of the Home button, edge design is not consistent except for some products), thus; creating a confusion in product identification, much less BI.

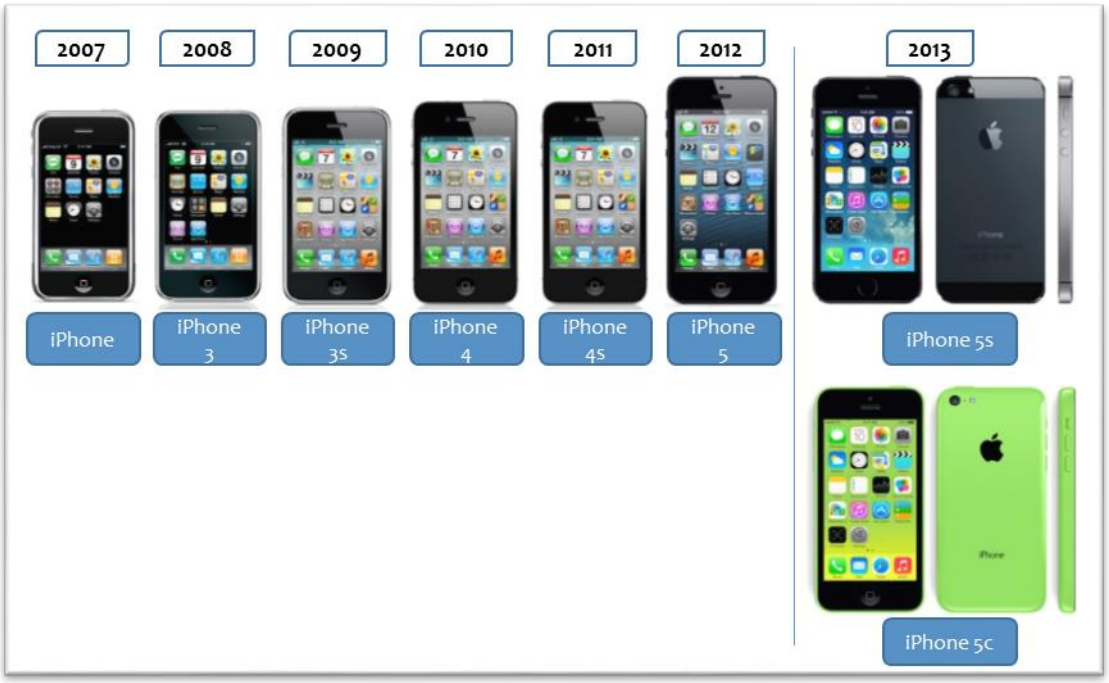


Figure 2.4-9 Evolution of iPhone Models (Pictures: Apple Inc., n.d.)

While Apple kept the size, variety and capability of their products to minimum (iPhone having a 4" and 4.5" display choice and latest 2 models with similar size but with different colour choices; iPod Touch having a 4" display size; iPad having two screen size choices: A 9.7" screen iPad Air and a 7.9" screen iPad Mini), Samsung product portfolio strategy provided a variety of products in the same category, thus covering more customers from different segments and answering a wider range of customer demands. However, it is Apple who dominates Forbes list of '*The Most Valuable Brands of the World*' with a 9-5

ratio with its rival Microsoft (2nd place) and beating Samsung (9th place) 7-2 ratio (Table 2.4-2).

Figure 2.4-10 Existing Product Portfolio of Apple iDevices (Pictures: Apple Inc., n.d.)

As the life-cycle stage, renewal cycle and brand position are interrelated with the maturity of the market, neither of these brands' product lines can be regarded as mature. However, with Apple product design philosophy PM strategy being more defined than Samsung's, Apple implicitly conveys such messages that creates an artificial maturity in consumer's mind. Not only this questions the literature, but it also allows the research to briefly address the differences, or similarities, between mature and immature markets. The PM strategy comparison between Apple and Samsung can be seen in Figure 2.4-12

As a consequence, product PM defines the life-cycle stage of the products and vice versa. Also, immature markets are inclined to choose experimental ways, when creating their product lines. Regarding the last comparison, Apple has found it earlier, while Samsung is still trying to define its explicit design features. In automotive industry, such features have been discovered decades ago (e.g. almost consistent geometries of a Porsche car for over 50 years, kidney grill of BMW cars, easily recognised shape of VW Beetles etc.) and market leading brand names have not changed as the way it happened in the mobile device industry (fall of Nokia and change of mobile device perception and introduction of new leading companies).

Figure 2.4-11 Existing Product Portfolio of Samsung Galaxy Series (Pictures: Samsung Inc., n.d.)

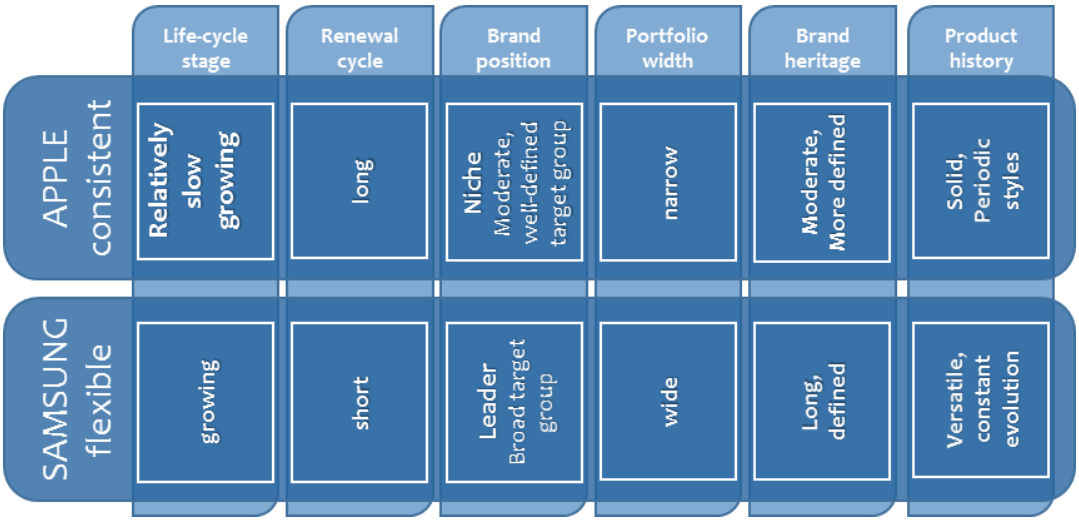


Figure 2.4-12 Overview on Apple and Samsung Mobile Device Product Portfolio and Design Strategies

Rank	Brand	Brand Value ($bil)	1-Yr Value Change (%)	Brand Revenue ($bil)	Company Advertising ($mil)	Industry
1	Apple	104.3	20	156.5	1,100	Technology
2	Microsoft	56.7	4	77.8	2,600	Technology
3	Coca-Cola	54.9	9	23.5	3,342	Beverages
4	IBM	50.7	5	104.5	1,339	Technology
5	Google	47.3	26	43.5	772	Technology
6	McDonald's	39.4	5	88.3	788	Restaurants
7	General Electric	34.2	2	132.1	-	Diversified
8	Intel	30.9	-4	53.3	2,000	Technology
9	Samsung	29.5	53	181.0	4,398	Technology
10	Louis Vuitton	28.4	16	9.4	4,211	Luxury

Table 2.4-2 The World's Top Ten Most Valuable Brands: Forbes 2013 (Badenhausen, 2013)

2.5 *VBI Framework and Objectives*

It is obvious that the work has avoided the use of '*VBI*' as a descriptive or illustrative object up to this chapter, but comprehended brand and design concepts in varying levels to explain how they are interpreted by professionals and companies. While PI creation is rather easier to achieve, telling the customer that '*this product is from that brand*' is a complex issue. That is the main reason why product PM plays an important role. Although the research background has shown that the breadth of the product portfolio of a brand has influence on BI and VI, not to mention its ability to spread the financial risk over variety of products through flexible use of features over different products, Apple's portfolio strategy literally interrogates the severity of wide and, thus, flexible portfolios. Is it breadth or cognoscibility of the product portfolio that leads to success?

Evidently, majority of the examples will support *breadth*, since design world is too big for every firm to be successful with a portfolio, such as, iDevice line. Personally, and with the latest changes in company's strategies, I believe that *cognoscibility* is a must, regardless how wide the portfolio is. However, this kind of approach leads products to look alike and constrict design richness. On the other hand, it forcefully supports a brand to be recognised through aesthetics. This phenomenon implicitly adds to, or subtract from, VBI.

In broadest sense, VBI is PI+BI. As it was stated before, PI had 2 major assets, being BI and VI, but it was also affirmed that prior to the creation of the product, the only design feature that directly comes from brand was merely the logo of that brand (the only explicit design feature that comes from BI). VBI, however, needs a few other products (thus; multiple product identifications: PI-1, PI-2… PI-n) with explicit design features

(with product portfolio strategy) so that it can re-define/enrich BI recognition. Moreover, each PI have, or should have, their own VI's (VI-1, VI-2… VI-n) (Figure 2.5-1).

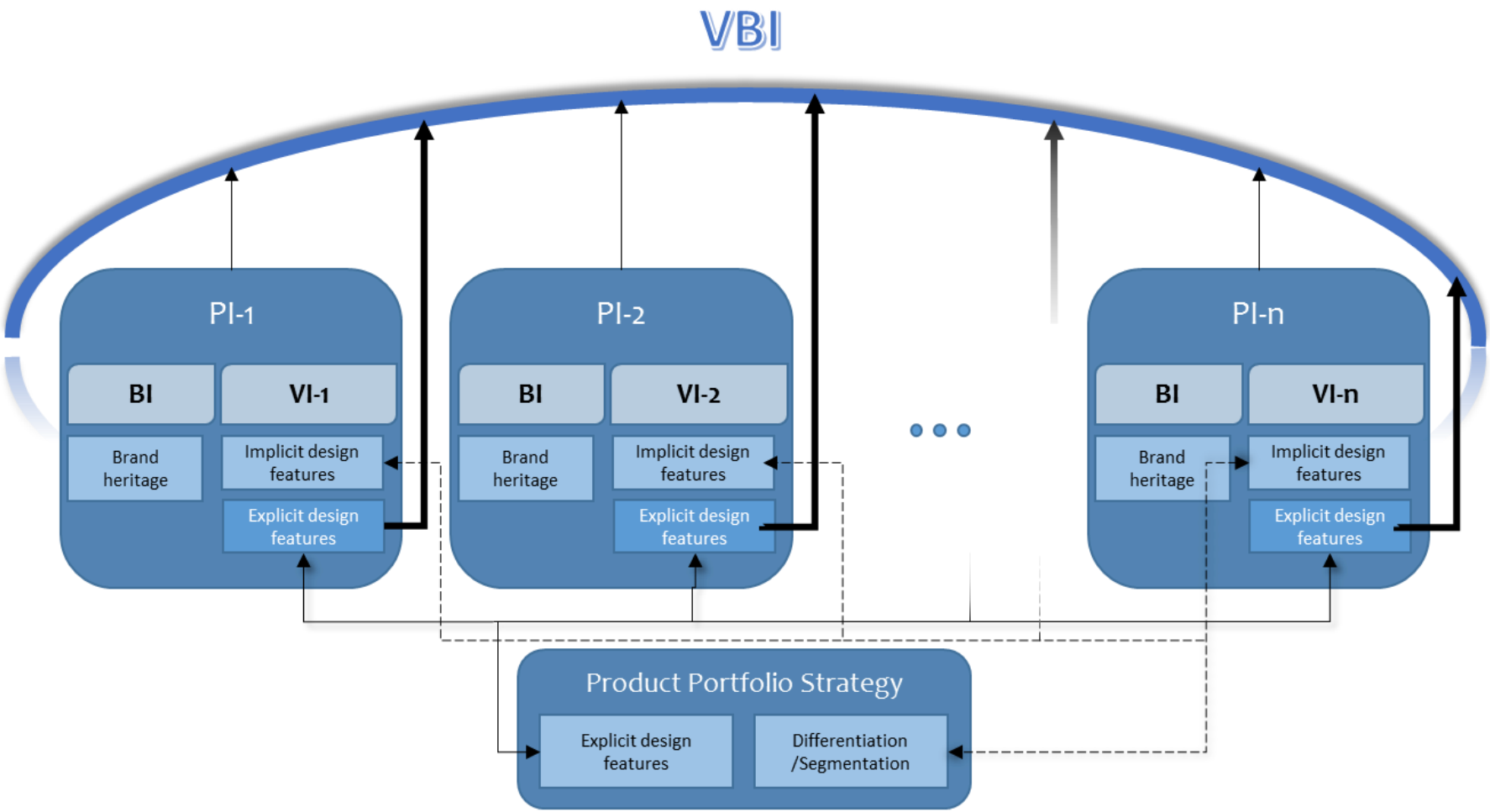


Figure 2.5-1 Conceptual VBI Framework

The more cognitional explicit design features are, the more convenient VBI recognition will get; the more implicitly the design features are, the more cognitional the PI gets (significant in automotive segmentation). This brings us to the product(s) design's influence on success;

> *Product design is an opportunity for differential advantage in the marketplace. A number of companies successfully focus on product design as a competitive tool. Several studies indicate the influence of good product design on commercial success. Yamamoto and Lambert (1994) showed that even for industrial products, appearance has an influence on product preference.*
>
> *(Creusen & Schoormans, 2005, p. 64)*

This shouldn't be interpreted as *the design needs to be good, but as design should be effective* to achieve VBI recognition. In a corporate environment, technically perfect designs don't always make the most effective outcomes, regardless the design awards they might have won (Phillips, 2004). This visual effectiveness is, as shown in the VBI Framework, can be achieved through the balance between PI and VBI, through the usage of explicit and implicit design features.

On a deeper level, however, obtaining a successful VBI passes through several primary phases, which, eventually, works as objectives for the task;

- Brand heritage should be considered and evaluated to see if it needs reinforcements or not (marketing strategies)
- Keep an in-house design team if applicable (better BI comprehension by the design team),
- Monitor the latest changes in design trends and check to see if design management needs external opinion/concept design/partnership,

- If brand equity is sustained, determine what kind of portfolio should the brand have,
- Monitor the customers' perception of brand and their opinions about the design language,
- Decide when to renew a product and when not to,
- Always monitor the brand position and decide which design character(s) define it,
- Focus on explicit design features for better BI recognition and, implicit design features for better PI recognition (segmentation).

3 AUTOMOTIVE DESIGN PROCESS

"Our educational system is like an automobile which has strong rear lights, brightly illuminating the past. But looking forward things are barely discernible.' - Hermann Oberth

Automotive industry has existed long before any brand or extensive design frameworks have been introduced. Introduction of the automobiles/cars, has altered the way we live and re-shaped our cities accordingly and an automobile is one of the few products that has not lost its main purpose. Not to mention its unyielding power of conveying the manufacturer's goals through physical design.

Before moving on to the case study, at least a broad approach on automobile design needs to be addressed. What are the primary steps of building a car? How mature is the automotive industry market? How companies comprehend VBI? What are the primary design characteristics of an automobile that creates VBI recognition?

There are two major concerns that I would like to address: Firstly, since *segmentation in automotive industry* is reasonably mature and has a long history, only today's approach and legitimate framework will be elaborated. In other words, the work won't propose an historical analysis of automobile segmentation. Secondly, majority of the sampling will be based on *Europe origin car manufacturers (aka European Automobile Manufacturers: EAM)*, such as; BMW, Mercedes-Benz, Audi, VW, Volvo, Opel (Vauxhall in UK; Holden in America), Lamborghini, Fiat, Ferrari, Renault, Citroën. Though, their design philosophies won't be held in detail such as VW models, nor all of them will be analysed design wise.

3.1 Product Development Processes in Automotive Industry

Automotive development process has been a complex issue for firms especially with the latest advances in technology, emerge of new automobile brands and customer demands. Not to mention the legislative limitations that demand lower emission vehicles and other environmental issues that affects the production process indirectly by

increasing the investments. Which basically has lead the industry to some standardisations. Although, the work will not elaborate on these concepts in detail, it is essential to briefly address their significance in the industry.

3.1.1 Historical Background of Automobile Manufacturing: An Overview

According to Costanze (2005), standardisation has reached its climax during Taylorism and Fordism. Following these movements two more distinct production paradigms have emerged, being Volvoism with its human-centered reflective model and Toyotism.

Fordism has lead the industry into the next step with its ground breaking concepts, which implicitly resulted to re-define segmentation by lowering working hours and increasing the wage whom are responsible for the automobile manufacture. With more spare time and increased wage, Fordism has given the opportunity, and an artificially created reason-to-buy, to the workers to own a car. In other words, the movement has altered the notion of *cars are for the rich people* (Thorns, 2002) This was a revolutionary step in automotive industry, not only with its cost-lowering standardisation techniques, thus, resulting with lower price tag, but also because it has included socio-economical side effects to increase the breadth of customer profile.

> *Taylorism supported and eased the introduction of Ford's system of mass production and subsequently the first production paradigm based on Taylorist and Fordist principles, evolved. Set by Industrial Engineers, standards are externally generated, are static and occupy a central place in this model. Time and motion studies, short and highly repetitive cycles characterise this model.*
>
> *(Costanze, 2005, p. 13)*

Following Fordism, Toyotism has followed the tradition, but with a new set of concepts and processes which distinct itself from its predecessor and it is the trend which dominates today's automotive industry (Costanze, 2005). Lastly Volvoism has

introduced the humanisation concept to the process, while German automotive industry has introduced highly automated production processes, which is known as *'automation'* today. (Costanze, 2005).

Surely though, this history of standardisations in product process development has evolved and even revolutionised over the past century and were adopted not only by the automotive industry, but also by other type of manufacturers. But what kind of processes involved in car building today?

Needless to say, the automobile is one of the most complex industrial products, which can be directly seen, touched and used (terminologically: *driven*) by the consumer. While an automobile would solely represent a travel agent, with its engine, 4 thin wheels and driver and passenger seats with an anonymous body shape in 1900s, today's automobile accommodates advanced safety systems, well-defined body shape, improved powertrains, complex interior design elements and entertainment and comfort systems. In his work, Warg (as cited in Wikimedia Foundation, n.d.) has mentioned the price of a Ford Model T. In U.S.A, the car used to have an 850 $ price tag in 1909 (equivalent to approx. 20.000 $ today). A Ford Focus costs between 16,810 $ and 24.400 $ (Ford, 2014) which makes it the successor of the company's ancient, yet legendary car: Model T in terms of price and target consumer profile. Figure 3.1-1 shows how dramatically the change in design has happened since then.

Figure 3.1-1 Comparison between Ford Model T (1909) (Pictures: Gathering No Moss, n.d.), and Ford Focus (2014) (Pictures: Ford, 2014) in terms of Interior and Exterior Design complexity

3.1.2 Physical Design Oriented Automobile Development Steps

Technically speaking, vehicle, in this case the automobile, today, embodies, materials and construction advances; structure and safety; powertrain/chassis systems and electrical and electronic systems (Fenton, 1999). Surely, all of these engineering and scientific advancements affect the face of the final product, limiting the design capabilities.

As briefly stated, automobile development process is a complex issue. There are 4 categories of development processes: Design Level; Design Content; Innovation Level and Options and Country Versions (Sörensen, 2006). Among the 4 processes, Design Level plays a crucial role for VBI recognition, since it is directly affecting the product's design character. These so called *effects* can be extensive or limited interventions and

are interrelated with the life-cycle of the product. Sörensen points out that a complete redesign of the product should happen within 7 years after release, since it is an industry-wide proven life-cycle period of a product (2006). However, in practice, the consistency of this timeline is somewhat unclear. Latest technological advancements in chassis design gave birth to adjustable/modifiable platforms to lower costs with their adaptability to multiple segments.

In addition to redesigning, there are two other types of levels; *derivative design* and *facelifts*. While derivative design would built on the existing platform with a renewed design character, leaving consumer unaware that the change is mainly, technology and feature based, and cosmetic to lower costs for the manufacturer, *facelifts* (existing model update) are mere cosmetic and feature based changes, which aims to (re)attract customers with lowest possible development costs (Sörensen, 2006). There is one other extensive level that includes alternative body types (coupés, SUVs, sedans, estates etc.), which Sörensen calls *Variant design (2010).*

3.1.3 Automobile Platforms and Model Lines/Families

Automobile manufacturers have been designing base-platforms to manage the design levels, which has been pointed out by Sörensen (2010). In the media culture, shared platforms are sometimes referred as *chassis; in fact, it used to resemble chassis.* However, the platform does not solely consist of chassis in today's industry culture: It may include other *behind the scene* technologies, infotainment systems, door frame, and powertrains/engines and also some other partially/fully exposed structural elements. All these features may or may not be directly exposed to the consumer, but day by day these exposures are becoming more apparent.

> *A platform is a shared set of components common to a number of different vehicles which may also belong to different brands. The target is, to get maximum differentiation between the cars of one platform while sharing a maximum of parts. Most niche vehicle projects such as roadsters or sports utility vehicles (SUVs) would not be economical without reusing an existing vehicle architecture.*
>
> *(Sörensen, 2006, p. 4)*

An article in Autoexpress (Jan 1999) (as cited in Hoyle, 2000) claims that, within ten years, only six vehicle manufacturers will be left. This factor is interrelated with marketing strategies, financial and company goals. Although building cars under same or similar platforms lowers production costs, as stated, it puts yet another limit to design language, thus, resulting identical products. This result is at its peak point in some VW Group models. (*See Chapter 5 for the case study on VW products*).

The Automotive Family Tree illustrates who owns who and who have partnerships with whom (Figure 3.1-2). Evidently, automotive industry shows a more discernible framework, when compared to other markets. No such tree or scheme could be retrieved from the internet regarding, for instance, mobile device market.

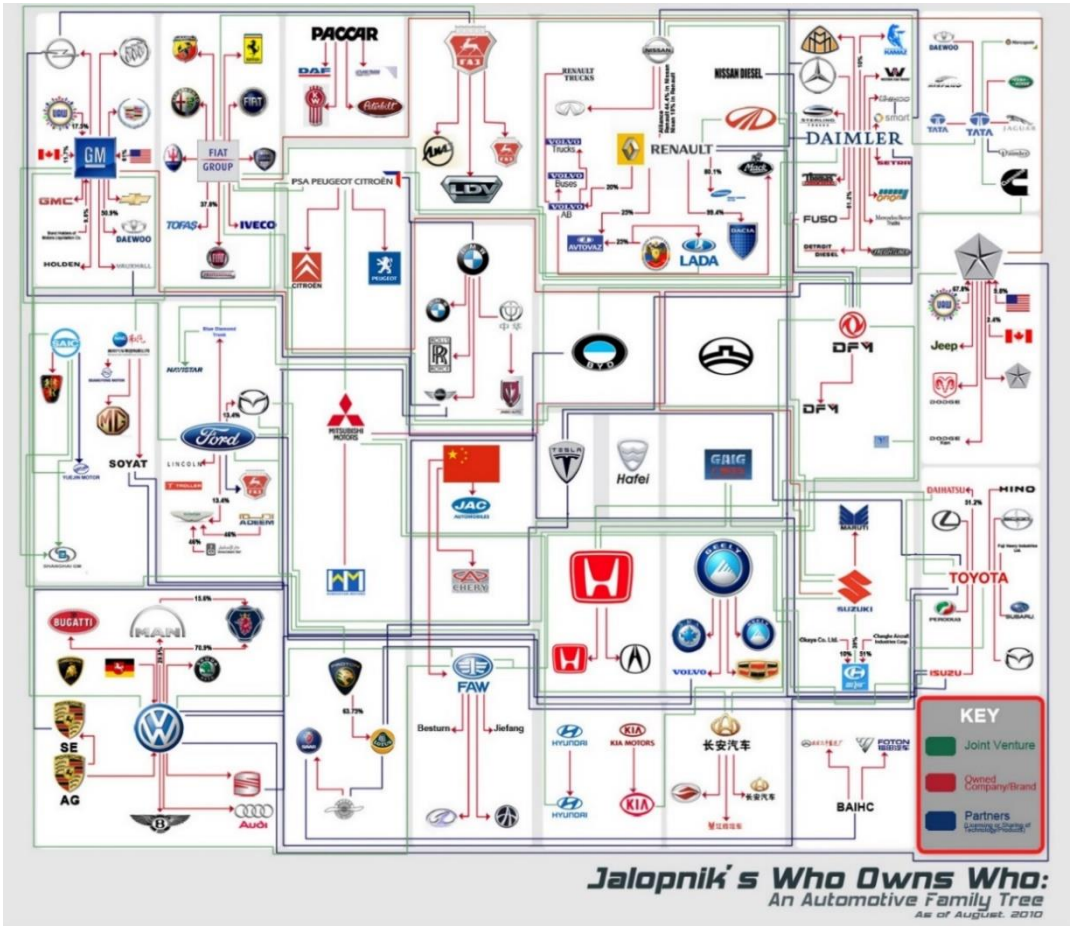


Figure 3.1-2 Automotive Family Tree, as of August 2010 (Damania, 2012)

Another example, in which two distinctive cars in the same segment share the same platform, would be, New Volvo V40 and current Ford Focus model. Both share the same platform, but including relatively less exposed elements when compared to VW Group rivals, with distinctive results. Although some safety features, driving characteristics are identical, overall design results are completely distinctive (Figure 3.1-3).

Figure 3.1-3 Overview of Design Difference between Ford Focus and Volvo V40 (Pictures: Ford, 2014; Volvo Cars, 2013)

Same platforms are also used within the model lines/families. A model line refers to a sub-family within the brand. However the resemblance within this family is somewhat more visible, since they belong to the same model (e.g. VW Polo-Polo GTI; Opel Astra-Astra GTC). A model of a brand is identified by two major assets; design elements (physical design features: implicit cues for PI; explicit cues for BI) and nomenclature: written and legal definition of a model. These two assets help define an automobile. While the design language signify VBI, nomenclature represents the model, which has been seen by the consumer and vice versa. A conceptual framework for model family definition could be based on words (e.g. VW Golf), digits (e.g. BMW 3), letters (e.g. Mercedes A) or combination of those (e.g. Audi A3). The same method applies to the in-model line distinction.

However, the in-model line distinction is also made by a complete name change, even though these models would be sharing the same platform (e.g. BMW 3 and 4 series; Audi

A4 and S4; VW Golf and Jetta). The nomenclature difference within the same model line could be based on some other secondary features;

- Car body types/shapes (e.g. sedan, estate, hatchback, coupé)
- Car body styles (e.g. sports model, comfort model)
- Specifications (e.g. equipment list, engine type/power)
- Eco friendly model emphasis (e.g. Opel EcoFlex, VW Bluemotion, Volvo Drive)

The industry-wide accepted written identification system is merely BRAND NAME (Who is the manufacturer?) + MODEL NAME (Which segment?). The nomenclature of brand/model and/or secondary traits are dominantly put in the front and/or on the back of the cars (Figure 3.1-4). Additionally, some of the secondary identification methods (especially car body type/shape and style) are becoming primary identification methods.

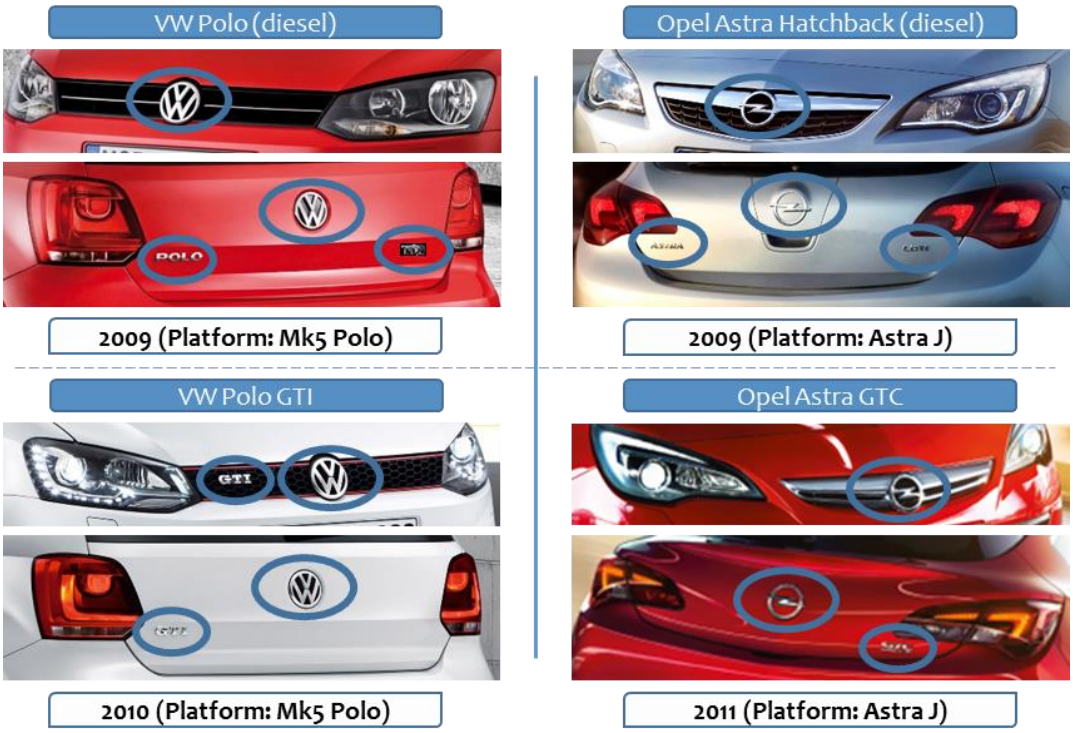


Figure 3.1-4 Automobile Nomenclature Example: Variation across Model Lines and Difference between Brands (Pictures: Automobiles Review, n.d.; Opel, 2012)

New BMW 4 series is a significant example for this, since it is the replacement of old 3 Series coupé (and most likely 3 series Cabriolet too). By this change, regardless the same platform they share, 3 series is representing a 5-door and a more casual model, while 4 series is representing the sports version of the same segment (Figure 3.1-5). Surely though, this change has been introduced with significant set of implicit design details between 3 and 4 series. Former to this latest model nomenclature change in BMW 3 series, BMW has been (and still is) using another nomenclature method for identifying the engine type/power with an '*M*' letter (e.g. BMW M3, M6, X6 M).

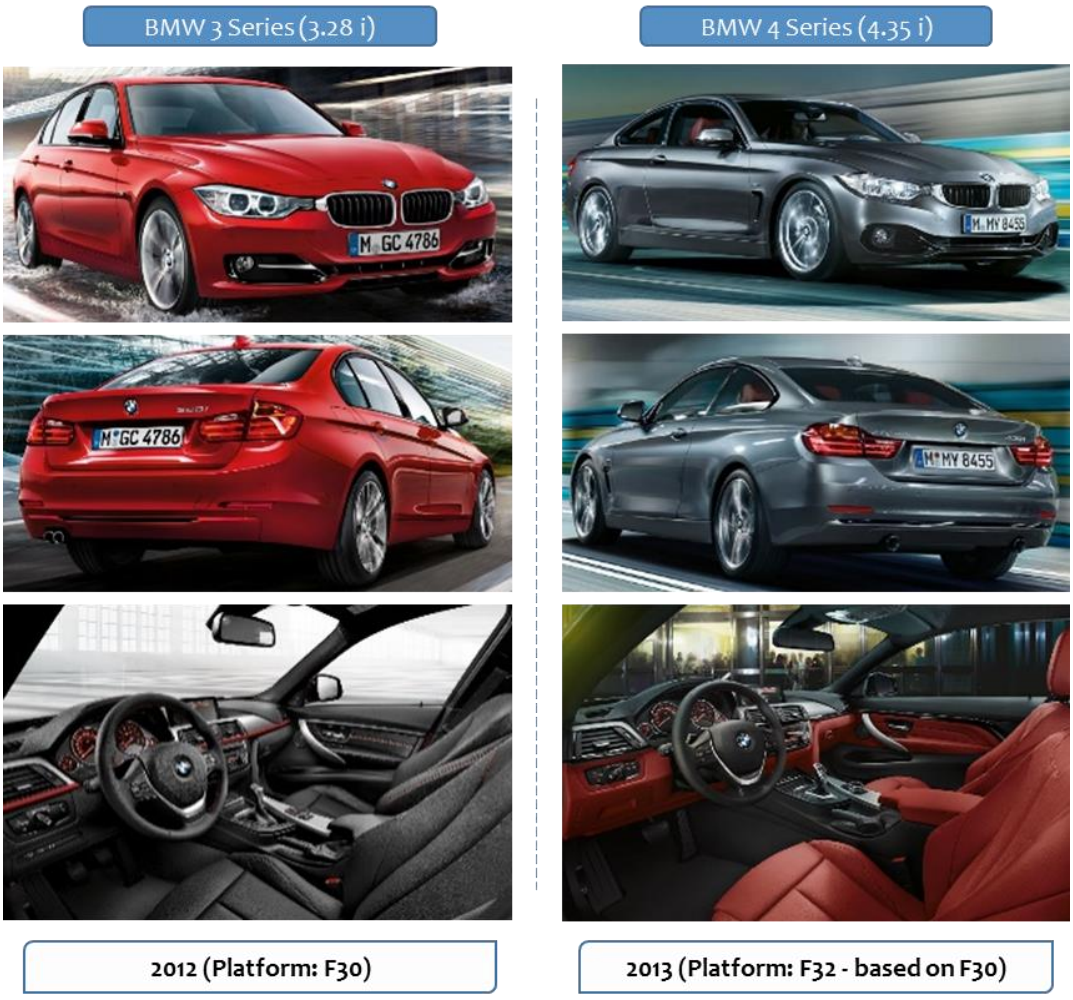


Figure 3.1-5 The New BMW 3 Series and 4 Series (Pictures: BMW, n.d.)

3.2 *VBI Definitive Physical Design Features in Automobiles*

A car has a very simple objective: getting its owner from A to B. After the introduction of multiple segments, thanks to Fordism, many automobile models, variant in size, shape, width and length emerged within a few decades, regarding the secondary purpose of the car: Who will drive it and who will be the passengers? This question will be regarded as *'WHO'* on forward.

Today's automobile market is so advanced and mature that it answers WHO question with variety of choices. In this section, we will address the existing segmentation methods of automobiles. Although segmentation affects the size and shape of a car, and even answers the WHO question to some extent, it does not give us the complete definition of an automobile in terms of shape and design. In order to answer these questions, car body shapes, styles and major exterior/interior parts that are used as tools by designers to emphasis on PI and VBI will be held separately.

Designers have been using some primary techniques in order to answer WHO question and fit the product into the correct segment. Since there is a long established and considerably well-defined segmentation in the industry, which is relatively easy for the consumers to understand, the work needs to address the segmentation methods. This plays an important role for VBI creation, since segmentation, as will be discussed, broadly defines the price range, car shape and dimensions.

Another issue is referring the parts of an automobile, including both exterior and interior elements. According to Macey & Wardle (2009), the anatomy of a passenger car consists of 33 components. Though, not all of them individually plays crucial role in the VBI process, much less car design thereof: Relevant parts/part combinations will be held differently regarding their role in VBI creation.

Consequently, this section is held in 4 different parts; 3 of them being direct VBI determinants, while segmentation is an external and considerably less sheer one.

> *The initial package should be kept as simple as possible. Only a few elements are needed to set up the basic exterior hard points. Just like a design ideation sketch, do not try to include every detail or solve every problem. The main objective is to get started.*
>
> *Fortunately, the bulk of a vehicle's proportions are established by only a few elements: the occupants, powertrain, tires, cargo storage, ground clearance and crash protection systems. These can be put together in a logical order, but expect to iterate the design*

continually. Try to think about which components will drive the package and which will be subordinate and why.

(Macey & Wardle, 2009, p. 28)

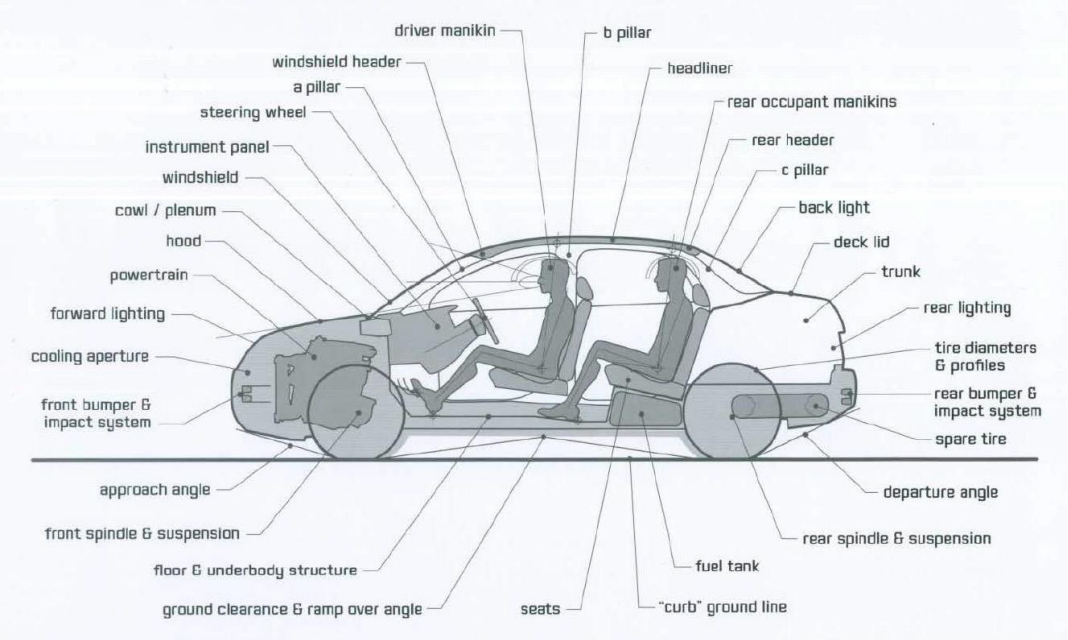


Figure 3.2-1 Anatomy of the Passenger Car Package (Macey & Wardle, 2009, p. 26)

3.2.1 Current Automobile Segmentation/Classification Methods

Today's automobile market is so advanced and mature, that it presents variety of choices, in terms of quality, engine power, interior space, technology and most importantly *price*. Excluding special editions or custom vehicles, a brand new production car costs (USA Market) between 11.000 $ (e.g. Nissan Versa) and 3.000.000 $ (e.g. Bugatti Veyron), including taxes (Braun, 2013; Gall, 2010). However, price is not the only segment/class determinant in today's automotive industry. Major determinants are;

- Dimensions (Width/Length/Height)
- Purpose (City cars, cruiser, off-road, racing etc.)

- Price range (purchase cost)
- Consumer Profile: WHO? (Age, socio-economic status etc.)

There are more than a few classification methods. However, the work will merely address two methods, which are widely regarded in Europe; *British* and *Euro Car Segment*. While a British classification method includes 21 segments (Felix Dennis, n.d.), Euro Car Segment has (European Comission, 1999) 9 different segments. Table 3.2-1 has been constructed to reveal VW Group product portfolio regarding segments.

Purpose and *Consumer Profile* factors are inclined to be more consistent, when compared to the other determinants. Sörensen stresses the importance having multiple models in different segments and refers to BMW's almost bankruptcy in late 1950's for not having any models in middle segments (2006). However, not every brand has a product portfolio that fills all segments at once (e.g. Opel, Citroën, VW does not have any models in E segment; BMW or Mercedes does not have any model below C segment; Bugatti or Lamborghini does not have any model other than super sports cars; S segment).

As we have stressed the importance of portfolio breadth for brand success and extension, it is no different in automotive industry. However, it is slightly altered within the industry. In today's culture, what really matters is not based on entirely the portfolio breadth of a brand, but it is important to address as many segments as possible, regarding brand equity and heritage, as a *group.* That's one of the factors, why niche and super sport car manufacturers, as well as some other less significant manufacturers that appeal to relatively lower income groups, are (partially or fully) owned by powerful companies, thus; creating auto groups (e.g. VW Group houses Bugatti and Lamborghini; Renault houses Dacia), in order to sustain group wide segmentation logic.

As seen in the table, The British Classification offers two segments that fall under the S segment of the Euro Car Segmentation method; convertible and roadsters. Additionally, S Segment may also refer to the coupés (2 or 3 door models) and other super sport cars. To give some examples, VW Scirocco, Opel Astra GTC, Polo GTI, BMW 4 Series are considered S segment cars, thus; creating confusion to comprehend the S segment range. To prevent this confusion, the work has addressed sports version of, for instance, VW Polo as a B Segment model. It is highly unlikely to see a comparison between a Polo GTI and Lamborghini Aventador, since their purpose, price range etc. does not share any similarities, regardless the fact that they are both sports oriented and considerably fast cars. As a result, the classification is partially reconstructed in terms of equivalent rival models.

Table 3.2-1 Current Automotive Segmentation/Classification Methods in Europe

British Classification	Euro Car Segment	VW Group Brand/Model	Example Rivals Brand/Model
Microcar	A-Segment	VW Up!, Seat Mii, Skoda Citigo	Ford Ka, Citroen C2
City car			
Supermini	B-Segment	VW Polo, Audi A1, Seat Ibıza, Skoda Fabia	Ford Fiesta, Citroen C3
Small family car	C-Segment	VW Golf & Jetta & Scirocco & Beetle, Audi A3, Seat Leon, Skoda Octavia	Ford Focus, Citroen C4, BMW 1 Series, Mercedes A Class
Large family car	D-Segment	VW Passat, Audi A4, Skoda Superb	Ford Mondeo, Citroen C5, BMW 3 Series, Mercedes C Class
Compact executive car			
Executive car	E-Segment	Audi A6	BMW 5 Series, Mercedes E Class
Luxury car	F-Segment	VW Phaeton, Audi A8, Porsche Panamera	BMW 7 Series, Mercedes S Class
Grand tourer		Bentley Mulsanne	Rolls-Royce Phantom
Super car	S-Segment: Dominantly Sports cars	Audi R8, Bentley Continental, Bugatti Veyron, Lamborghini Aventador, Porsche 911	Ferrari 458 Italia, Mercedes SLS Class
Convertible		Bentley Continental GTC, Porsche Boxter & 911	BMW Z4, Ferrari California, Mercedes SLK Class
Roadster		Audi R8 Spyder, Lamborghini Aventador LP 700-4, Porsche 918 Spyder	Ferrari 458 Spyder,
Mini MPV	M-Segment: Multi purpose cars		Ford B Max, Opel Meriva, Citroen C3 Picasso
Compact MPV		VW Golf Plus & Touran, Seat Altea	Ford C Max, Citroen C4 Picasso
Large MPV		VW Sharan, Seat Alhambra	Ford S Max & Galaxy, Opel Zafira Tourer
Van		VW Caddy & Transporter & Caravelle	Ford Transit Connect & Turneo Custom
Minibus			
Mini 4x4	J-Segment: Sport utility cars, including off-road vehicles		Ford EcoSport
Compact SUV		VW Tiguan, Audi Q3 & Q5, Skoda Yeti	Ford Kuga, BMW X1 & X3, Mercedes GLK & GLA
Large 4X4		VW Touareg, Audi Q7, Porsche Cayenne	BMW X5, Mercedes M & G
Pick-up		VW Amarok	Ford Ranger

3.2.2 *Car Body Shape and Style*

The primary layout of a car consists of 3 major boxes: engine, driver/passenger compartment and cargo compartment (trunk). In other words, a car consists of 3 separate boxes, which is also referred as *box styling* (Car Design News, n.d.). However, the emphasis of these boxes varies regarding WHO question and the segment of the automobile that is to be designed. While a single (one) box styling may be seen most likely on A segment or M segment cars, communicating extra size and volume (Car Design News, n.d.), two box styling may be much more visible on B or C segment hatchback cars, communicating style and sportiness.

If we turn back to the *Ford Model T* layout, we will realize that, it has two distinguishable boxes: the longitudinal engine box and the passenger compartment including cargo space, thus; it is one of the very first and significant examples of two box styling. So, disregarding former anonymous shape of cars, we can claim that the definition of car shape has started with two box styling. It was a few decades later when sedan cars has been introduced with three box styling, communicating more cargo space, and in today's culture, it is one of the key elements of being luxurious. B, C, D, E, F, S segments provide three box styling for obvious reasons and today, none of D and E segment cars are designed in two box styling, except for estate/station wagon versions and/or sports models.

Surely though, this primary styling technique tells us the abstract of an automobile. The next level proposes 5 distinctive body shapes, disregarding the cross-body shapes (e.g. notchback). These body shapes are best known as: hatchback, sedan, station wagon, MPV and SUV. Matt Watson, one of the most famous car reviewers in the world, refers

to British segmentation method during the video reviews. Whereas, their website[3] proposes another classification under 9 different body styles (Figure 3.2-2) (Felix Dennis, n.d.). While the segmentation is used to compare the automobiles of different manufacturers, as well as pricing range, the body style classification simplifies the navigation of car model relevant to their needs. Technically speaking, micro cars are merely smaller versions of hatchbacks; mini MPV's are smaller variants of MPV body shape; Coupé and convertible (cabriolet) features can be applied to a sedan or hatchback body shape (they have 2-3 doors instead of 4-5 doors). On the other hand, some firms have started to distinguish these body styles, especially coupé and cabriolet, in terms of identification. The BMW 3 and 4 series, as we have mentioned, is a solid example for this. Figure 3.2-3 illustrates the box styling-segmentation-body shape relationship.

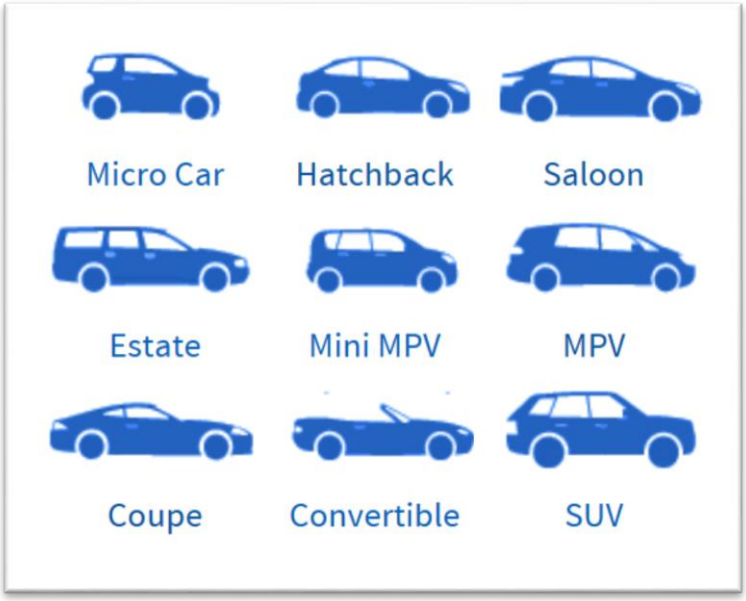


Figure 3.2-2 Car Buyer's Body Style Classification (Felix Dennis, n.d.)

[3] www.carbuyer.co.uk

As mentioned before, euro car segmentation considers coupé and cabriolet cars under the S segment. For the reason that VW Scirocco is not comparable to Lamborghini Aventador in many ways (size, price, and cargo and passenger capacity), Scirocco and its equivalent rivals are considered as C segment coupés in this work.

Lastly, there is another debate going on in practice about what *coupé* means, since some sporty SUV's, despite the fact they have 5 doors, have started to be called 'Cross Coupe's (mostly concept cars) or 'Coupé SUVs (e.g. BMW X6). Figure 3.2-4 illustrates the relationship between body shapes and styles.

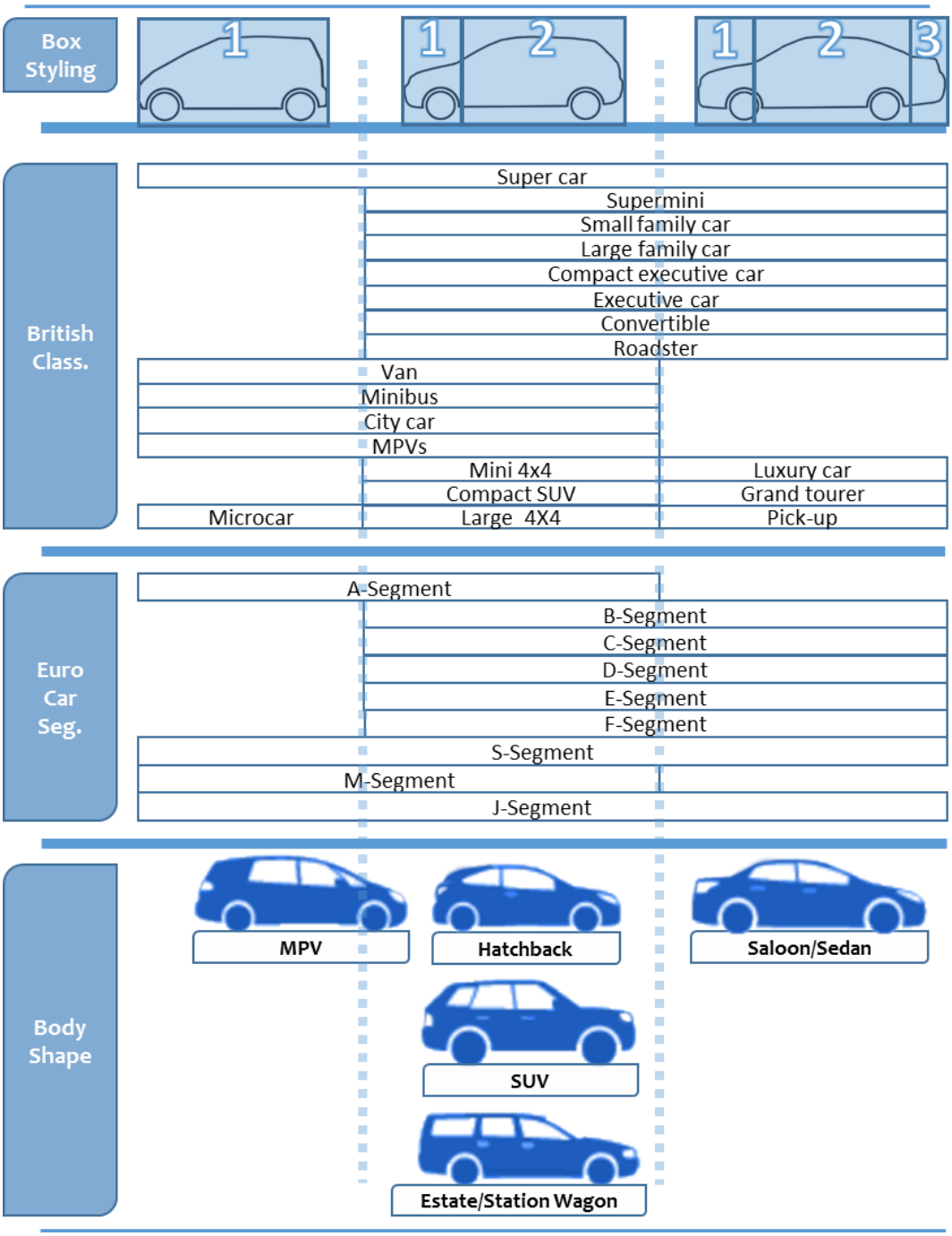


Figure 3.2-3 Relationship between Box Styling, Segmentation and Car Body Shape

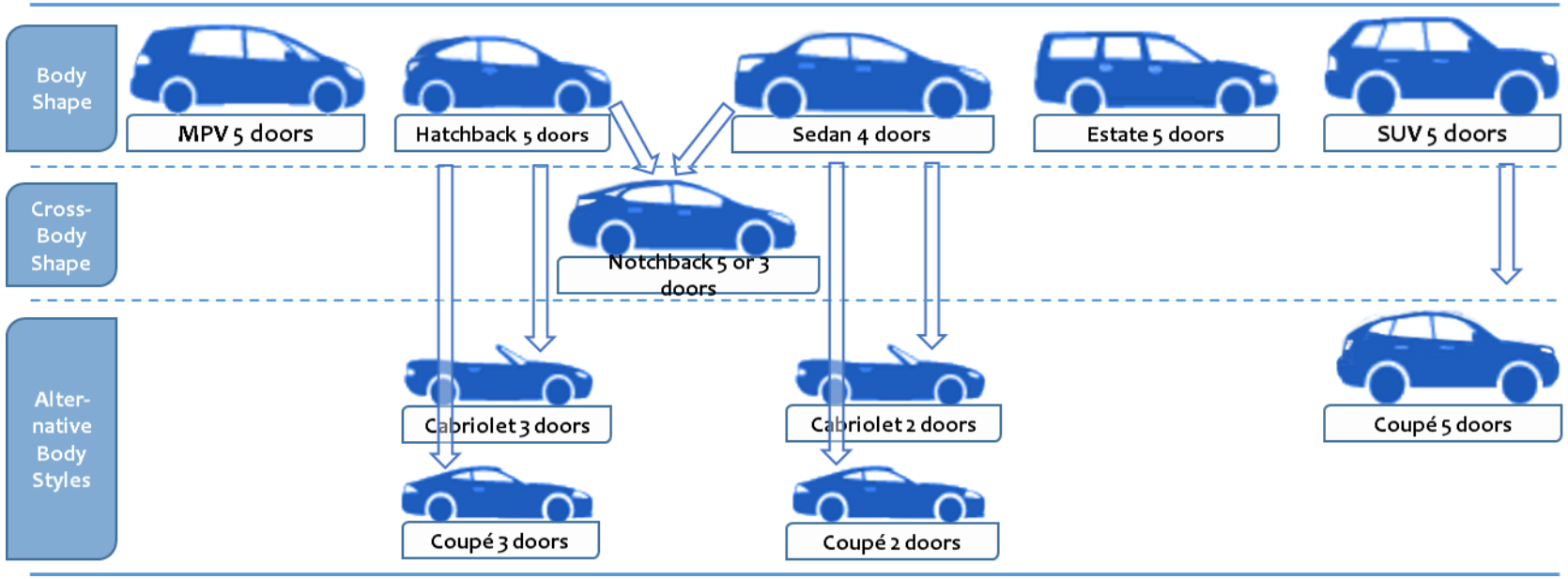


Figure 3.2-4 Relationship between Body Shapes and Body Styles

3.2.3 Exterior Car Body Design Elements

Exterior body styling or exterior car design is the most important level of VBI creation. As mentioned, comprehending each car part to define car design is somewhat irrelevant, which is why, the work will address car design from a simpler yet more defined perspective to be able to address VBI. This kind of perspective can only be achieved through intellectual knowledge of automotive design, awareness of main design features, which are constantly repeated as elements by different manufacturers and criticised by design enthusiasts and critics. No matter how complex the process really is, consumer perspective *IS* much more simple, yet cruel.

Claiming exterior design as the most important level for recognition does not need any academic knowledge. Every automobile brand website display their products starting with the exterior design; every car commercial emphasis on exterior design and most of them reserve most of the runtime for exterior design; almost every car critic primarily display the exterior design of the car; any car model googling results in more exterior design pictures.

Manufacturer logo, grill, bonnet, bumpers, head light, rear light, bonnet, rims, steering wheel, dashboard, interior design details, overall body shape, variant design (coupe, cabriolet etc…) determinants and many more seem to define a car design and reveal the language to the consumer. Since the work will not be proposing an internal company strategy, and apply an external comprehension of VBI creation, it is divided into 9+1 parts (+1 meaning the car body shape from the previous subsection) (Figure 3.2-5).

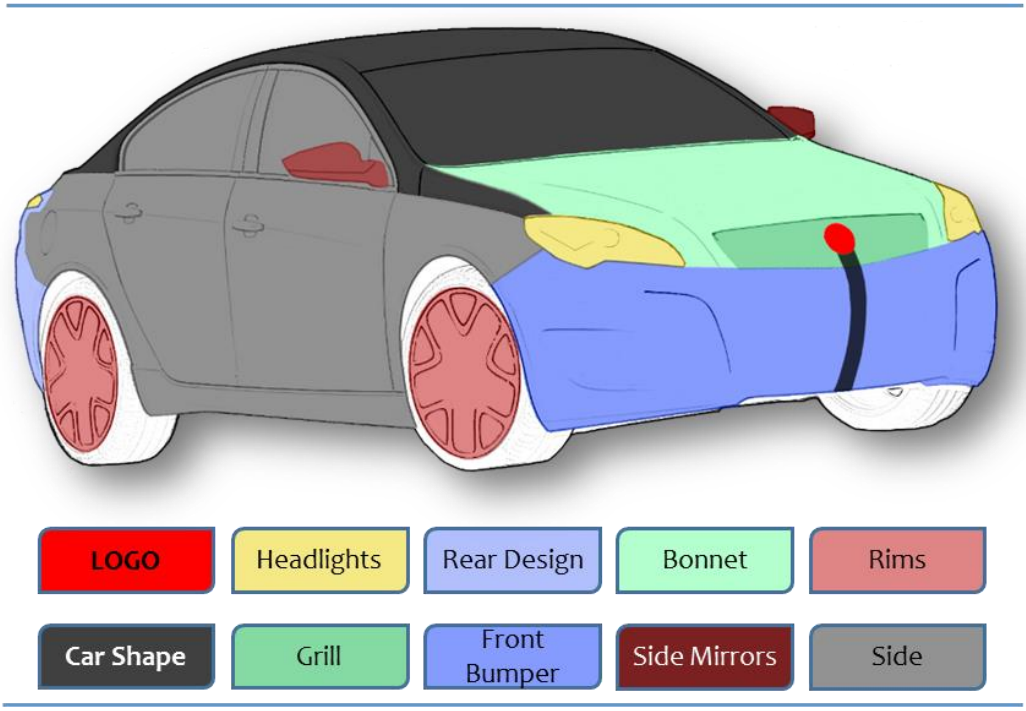


Figure 3.2-5 Exterior Car Design Elements for VBI/PI Recognition

The background research and intellectual knowledge has lead separation of some parts and/or group of parts in order to facilitate the VBI recognition, and used as a primary VBI recognition tool in the case study. In the recognition process, the front of the car is the most dominant portion. Since there are 2 headlights and a curved bumper, and grill, it may be interpreted as a *human face.* Headlights working as the *eyes;* grill and bumper as a *nose* and *mouth;* and side mirrors as *ears.* In other words, the product is figuratively staring at the person who is observing it.

Even though the research won't address the gender issue in design in academic level, it is essential to stress on the fact that, some combination of design features conveys *femininity* and *masculinity.* However, consumer perception can be somewhat subjective and maybe even far off the designer's intentions. Car reviews, magazines or electronic

sources, generally do not directly refer to gender issue, but it is likely to catch the phrases '*shoulder'* and '*muscular'* in the same sentence. These two definitive phrases are used to emphasis on the *side* of the car, specifically the outlying parts of tires. The side window proportions may define spaciousness or sportiness; *Rims* work as complementary design details, figuratively speaking, as *jewellery*.

Rear design is another important part of the car, however it is not divided into parts in the framework as front of the car. This part of the product is generally more signified in super cars to emphasis on the power of the engine (which is on the back/middle of the car for better weight distribution) and, evidently, the part which is intended to be gazed at by other drivers after they are passed by.

Logo is the only design element that is always explicit, while all the other nine parts could consist of explicit and/or implicit features, regarding the designer's and/or company's strategies. It is arguable to consider grill as an ever more explicit feature, but it is suffice to claim that *at first gaze*, it is intended to signify VBI than PI. Within this point of view, almost any part of exterior design elements can be considered as explicit features at first gaze.

While the headlight shape and rear design of the car are PI features, than they are of VBI, there are some noticeable details that are identical in the entire product portfolio of the firm. Car body shape is generally dependant on the segment and/or *WHO,* but, for instance, Porsche uses an identical overall body shape as a VBI tool, since it is reproduced in the entire portfolio.

3.2.4 Interior Design Level

A vehicle is one of the few products, if not the only one, that a person can experience the inside of it. Quite frankly, one might argue that a similar claim can also be made for mobile phones, considering the physical design as the *outside* and the graphics of the operating system as the *inside,* or a computer chassis. Physically, none of the two portrays VBI, as it is on (in) an automobile.

For the consumer, interior design is the second and definitely the last level to experience the product in terms of VBI recognition. Surely, designers also put thought into engine covering cases to convey other supporting messages about BI and PI, but it is not a potent factor that contributes in VBI creation. Figure 3.2-6 illustrates the interior design levels for VBI recognition.

Brand logo, as it was in exterior design level, is an explicit feature. Additionally, primary controls; steering wheel, handbrake and gearbox layout has become an ever more explicit design feature within the last decade. Moreover, with increasing technology, secondary control units have also started to become an explicit element amidst manufacturers. Actually, apart from the dashboard layout, almost any feature has become an explicit cue for the entire product portfolio. Surely, overall interior design at first gaze has always been explicit but even with more complexity in details, the designers have managed to create such atmosphere to equally emphasise on PI and VBI. The quality of materials, spaciousness, and complexity of infotainment systems and dashboard layout are the main determinants of PI. These claims will be enriched within the case study, since each brand has their own design philosophies and need more detailing to support the claims.

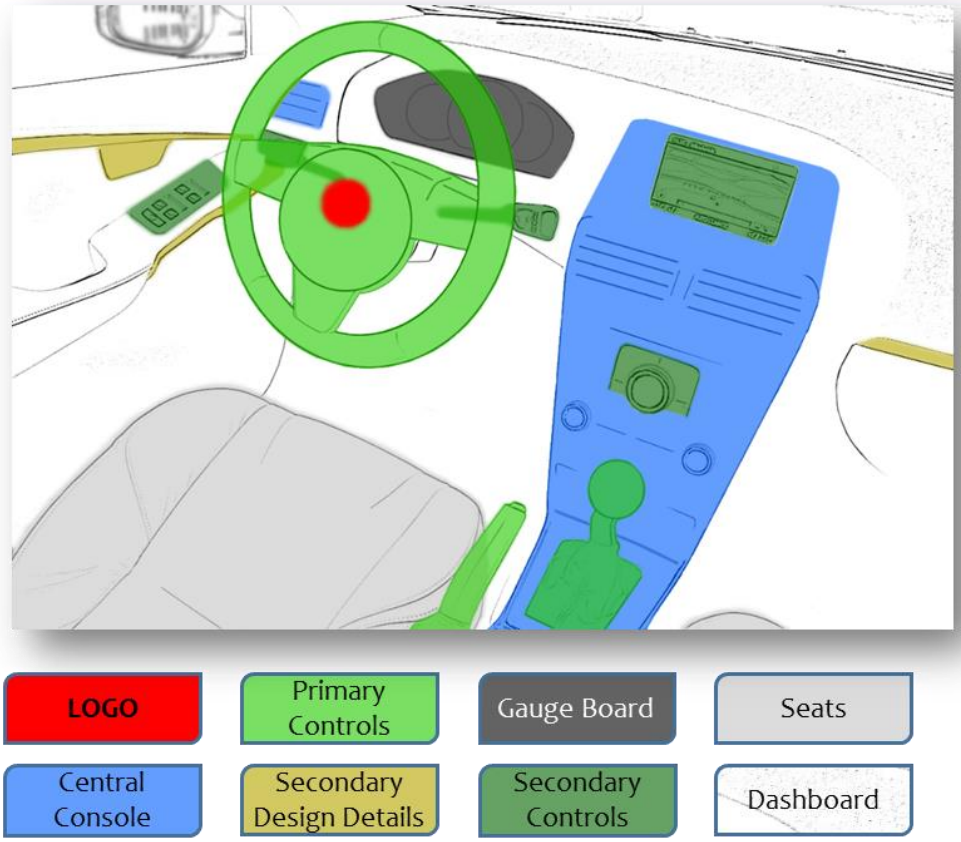


Figure 3.2-6 Interior Design Elements in terms of VBI/PI Recognition

3.3 *Design Philosophy of* European Automobile Manufacturers: An Overview

Before moving on to the case study, we will broadly address how European automotive industry handles product design, in order to achieve VBI recognition. Moreover, to exemplify what has been discussed in the following sections of this chapter, some brands and/or car models will be pointed out.

If we turn back to Subsection 3.2.2, we will notice that a car body has 3 main overall shapes: one; two, and three box styling and the next level includes five distinctive body

shapes, rest portrayed shapes being other variations of the main five. Simply, there exist only 5 different *shell* designs.

In his work, Tumminnelli (2004) has analysed the car design trends throughout the history and categorized those trends in time intervals. He has exemplified every *trend category* starting from the pre modern era (around 1950). Since this is not directly related with the work's scope it is not included in the main body of the text. Supplementary diagram can be found in Appendix A.

3.3.1 Design Philosophy Character in European Automotive Design

Regardless the origin of the manufacturer, the design team is the last resort, in which the design language of the product(s) is determined. While executing the design objectives, the outcome can be observed on the mere product and the product line. Since there is a long history behind the majority of the products within the industry, the design progress of a product can easily be observed. The same observation can also be made for the product line/portfolio. Not only to see the resemblance/diversity of the products, but how the brand has contributed to the industry.

Broadly speaking, VBI creation is created with multiple products. However, each successful manufacturer has an iconic model that is likely to lead the product portfolio to create that VBI. In this context, the segment of the product that is expected to *symbolize* the VBI plays an important role for brand equity. As mentioned before, not every brand can compete in every segment. In other words, the NPD process and its application on *WHICH* product plays a crucial role for the brand. Brand heritage, as Karjaleinen et al. (2010) pointed out, is a contributing factor for the determination of the

product, and design language in automotive industry by exemplifying Volvo to emphasis on *Scandinavian design* and *safety* on their design philosophy.

> *A between-company analysis of design and brand PM led to the identification of a number of factors that drive a company's strategy for visual recognition for the brand. The existence of these drivers implies that there is no simple recipe for creating visual recognition of the brand. Instead, the design effort of the two companies (**Nokia and Volvo**) for the creation of visual recognition was based on a continuous renewal of the connection between brand value and design features. This renewal can sometimes be **revolutionary** and highly consistent and sometimes **evolutionary** and multifaceted, depending on the type of company and the market it is serving.*
>
> *(Karjalainen, 2007, p. 20)*

Design philosophy character can be observed within two different levels, under 4 categories. While an NPD process can be evolutionary or revolutionary, the overall PM and BI can be interpreted as conservative or progressive (Figure 3.3-1). As it is portrayed in the figure, conservative PM (PM) and evolutionary NPD process features more explicit cues, while progressive PM and revolutionary NPD management features more implicit cues. If we were to exemplify the levels and categories;

- **Conservative PM:** e.g. no change in nomenclatures, no change in portfolio breadth, and repetition of significant design features over the entire portfolio.
- **Progressive PM:** e.g. change in nomenclatures, change in portfolio breadth, segment signifying design features over the entire portfolio, less explicit design cues between products, major VI differences between products.
- **Revolutionary NPD:** e.g. Major visual changes to the preceding model, nomenclature change to the preceding model, re-segmentation of the product.
- **Evolutionary NPD:** e.g. Minor visual changes to the preceding model, no change in nomenclature, continuation of explicit design cues of the preceding model, long product life-cycles.

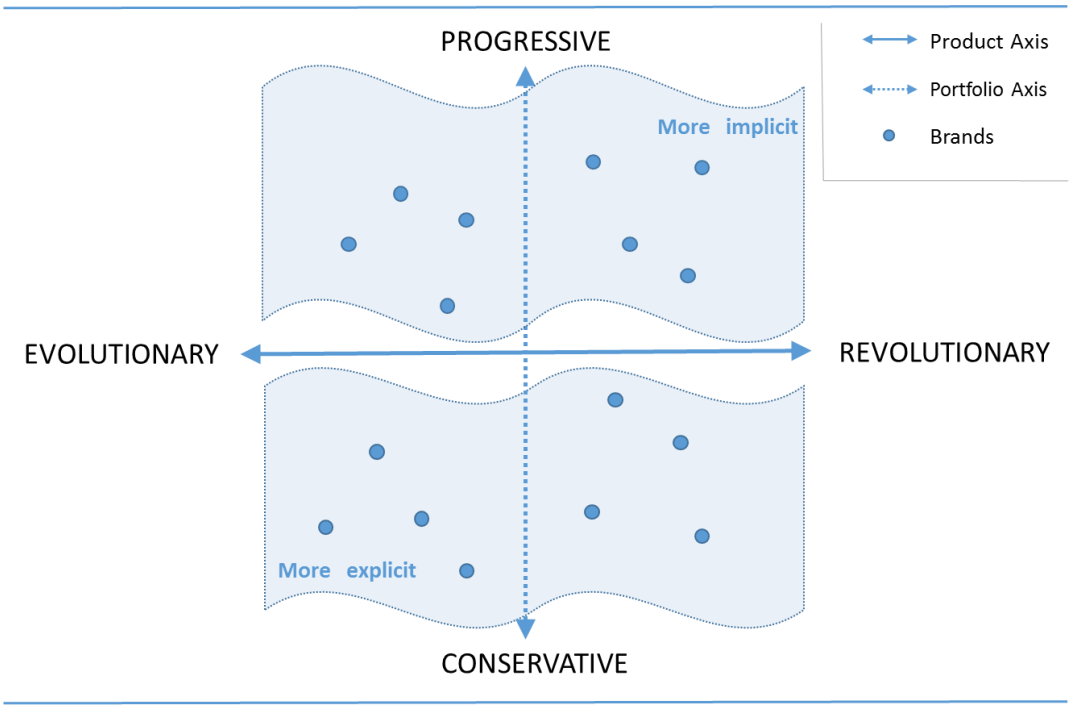
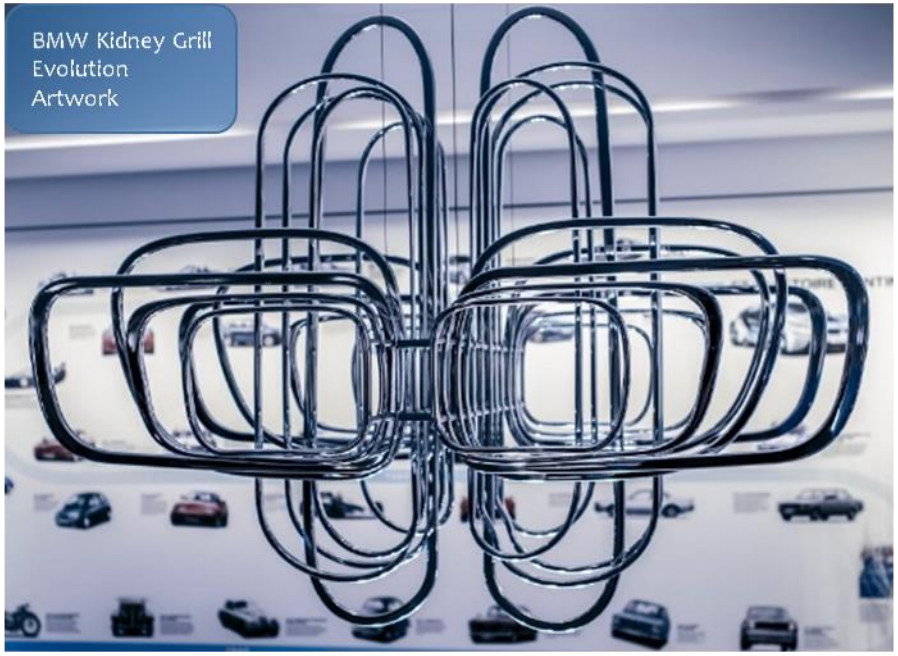


Figure 3.3-1 Design Philosophy Character in Terms of Product Design and PM

3.3.2 *Automobile Brands in terms of Distinctive VBI Elements*

As it has been constantly emphasised, VBI recognition needs repetition/reproduction of at least a few design elements in the entire portfolio and/or NPD management, in order to achieve brand related design cues that attract the consumers. By using the VBI definitive exterior and interior design element frameworks, a few salient design features from different manufacturers have been given in the following figures. The same method, along with other illustrated VBI frameworks, will be executed in the case study.

BMW has been reproducing **kidney grill** design feature on the front starting from 1930s on their products. Moreover, their **brand logo** has not seen any extensive rebranding since 1954. Both are officially specific to all models and have become strong VBI features for the brand.



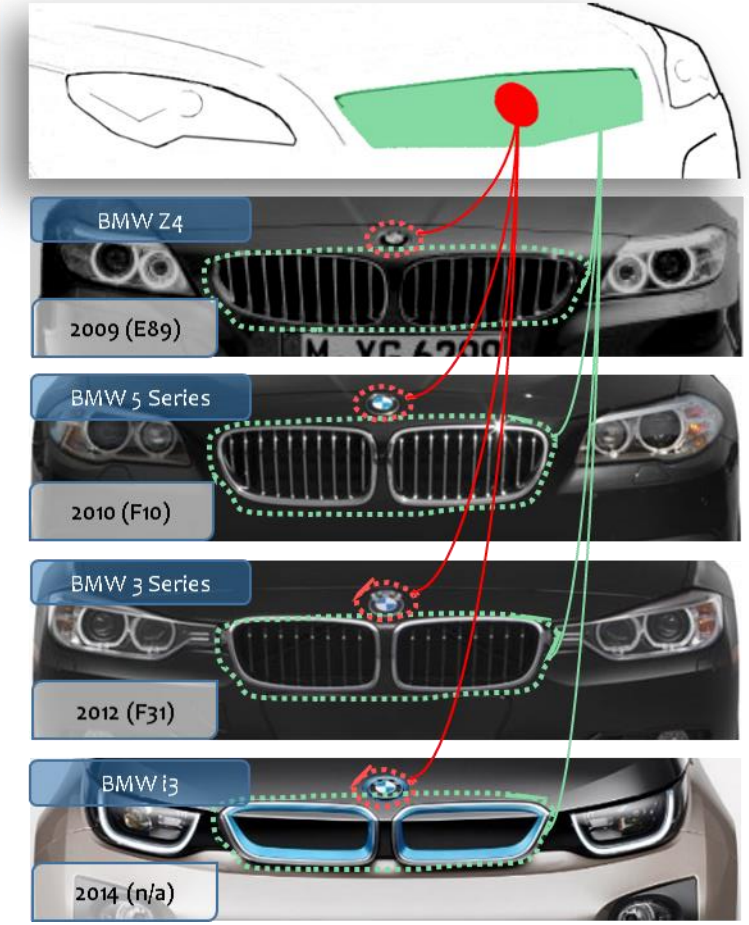


Figure 3.3-2 The Grill and Logo: BMW Kidney Grill Evolution Artwork (Bimmerfest, n.d.) and Grill Design Examples on BMW Models (Pictures: Autobytel Inc., n.d.)

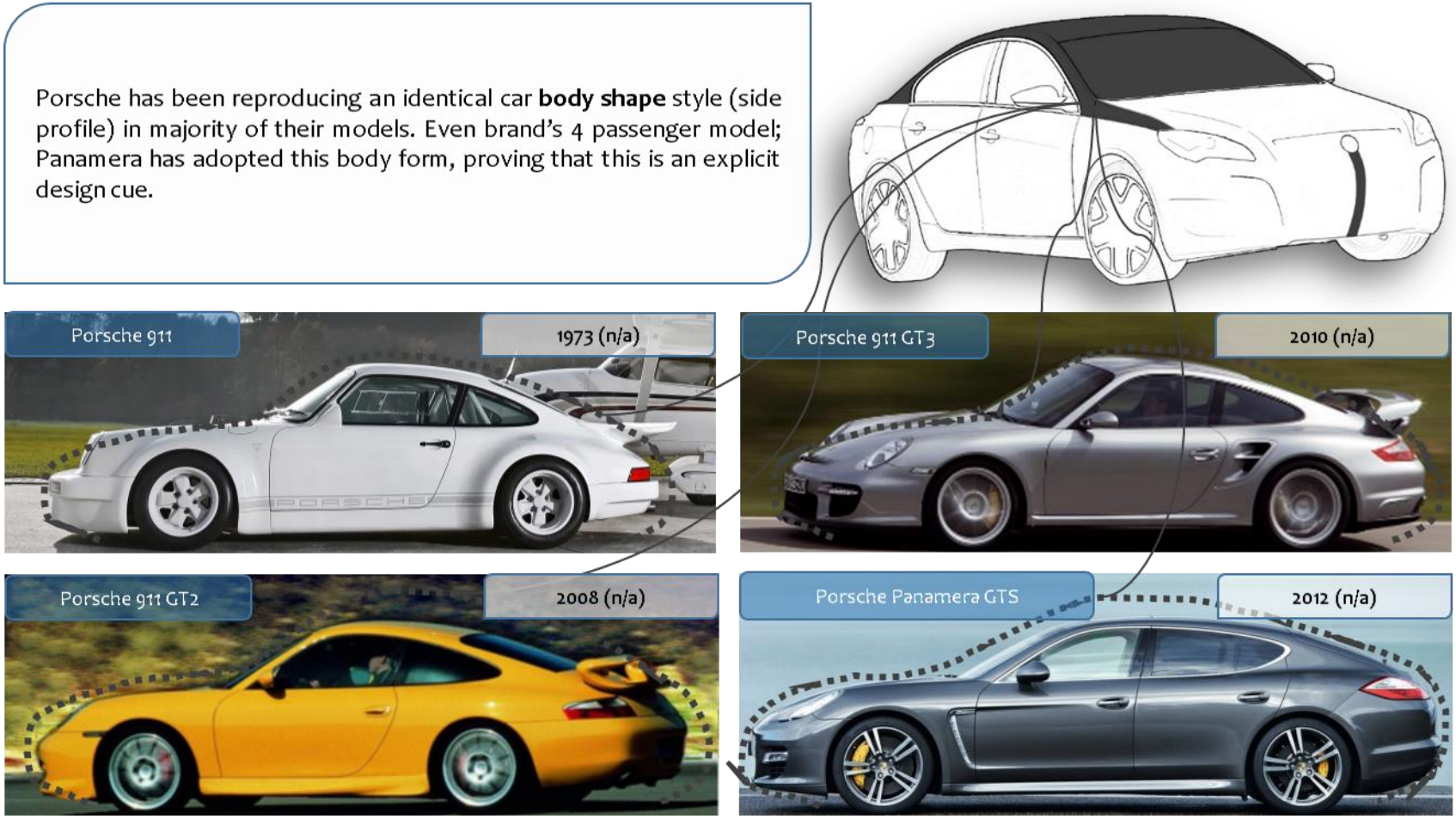


Figure 3.3-3 Car Body Shape: Reproduced Body Form on Porsche Models for the Last 50 Years (Pictures: NetCarShow, n.d.)

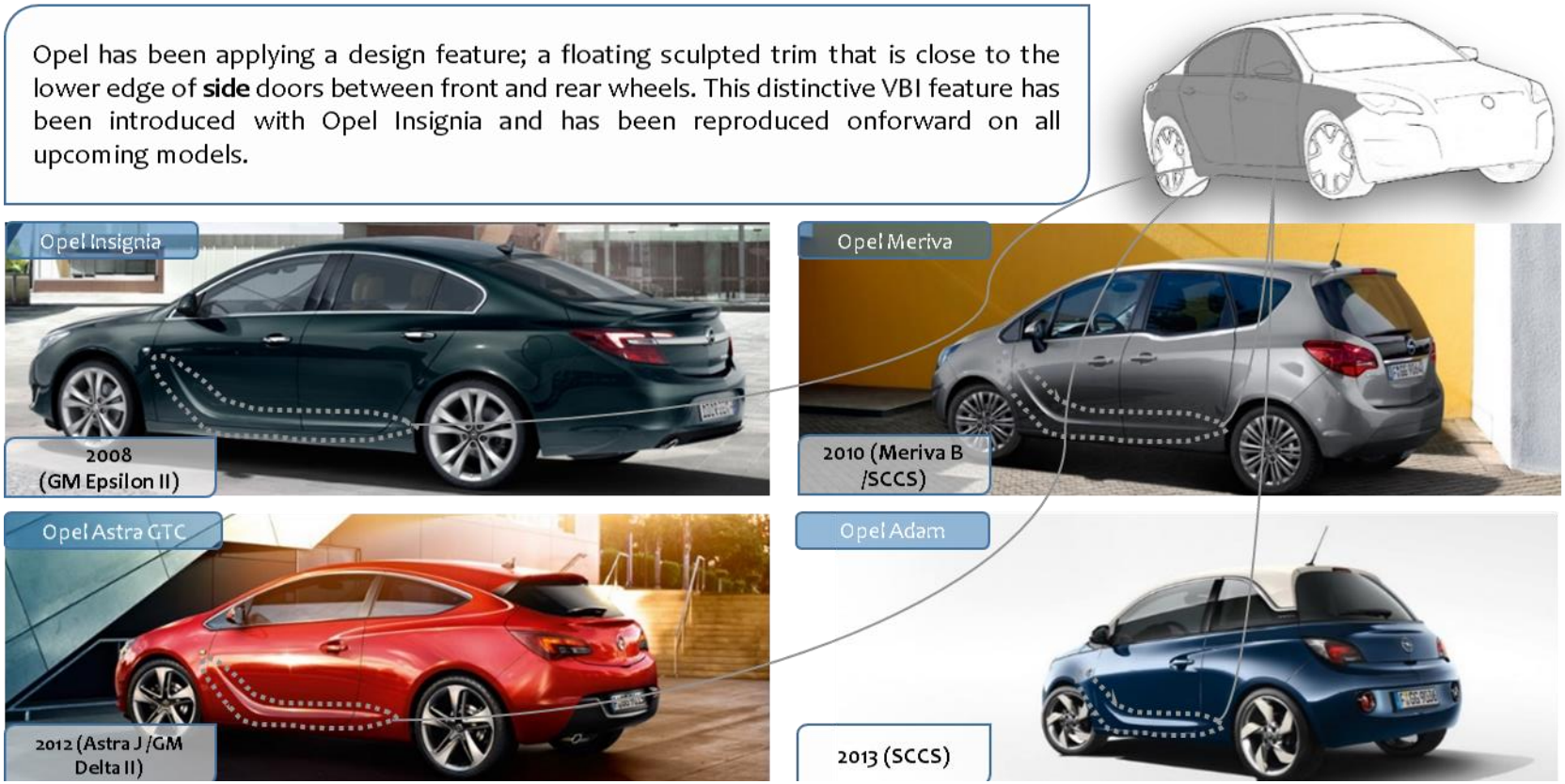


Figure 3.3-4 The Side of the Car: Floating Sculpted Trim on Opel Models (Pictures: Opel, n.d.)

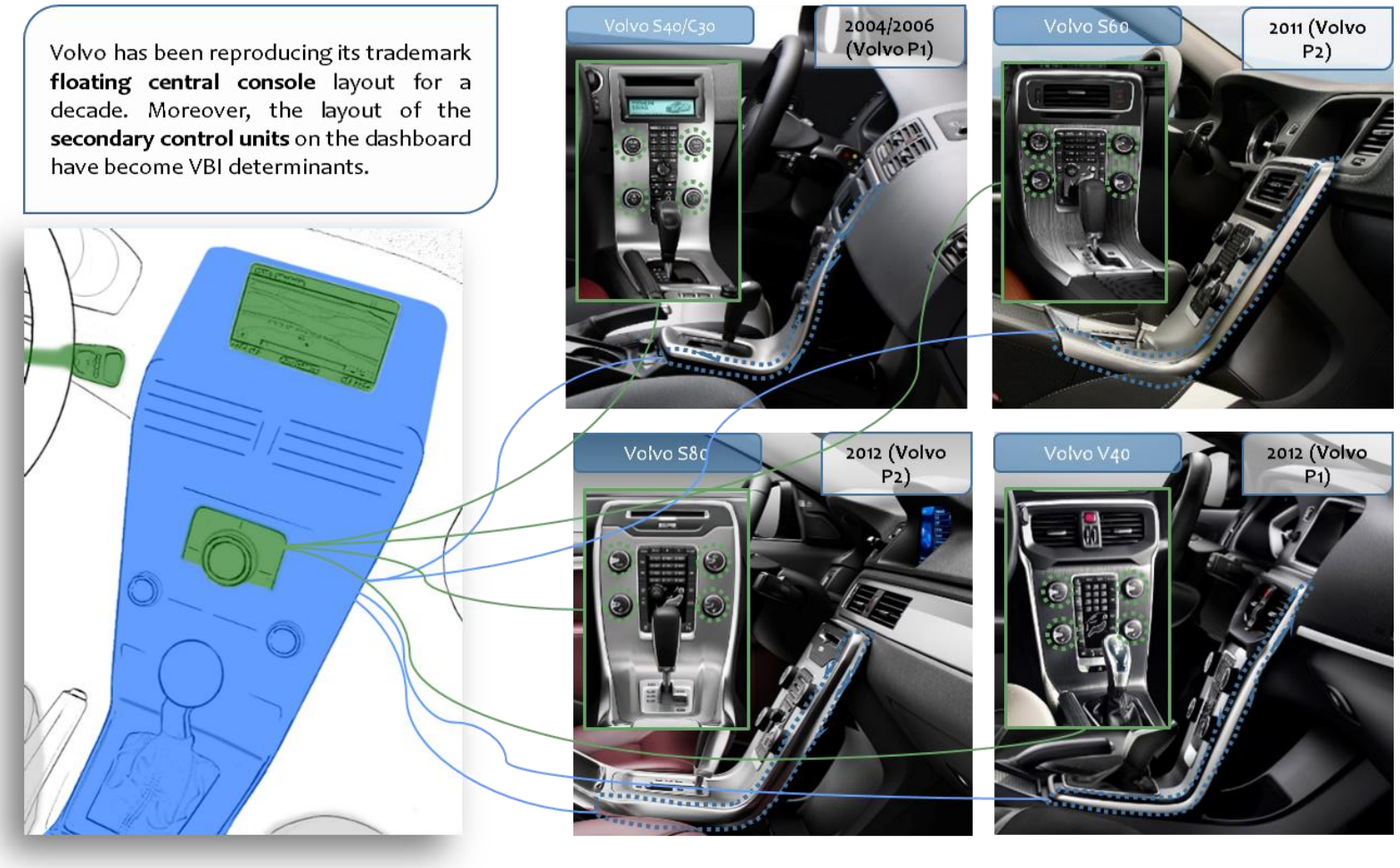


Figure 3.3-5 Central Console and Secondary Controls: TM Floating Centre Console of Volvo Cars and Explicit Secondary Control Units Layout (Pictures: Automobiles Review, n.d.)

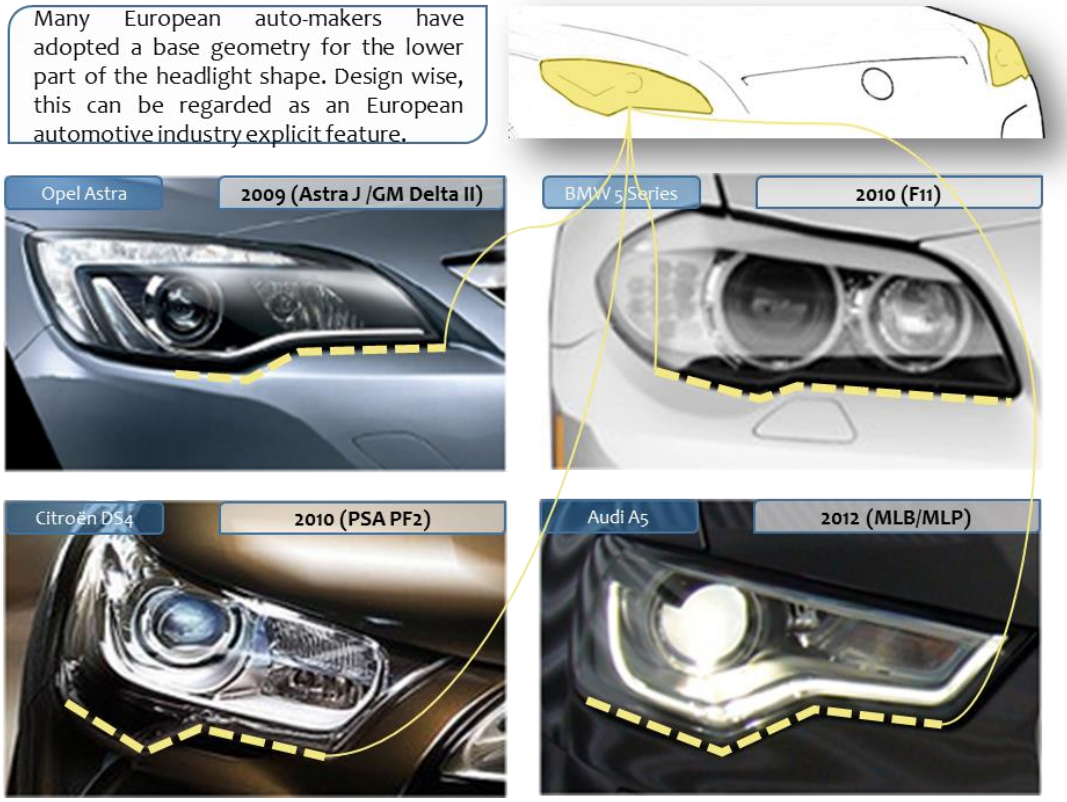


Figure 3.3-6 Headlights: Snipped Lower Profile from different Auto-makers (Pictures: NetCarShow, n.d.)

4 METHODOLOGY

The research, until this chapter, has been carried out as such that the frameworks, comparisons and propositions up to some level has been presented in accordance with each other. As an outcome, both literature review and approach on the matter is spread among **Chapters 2** and **3**.

Although the research background, objectives and questions have been addressed thoroughly in Chapter 1, the strategy of how the research is conducted was highlighted briefly. This chapter expands ***research strategy*** (Section 1.4) and thoroughly addresses;

- How the executed frameworks in Chapters 2 and 3 are employed to support the argument,
- How the executed frameworks in Chapters 2 and 3 are translated into illustrative materials,
- How the case study on VW PC is carried out.

Comprehension of the VBI phenomenon is crucial, which has been addressed thoroughly in Chapter 2. While 1 table/framework is explicitly used as a part of a conclusive material in Chapter 6 (Figure 6-1), apart from the other cited, originated materials, 3 frameworks has been generated in accordance with the literature review;

- To comprehend the PI process Figure 2.4-1 has been generated (p. 27);

- To compare VI, BI and PI in order to understand the transference of brand values in to design features, Figure 2.4-5 has been generated (p. 36);
- To comprehend the PM phenomenon Figure 2.4-6 has been originated from an external case study to support the conclusion (p. 37);
- To support and unite the preceding figures (and concepts within the literature review), a conceptual VBI Framework; Figure 2.5-1 has been generated (p. 48);
- As a conclusive part and to summarize the referred figures, a set of objectives have been highlighted at the end of Section 2.5.

Since the research has addressed the necessities for such figures to be executed (and originated from the literature), those are not elaborated in this chapter. However, the generated material has been translated in favour of combining VBI phenomenon and automotive industry specific features and assets, all of which have been discussed in the preceding chapter.

Chapter 3 works as an explicit baseline for the VW PC Case Study. More than a few illustrations, tabulations have been generated, and propositions have been made, all of which has the competence to explicitly conduct the case study;

- An overview on the history of automobile industry; existing methods to manufacture an automobile has been briefly addressed in Section 3.1.1 (pp. 53-55);
- Existing automobile platform logic, product life-cycle, design levels and model/model line phenomenon that affect the VBI process have been thoroughly addressed in Section 3.1.2 and Section 3.1.3 (pp. 55-62);

- 2 segmentation methods that are widely used in Europe were tabulated (Table 3.2-1) with example brand/model names from VW PC and rival examples from other EAM brands (p. 67);
- Car body shapes/styles, derivative/variant design body types and three-box styling methods were tabulated and illustrated in Figure 3.2-3 and Figure 3.2-4 (p. 71 and p. 72 respectively);
- VBI definitive exterior design elements have been thoroughly addressed in Section 3.2.3 and categorized in Figure 3.2-5 (p. 74);
- VBI definitive interior design elements have been thoroughly addressed in Section 3.2.4 and categorized in Figure 3.2-6 (p. 77);
- Design philosophy character in Europe has been addressed in Section 3.3.1 and, given the literature review and personal exploration on EAM design features, Figure 3.3-1 was generated to illustrate the relationship between product design and portfolio strategy in automotive industry (p. 80);
- In Section 3.3.2, several examples from VBI definitive design features/elements were given, in accordance with the VBI definitive exterior/interior design element illustration figures (pp. 80-85).

Such approach on the matter can be regarded as both **exploratory** and **constructive**, which was stated preliminarily in Chapter 1. The main goal in chapter division and including propositions up to some level alongside the literature review was to separate the exploratory and constructive approach weights. While Chapter 2 had an exploratory approach dominance, Chapter 3 was inclined to be more constructive to be able to generate a baseline that is specific to EAM design language.

The case study will use the VBI definitive interior and exterior design element categories and will analyse how these features are connected with segmentation and/or body types/styles. It took a quality time to find out VBI and PI definitive design features on each VW PC product. But observing and analysing solely *base* model design features, the results could have fallen short, which is why all VW PC platforms, base models, in-line models, segments, divergent/derivative body styles, car shapes has been tabulated preliminarily in Chapter 5 (Table 5.2-1). While there are 14 base models in the VW PC portfolio, necessity to take the in-line models into account (highlighted in black) as case study material has increased the quantity of the products to 22. This has been determined with two simple features: the body shape of the car and partially the model name, revealing 22 different products within the portfolio *(VW Polo 6R 2014 FL is omitted from the list, but is introduced and analysed in Section 5.2.2)*. There are 3 exception models to this category, being Cross Up!, Cross Touran, and Passat Alltrack. All of them share the exact same body with the product that they have been built upon, but all of them has some design features, nomenclature and purpose based differences, and heightened car base for minor off-road capabilities, which have been differentiated by putting '*cross-*'word at the beginning of the product's/model's name, which they are based upon.

In addition there is another colouring technique that is used in Table 5.2-1 (the grey and blue highlighted products), which are mainl used to signify minimal design derivative design feature differences, without any effect on the shape of the car. These differences may include segment alteration, nomenclature differences, interior design element features regarding the nomenclature differences, and purpose signification (e.g. Bluemotion, R-Line). These are not considered new models since they do not alter the car shape significantly, nor the VBI features. So these features will be held both

separately and briefly. While some of them are emphasised on interior design level, some others proved to be more significant on exterior design level.

To achieve such perspective, a few different car images and portions, but consistent throughout the portfolio, have been selected. Some of the images have been modified to sustain unity between the figures. Unfortunately, none of the official European VW PC websites were able to provide the image perspectives that the work has needed, so the collection of majority of the images have been acquired from a few third party sources, as well as VW's official Germany website *(www.vw.de)*.

Additionally, the comparison of product design languages could not be based on solely segment or body type, since the design philosophy of the firm and transition between philosophies are rather evolutionary, which makes it compelling to define different design philosophies, which the VW PC portfolio has (or used to have).

The techniques and image perspectives that are used to analyse the design philosophy of VW PC are as follows;

- **Exterior design level:** Front-left and back-right or front-right and back-left photos (or realistic renders) of each model have been used to execute an in-depth analysis of each product to explain how VW design philosophy employs the VBI features on products. These images can be found in Appendix B.
- **Exterior design level;** Comparison with logo-less front and back-side photos (or realistic renders); comparison of side styling of the products through cropped side images of the products. This comparison has limited the analysis to front and back end of the products, discarding every other design feature but the bonnet, grill, headlights, front bumper, and back design features. This comparison has led identification of differences between products easier, since it solely focuses on

the face of the product. Eventually, it has helped to define the alienation or grouping of some products' design language.

- **Interior design level:** Single photo (or realistic render) facing the dashboard layout of each product. The point view of the images are cut to the driver compartment, central console and small portion of the front passenger compartment[4].

All of the above methods will be tabulated in a single chart, revealing the most (and less) VW PC models. Simply put, it will be such a table that combines all originally generated figures in the research so far, which is further supported with another figure, summarizing (and illustrating) the current VW PC VBI definitive design features.

Considering the merger operations and long-established partnerships within the industry in many levels, there exists a phenomenon of *shared design features between different brands*. This is becoming an even more stressing issue for automotive design enthusiasts and, up to some level, for the consumers, since the resemblance between different brands' products are becoming more apparent[5]. This issue is at its climax for different brands' products, which are within the same AGs. For the reason there has been no research found on the matter, identical design features (VBI similarities) between VW, Audi, Seat and Škoda, will be pointed out to analyse if there are any group wide VBI definitive (or in such case ***Visual Group-wide Identity***) design features.

[4] All VW PC Portfolio product images (interior and exterior) may be found in Appendix B for observation.

[5] In Figure 3.3-6, this issue was implicitly addressed, however it is only used as an exploratory material and it is not intended to mislead the research objectives and questions. The sole purpose of this discussion was to expose that there is a trend hidden within the EAM design language which are represented by certain geometries.

Finally, the case study will also address the design language alterations within the last two decades. This will be executed through selecting a single variant body of a car model from C and D segments thereof: For a brief comparative historical analysis; VW Golf, Beetle and Passat models have been selected. The very reason that the selection has done as such is because these models have been manufactured continuously under the same model name, and answering '*WHO*' question (as addressed in preceding chapter), the same way ever since. Under these terms, it may be arguable to include VW Beetle model, since it's a neo-classical/traditional reproduction of during/post WW II VW PC model Type 1, but it has a unique input to the VBI of the brand.

5 CASE STUDY ON VW MODELS

Das Auto.[4]

[6] Current VW Passenger Cars Marketing Slogan

VW Group has become one of most significant and powerful automobile manufacturer AG's in the world. With its more than half a century lifetime, the group has contributed tremendously to the industry. It is a rare achievement for a humble brand name to become one of the most known automaker brands of the world.

Although the case study won't address VW Group history extensively, some certain details will be pointed out in Section 5.1. In addition, the work will address VBI management considering the current product portfolio, including the variant design styles of the models. In order to do so, the former product portfolios will be taken into account, but won't be discussed extensively. However, it is intended to illustrate the change of design language within the last few model updates in Section 5.4.

5.1 Significance of VW Group: An Overview

Volkswagen Group (VW AG) is one of the top selling, top manufacturing, well-known auto-makers. There exists a long journey and a dramatic story of VW, not to mention VW AG that holds 8 passenger car brands; *Audi, Bentley, Bugatti, Lamborghini, Porsche, SEAT, Škoda* and *Volkswagen.* Set out as a simple passenger car manufacturing firm with a single brand, survived WW 2; has sold Type 1 to the entire world with an unquestionable success.

> *Talk about a "Volkswagen" began in Germany in 1904. Engineers were already of the opinion that the future of the automobile industry lay in the mass production of inexpensive small cars. Pioneering developments in America, where a mass market for automobiles was gradually developing, were observed with astonishment. Nevertheless, the debate concerning a "people's car" provoked by the American model was accompanied by sceptical undertones because passenger cars were then seen wholly as highly taxed luxury items. In addition, the troublesome technical aspects of the current automobiles that required much maintenance spoke against the popularization of the automobile...*
>
> *... Although the motorcycle was the front-runner in the motorization of Germany during the 1920s, automobile manufacturers were making obvious advances. Because of high*

> *vehicle taxes and fuel prices, they pushed forward with the development of small engined, economically feasible vehicles.*
>
> *(Volkswagen Aktiengesellschaft, 2008, p. 6)*

1920s-1930s German automotive industry could not provide average German families with *private commuting*. The idea of a ***'volks-wagen'*** (people's car) was present at the early 1930's, influenced by the idea of a Ford Model T (Volkswagen Aktiengesellschaft, 2008). It was not until Adolf Hitler's involvement for such an automobile to be produced that, he simply ordered a vehicle that can reach a speed of 100 km/h and is adequate for 2 adults and 3 infants. Eventually, *VW Aktiengesellschaft* was officially established in 1937 by the German Labor Front. However, the breakout of WW 2 had postponed the manufacturing of the *people's car* to 1945.

> *Ferdinand Porsche went on to design cars and aircraft engines for Austro-Daimler and Daimler-Benz, before setting up as a consulting engineer. He was hired to design Auto*
>
> *Union's enormously powerful Grand Prix cars in the 1930s. In complete contrast, Porsche also designed the Volkswagen "people's car," which later became the world's best-selling car when it went into production after World War II.*
>
> *(DK, 2011, p. 298)*

With Porsche's involvement, VW had a preliminary advantage, since the company needed no inceptions for design and engineering to manufacture the wolks wagen. However, the idea of *wolks wagen* remained inaccessible due to the break out of WW II and the company had built every piece of equipment for the Nazi forces (Volkswagen Aktiengesellschaft, 2008).

After the war has ended, the administration of the company has been taken over by British forces. Under the leadership of British army major Ivan Hirst, the company has initiated the production of Type 1 to be sold to the *people*, which has become the top

selling car in the world in the following decades. In 1945, the manufacturing of the car has started and in 1948, 19.542 units (4.464 units abroad) have been sold (Volkswagen Aktiengesellschaft, 2008).

Simplicity seen in today's VW PC product designs or innovative perspective is not new. The advertising of Type 1 (or '*The Bug*') has always been clever and majority of the ads have been gathered around similar themes that can also be seen in today's marketing strategies; simplicity, innovation and people's car approach. Back in the 50s, VW was truly a people's car manufacturing firm with its affordability, distinctive and practical design, durable and easily replaceable materials and Beetle has been the symbol of those features for over 30 years. In that regard, a few ads for vintage Type 1's have been selected (Figure 5.1-2 and Figure 5.1-1).

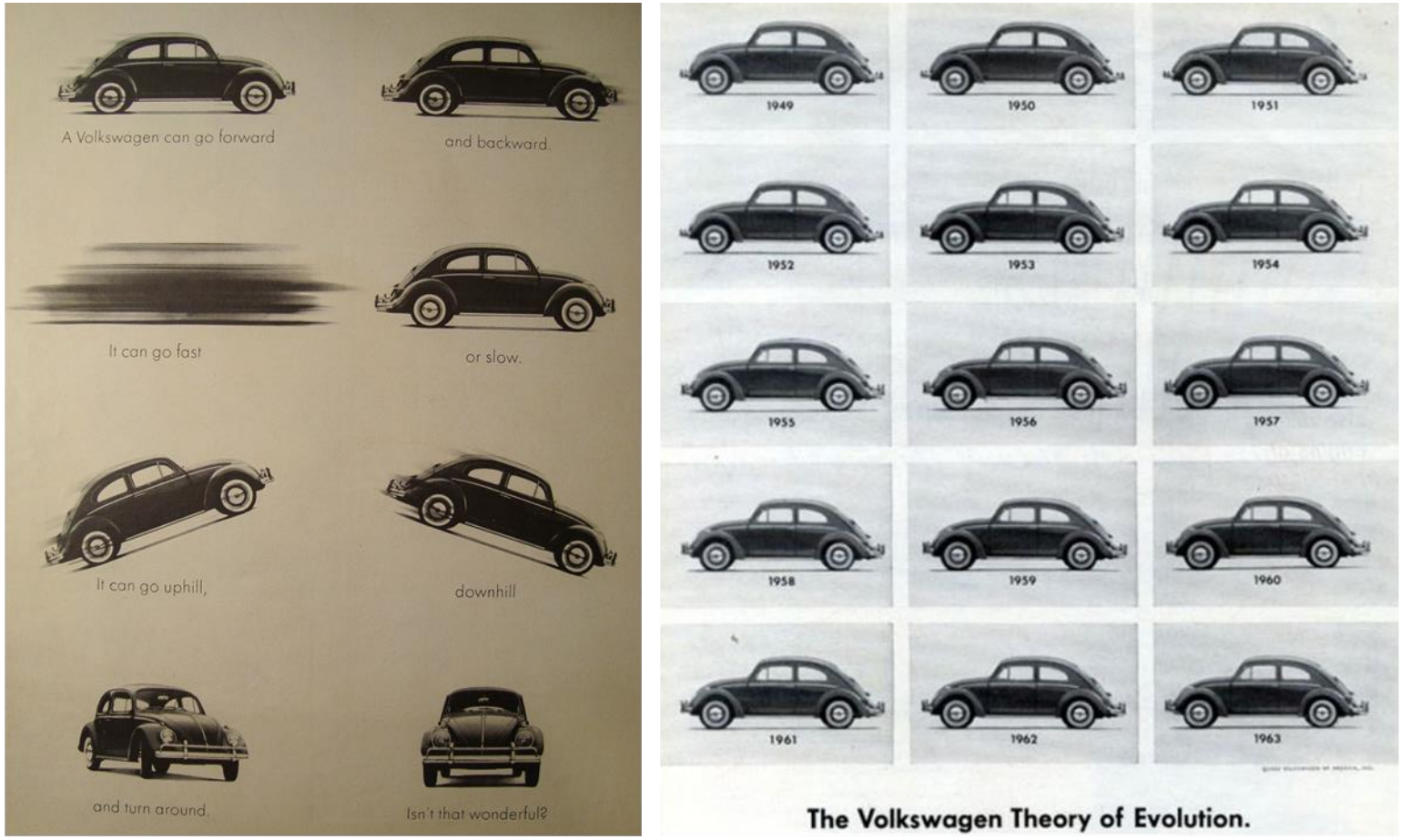
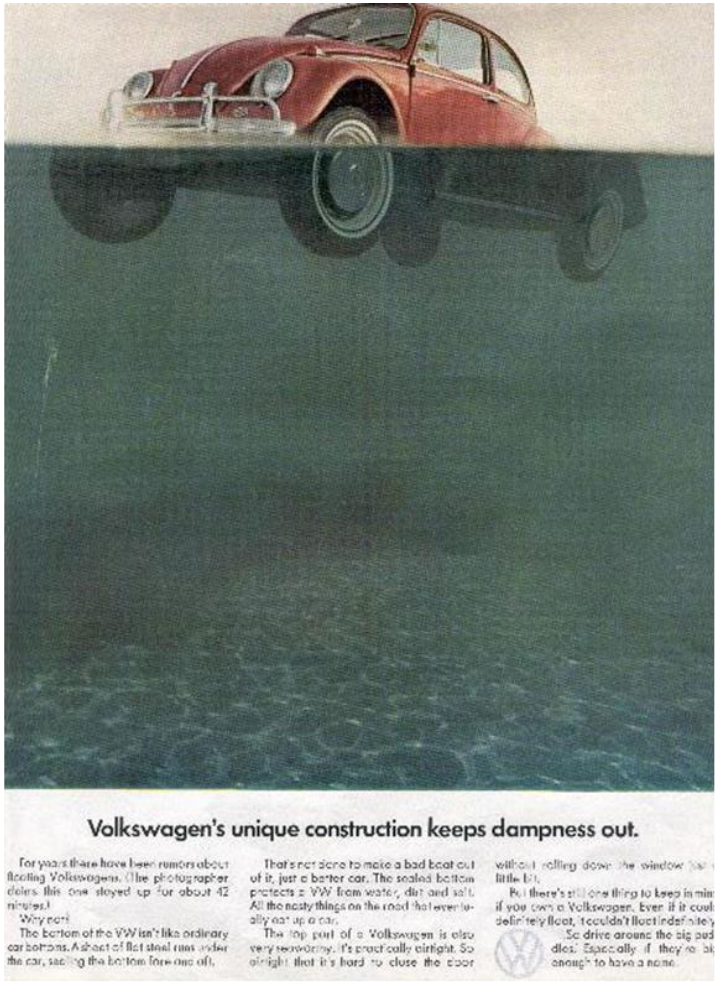


Figure 5.1-1 Ads for VW Type 1: Simplicity Theme (on the left) and Evolutionary Approach Theme (on the right) (Vascek, 2012)



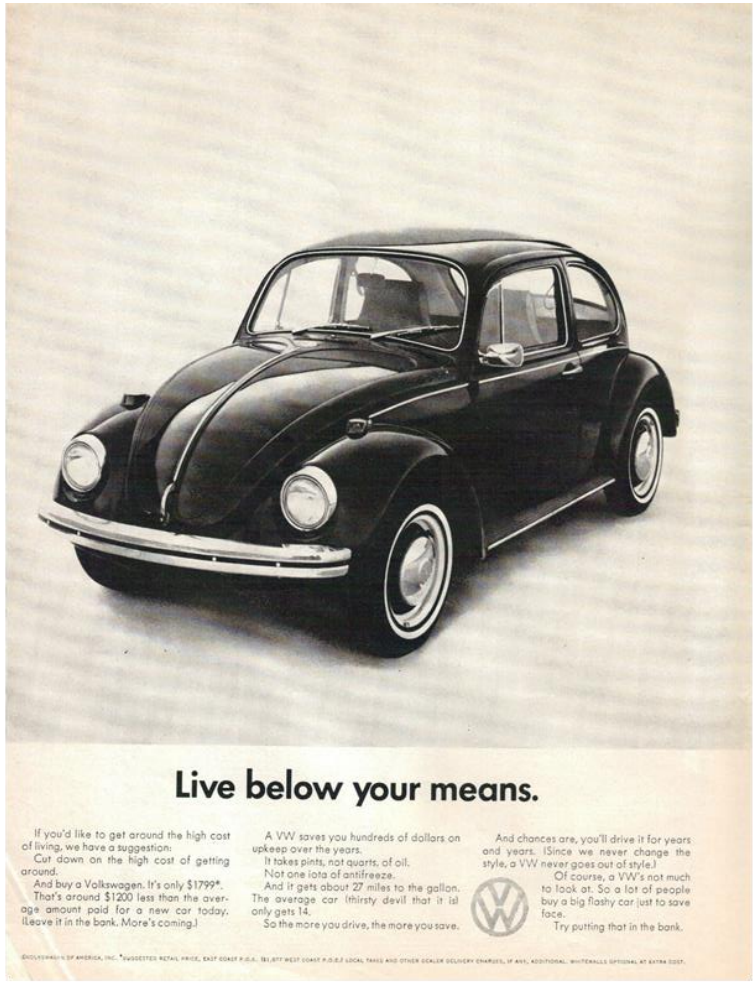


Figure 5.1-2 Ads for VW Type 1: Innovation, Durability Theme (on the left) and Affordability Theme (on the right) (Vascek, 2012)

Between 1950 and 1960, the company has started to expand fast. VW was involved in a housing project to find solutions to the house shortages in Wolfsburg; initiated manufacturing in Brazil to be more effective in the South American market, which has also implicitly started the VW AG era and by the end of 50s, Type 1 has become the most popular car in Brazil (Volkswagen Aktiengesellschaft, 2008).

There is no denying that, Beetle (Type 1) has become a world-wide success, but there was also another fact that the industry has been expanding and technology and design have been evolving. Even though Type 1 and Type 2[7] has been a great success, those cars were not enough to construct the most efficient portfolio. Between 1960 and 1971, the company has introduced 2 other models for different segments, expanding the scope of VW product portfolio. However, the portfolio reached its climax during the 70s, when VW has introduced 4 brand new models. Even though Type 1 production has ended in Germany following the introduction of these models, the production of Type 1 has continued in Brazil and later on in Mexico until early 2000s.

> *The Beetle's eventual replacements were the Golf and Polo—modern, front-wheel-drive hatchbacks that first appeared in the mid-1970s. Although they were not the only front-wheel drive Volkswagens—there had been the K70 and Passat hatchbacks—the Golf and Polo were the first direct alternatives to the Beetle.*
>
> *(DK, 2011, p. 233)*

During the 1970's oil crisis, VW has introduced four brand new models (Figure 5.1-3); Passat for large families; Scirocco as a sport utility vehicle, and Polo and Golf to redefine the small family car market by providing still affordable and considerably flexible vehicles for the consumers. By this strategy, VW has literally closed the gap between consumer

[7] VW Transporter, which is a commercial vehicle that was introduced in early 50s.

and itself by its sudden smart segment strategy. Beetle, was also renewed in the early 70s with more trunk space and slightly newer design. But it was the other four brand new models that has reshaped the future of the company.

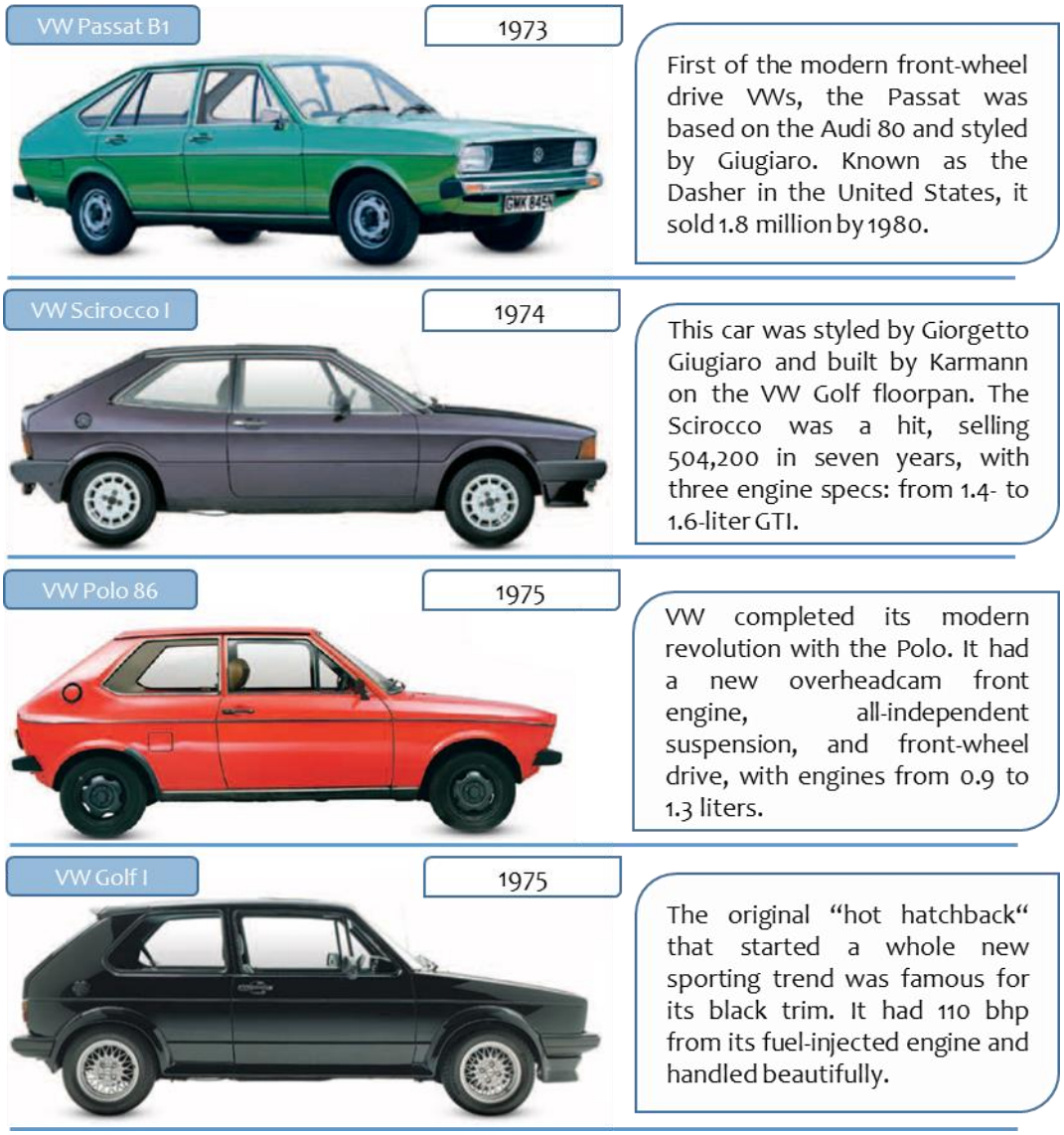


Figure 5.1-3 VW PC's Product Range in the 70s and Release Dates (Originated from DK, 2011, pp. 216; 228, and 233)

Practical establishment dates of VW AG can be argued, but it is safe to claim that, it has been magnified with the acquirement of Audi AG. Although there has been a long set of partnerships with Porsche AH, the official merger had not happened until the 2000's. Table 5.1-1 shows the joining years of VW AG marques/brands in chronological order.

Table 5.1-1 VW AG Brands and Merger Years

Marque / Brand	Origin	Official Joining Year
VW Passenger Cars	Germany	1937 (Founder)
Audi AG	Germany	1964
Seat	Spain	1982
Škoda	Romania	1991
Lamborghini	Italy	1998 (by Audi AG)
Bentley	England	1998
Bugatti	France	1998
Porsche	Germany	2012[6]

As of December 2012, VW AG had 22 plants worldwide (Figure 5.1-4), all of which manufactured VW PC automobiles. Additionally, VW AG was ranked 9th in Fortune Global 500 list[9], and topped the list with the highest revenue (247.6 b US $) and profit (27.9 b

[8] Porsche and VW have always had a close relationship, due to the fact that VW's pioneer model TYPE 1 was initially designed by Ferdinand Porsche; Porsche Automobile Holding's founder. However the official joining did not happen until 2012 and preceding story is quite confusing and most of the financial reports, acquirement methods etc. are classified and/or information regarding the story between these firms are misleading

[9] Largest cooperations in the world. According to the list, VW AG has 549.763 employees worldwide.

US $) (CNN Money, 2013) and VW is the 7th most valuable car manufacturing brand (8.1 b US $ brand value) according to the World's Most Valuable Brands List (Badenhausen, 2013). A brief chronology of important years for VW AG has been given in Figure 5.1-5.

Figure 5.1-4 Distribution of VW PC Plants/Factories around the Globe as of Dec. 2012 (VW AG, n.d.)

1932 Adolf Hitler sketches out his first ideas for a people's car.
1934 Ferdinand Porsche is hired to design the Kdf-Wagen.
1938 Final VW prototypes are put on show, but few cars are built before World War II.
1945 VW factory resumes production under the leadership of British army major Ivan Hirst.
1950 The Type 2 VW, a van based on the Beetle (Type 1), is launched.

1955 The 1-millionth VW is built at the Wolfsburg factory.
1965 VW buys Auto Union, including the brands Audi, DKW, Horch, and Wanderer, from Daimler-Benz.
1969 VW takes over NSU and adopts an unlaunched NSU sedan as the VW K70.
1974 VW launches the Scirocco and Golf, followed by the Polo in 1975, at last replacing the Beetle with modern, water-cooled, front-wheel-drive cars.

1975 The Golf GTI proves an unexpected success, becoming a mainstream part of the Golf range.
1978 Beetle production in Germany ends, but the car is still produced in Brazil and Mexico.
1990 VW buys the Spanish manufacturer SEAT, whose previous technology partner was Fiat.
1998 VW buys Lamborghini and Bentley, as well as the rights to the Bugatti name.

1999 VW buys the Czech car marque Škoda.
2000 VW founds Bugatti Automobiles SAS at Chateau Saint Jean in Dorlisheim, France.
2003 Production of the original Beetle finally ends in Mexico, with more than 21 million having been made worldwide.
2009 VW rescues Germany's Karmann from bankruptcy.
2010 After a battle for control, VW and Porsche plan a merger.

Figure 5.1-5 Chronology of VW AG's Important Years (Originated from DK, 2011, p. 233)

5.2 *VBI Features on Current Product Portfolio of VW Passenger Cars*

When addressing VW Design, it is hard to distinguish between interior VI transformations, since secondary control unit layouts are kept similar during model updates throughout the entire portfolio. However, exterior VI's has become more defined within the last decade. Revival of discontinued S segment model Scirocco in 2008 is a significant example. Regardless the fact that it shares the same platform with VW Golf, it has a distinctive exterior VI, resulting in distinctive PI with its '*aggressive*' details. Although pricing and interior design may strongly suggest that the car is a C segment, it is directly put into the S segment for its purpose. On the other hand, 2012 Beetle model may complicate things for the company's subtle segmentation strategy. It shares the same platform with Scirocco and Golf, and many other models within similar price range, thus shares similar segment features. However, when its' impracticality,

'*pleasant'* overall design and 3 door only body are considered, the car falls in the middle of C and S segments.

As of February 2014, VW automobile portfolio in Germany consists of 14 different models, competing in all Euro Car segments, except for E segment. Including divergent body types, which primarily alter the purpose of the car, the actual purpose based model count reaches up to 22 (Table 5.2-1). Surely there are slight differences as in design features based on countries, not to mention exclusion of some models in specific countries, but German portfolio gives everything that the work needs to identify VW VBI and PI features.

The following table details the model names, divergent/derivative body styles of the same model lines and segmentation logic of VW PC. The portfolio strategy embodies what has been theoretically discussed in Section 2.4.3, regarding the importance of portfolio breadth. But the main question that this case study will address is, how these are reflected on VBI and how design language distinguishes the PI of the products?

Table 5.2-1 VW PC Portfolio in Accordance with the Official German Website

Platform	VW PC Base Model	Divergent / Derivative Body Styles	Body Shapes	Euro Car Segment	Design Feature Difference w/ base model
NSF – PQ12	Up!	w/ 3 or 5 door	Hatchback	A	-
		Cross Up!	Cross-hatchback	A - J	Minimal
A0 – PQ25	Polo	w/ 3 or 5 door	Hatchback	B	-
		BlueMotion		B	Minimal
		Polo GTI - GTD		B-S	Minimal
		Polo R WRC (w/ 3 door)		S	Minimal
A – PQ35	Golf	w/ 3 or 5 door	Hatchback	C	-
		Bluemotion		C	Minimal
		Golf GTI - GTD		C-S	Minimal
		Golf R (w/ 3 or 5 door)		S	Minimal
		Golf Variant	Estate	C	Average
		Golf Cabriolet	Cabriolet	S	Average
		Golf Sportsvan	Compact MPV	M	Extensive
	Beetle	w/ 3 door	Coupé	C	-
		Beetle GSR	Coupé	S	Minimal
		Beetle Cabrio	Cabriolet	S	Average
	Jetta	w/ 5 door	Sedan	C	-
	Scirocco	w/ 3 door	Coupé	S	-
		Scirocco GTS			Minimal
	Eos	w/ 2 door	Cabriolet	S	-
	Touran	w/ 5 door	Compact MPV	M	-
		Cross Touran	Cross-MPV	M - J	Minimal
	Tiguan	w/ 5 door	Compact SUV	J	-
		Tiguan Track & Style			Minimal
B – PQ46	Passat	w/ 4 door	Sedan	D	-
		Bluemotion	Sedan/Estate	D	Minimal
		Passat Variant (w/ 5 door)	Estate	D	Average
		Passat Alltrack (w/ 5 door)	Cross-estate	D - J	Average
	VW CC	w/ 4 door	Sedan	S	-
	Sharan	w/ 5 door	Large MPV	M	-
D1 – PL62	Phaeton	w/ 4 door	Sedan	F	-
		w/ 4 door (longer wheelbase)			
PL71	Touareg	w/ 5 door	Large SUV (4x4)	J	-

It should be understood that VBI comprehension for the consumer is rather basic, even primitive, when compared to a designer's perspective. VW PC VBI is, eventually, very easy to understand. With their latest and still unchanged marketing slogan, 'Das Auto' (translated into English as; *'The Car'*), the firm literally intends customers to think of car when they encounter a VW model, or they want them to remember VW when they see the word/think of car; see a basic car drawing of a child or any other manufacturer's model for that matter. Although it is debatable, with its simplistic and unprovocative; non-revolutionary design language, it has an ability to convey simplicity and establish empathy with the crowd.

If we were to look closely to the preceding table, with extensive model lines and market wide segment coverage, we can easily realize that VW has a progressive way of handling the portfolio, by introducing many variations under same model name and also with new nomenclature differences to distinguish a model completely, which opposes the design language in many ways, not to mention the possibility that *could have raised* confusions in consumers' mind.

This kind of portfolio strategy has an implicit, contagious side effect on the design language as well. As we have mentioned that there are 14 different models, all of them share some design features that are similar, regardless the segment. However, the reproduction of these features may vary amongst the segments. These features, eventually, create a VBI for the VW PC. The contagious effect of the portfolio strategy shows off with the *alien* models within the portfolio. These models can be distinguished at a first glance at the exterior design; Beetle, Scirocco and Up! *(See Appendix B for current VW PC portfolio products' images)*. Surely, all models have their own PI's, as well as VBI's, but these three models have / have not some features that discard them from

the main VBI of the entire portfolio. On a deeper level, these cars do not share the regular grill design, side styling, headlight design and especially back design features with the other models. The interior design, however is somewhat similar throughout the entire portfolio.

5.2.1 Overview of Current Product Portfolio Design Management

As mentioned, it is almost impossible to distinguish between design philosophy alterations by looking at the existing portfolio, especially by looking at the exterior design. Surely, anybody with relatively adequate knowledge of automotive design will be able to notice the transitions between philosophy alterations/changes, but it may not be that easy for a regular consumer with little knowledge on the matter. So how is it able for us to reveal those alterations or complete philosophy changes?

By solely focusing on exterior design, the differences are less discernible, since, like many other automotive manufacturers, former models' are updated to match with the latest models. In VW case, the latest update has been introduced with Golf VII. Even though this update seem to be an evolutionary change to Golf's predecessor model (Golf VI), interior design had a significant update. On the other hand, the existing portfolio seems to have adopted its exterior VBI from Polo 6R which has been introduced in 2009.

Polo 6R was the first model to introduce sharper edges on many design levels, when it was introduced in 2009. All the upcoming models, regardless the segment, has followed that product's overall design philosophy. This claim may seem bold, or may even seem inaccurate to some enthusiasts, but especially from the consumer perspective, this claim is not subjective in any way. On the other hand, introducing a new design philosophy with a B segment car is tricky and might have been catastrophic for the brand, yet it

turned out to be successful. It is not often that automobile manufacturers choose such a low segment car to introduce the new design philosophy. Former to Polo 6R, VW products seem to be with less sharp design details and softer body work. In other words, much more oval ends, octagonal headlamp details and softer edges.

The very same year, there was another product to introduce the idea that a VW car can also look, and feel sporty at the same time; VW Scirocco III. Model had been discontinued after 1992 and revived in 2009. With its exterior design, Scirocco III represents the transition between former models and current products on European market and Polo 6R is the flagship model to lead VW's existing design philosophy. However, all together, exterior PI of Scirocco makes it ***alien*** to the portfolio.

Up until 2013, any model that we have seen from VW has shown similar characteristics in exterior design. The new Golf, that went sale at the end of 2012, has also followed Polo 6R's exterior design language, but with even sharper lines/edges. This sharpness has also spread to the interior design as well. In that regard, when compared to the existing portfolio, this product has took the leadership of interior VBI. All models, following Golf VII's release, has adopted the same main control units, similar secondary controls, central console, secondary design details and also similar headlight LED shapes. They still follow similar interior design language with previously introduced models, but the evolution of the VBI elements are more distinguished.

5.2.2 *Current VW PC Portfolio in terms of Design Philosophy and VBI, PI Determinants*

Comparison charts will focus on front and back of the automobiles in the current portfolio without VW logos[10]. The main reason to use logo-less images is to focus on the look of the products and not to the *brand*. This way, it may be easier to group, and distinguish products, not to mention the fact that, these sections are the most extensively designed parts of the automobiles (see Appendix C for uncompressed images that was illustrated throughout the entire section).

Just by looking at the front end of the cars, the VBI features are easily distinguished. A closer look may also reveal some outdated models, and/or the alien products *(See Appendix B for exterior and interior images of all VW PC products for personal observation).*

The bonnet design may seem a tricky part at first, since its length is defined by the segment and/or size. For the reason PM is progressive and address many segments, the length of the bonnet is not a VBI definitive feature, nor the shape of the cars. However, except for Beetle and Phaeton, all models have easily distinguished lines (a popped up body work) that starts from the A pillars and reach to (or close to) the headlight-grill intersection point. Beetle and Phaeton have those lines, but they also outline the engine door, which alter the recognition process of the similar styling. This way, these lines become PI definitive features for these two models. To give an example, these lines do not reach to intersection point, but they cut through the grill vertically; creating an offset

[10] The basic CGI technique used to remove the logo has lead an artificial, but content-aware, texture generation on the product images. Additionally, used technique has generated minor to average distortion/glitch occurrence in some of the images.

on the grill on all Passat models, Phaeton, CC, Sharan, Touran and Tiguan. Since Touareg, second most expensive car in the range, does not have that feature, it is hard to say if it is a prestige effect and since Jetta's lines reach to the intersection point, and it is also not a feature that is body type specific.

Amongst the 22 models, there are only 2 distinctive body shapes that are stylistic and not entirely based on practicality or purpose (or company's slogan). Scirocco and Beetle body shapes are unique and has no equivalent in the portfolio. While Scirocco uses its form to signify sportiness, Beetle is using its form to reference the company's classical model. Up! also has a considerably different shape, but this is solely based on segment and practicality, which is not entirely focused around design language. The rest of VW PC products have body shapes that are dominantly based on practicality and further developed for legislative and engineering concerns. Design wise, there is nothing unique or special about overall body shapes, which has a positive effect on the consumers, since it is harmonious with company slogan and brand name's etymology, and brand heritage.

As claimed before, in many ways, Polo 6R, ere to its facelift in 2014, has re-defined the VW PC VBI implicitly. Before 2009, no product from the company had *sharpness* in Polo 6R's level. Polo has started that trend and it has been continuously reproduced in every new model, except for Scirocco, Up! and Beetle. These three models have headlight outlines with curved edges. Additionally, Scirocco and Up! does not embody the VBI definitive LED light shapes (headlight patterns). Surely, headlight patterns, which are one of the main determinants of VW PC VBI, are not present as standard, but these features can be added as extra features in higher spec. combinations on rest of the products, and any advertising and marketing entity that the consumer see include such features. In other words, such design matters are known to the users and Scirocco and

Up! do not present those. Beetle case, however, is quite unique. It is a retro car; a neo-classical product, which literally connects the iconic and classic model of the company to present time. Also, the headlight patterns are present in high spec models of the Beetle, but it does not have sharp edges, as it is in the other models. These patterns are entirely circular.

Grill design is another feature that auto-makers likes to design carefully to define a brand's character. In VW case, it is no exception. Except for our alien models, all the rest share a similar shaped grill and pattern. Except for the alien products and Golf Sportsvan, all existing models have a flipped isosceles trapezoid form. The easily recognized pattern of the grill consist of one to four horizontal chrome-like strips that house the brand logo at the centre. Although, Golf Sportsvan has a *not flipped* isosceles trapezoid grill outline, its grill design embodies the flipped version within its form. In that regard, Scirocco has a kind of disturbed trapezoid form (or has a geoid-like appearance) and without any significant horizontal lines like the other models; Up! has a single horizontal strip shaped grill, while Beetle does not have such an opening except for the lower end of the bumper.

Scirocco and Beetle have another feature, which is unique. All VW PC products have the logo at the centre of the grill pattern. However, Scirocco has the logo adjacent to the end of the bonnet, making logo facing the sky and not the front of the car. Beetle's logo is facing the front, but since there is no grill above the bumper, it is adjacent to the inclined part of the bonnet.

One other key VBI feature of all VW PC products is that, the front bumper is physically separated from the shape of the product. This does not mean that it is a separately designed part or irrelevant to the language, but while many European automakers have

chosen to try new ways of handling front bumper design, VW seems to choose a neo-traditional way. The grill and headlight designs are a few centimetres backwards, which makes it easier to distinguish where the bumper starts. Even in sport version of the models or pedigree sport models, this separation is quite easy to recognise. Moreover, all models have a very easily distinguished horizontal stripe on their bumpers, which separates the lower grill and fog light parts from the headlight-grill area. Figuratively, such bumper design is a neo-traditional approach. It has an ability to implicitly remind the user of older cars, which used to have horizontal, plastic covered dark grey stripes beneath the bonnet and headlights. Eventually, this is another implicit or explicit linkage between *the car* and *VW*.

Major VBI determinants for the front part styling has been illustrated in Figure 5.2-1 (see Appendix Figure 41 for unprocessed product images).

Figure 5.2-1 Front Part of the VW PC Products and Illustration of VBI Elements (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Figure 5.2-1 (continued) Front Part of the VW PC Products and Illustration of VBI Elements (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Side mirror design is also another VBI feature. Although it is not as crucial as the rest of the features listed, the portfolio seems to use one certain shape for all the models but 6.

Phaeton has a rounded rectangular shape side mirror, while Tiguan, Touareg and Sharan use a rounded triangular shape. However, the future products may seem to adopt new Golf's side mirror (transcendence between the widely used triangular shape and rounded triangular shape), since that shape has been followed by Golf Sportsvan. Figure 5.2-2 highlights the side mirror types of VW PC Portfolio.

Figure 5.2-2 Side Mirror Types in VW PC Portfolio (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

On side styling, all models seem to share a distinctive body work which signifies the outline of fenders, side skirts and lower part of the doors and continuously wrapping around the car through the bumpers. This feature is present in all models, except for Scirocco and Beetle products. Scirocco's body work is, as stated before, is way beyond the sportiness that any other model would make the consumer feel, which literally shifts the product out of the portfolio. Just above the side skirts of the vehicle, there is a rounded triangular body work that does not match any other model's side design and fender outlying body work is less significant, which does not wrap around the car as it is in the rest of the models. Touareg seem to have a similar triangular body work on side styling as Scirocco when looked at the side pictures of the products, however, Touareg's body work altogether matches with the rest of the portfolio. (Figure 5.2-3; *see Appendix Figure 42 for unprocessed product images*).

Figure 5.2-3 VBI Definitive Features on Side Styling of VW PC Products (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Figure 5.2-3 (continued) VBI Definitive Features on Side Styling of VW PC Products (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Both technically and subjectively, Scirocco is the most distinctive car in the portfolio and in terms of VW PC design heritage. Design wise, exterior design only shares the explicit bonnet trims, bumper styling and side mirrors. This also makes the car with the strongest PI.

Beetle has the *idea* of that explicit feature on the side of the vehicle, but physically, the idea is executed quite differently. The fender styling is much more signified and the side skirt emphasis does not continue through the lower part of the doors, like it was the case in the classical Beetle (Type 1).

When rear design of the products are analysed, for our alien products, a similar comparison can also be made, as it was done with the headlights. These three models does not follow the VBI definitive shapes and patterns of the portfolio. While the rest of the portfolio shows similar shapes and patterns, Scirocco has an elliptic-like backlight shape (or disfigured trapezoid); Up! has a trapezoid shape like the rest of the portfolio, but it is perpendicular, vertically aligned and does not have VBI definitive patterns within the backlight; Beetle backlights have circular shape, which is completely off, but have lighting patterns in circular forms that the rest of the portfolio have. Important rear design features have been highlighted in Figure 5.2-4 *(see Appendix Figure 43 for unprocessed product images)*.

A few fan taken pictures and renders suggest that VBI specific LED backlight patterns can be available in the optional list for Scirocco. However, no official picture has been found to acknowledge such option is supplied by the company itself.

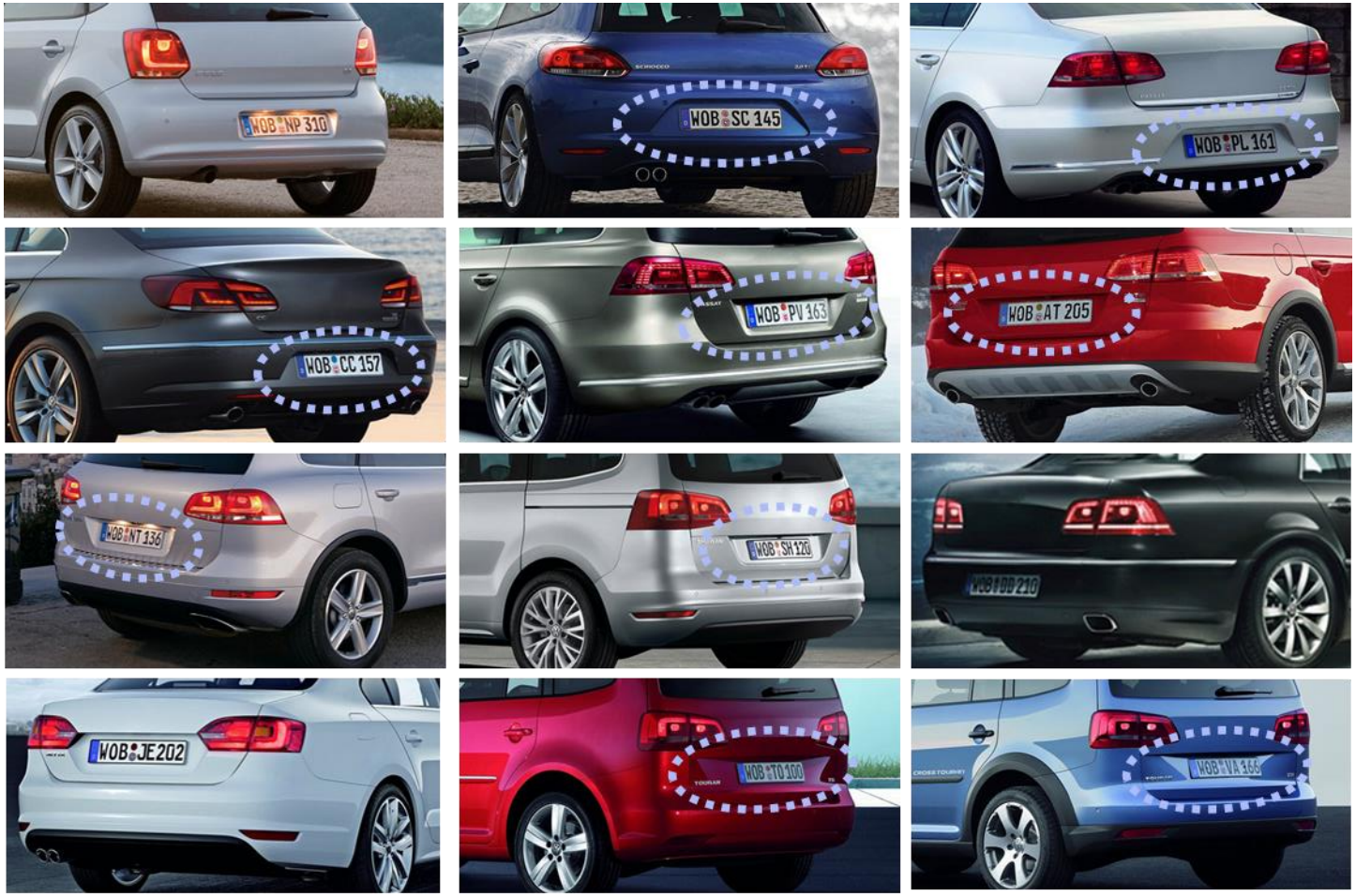


Figure 5.2-4 VBI Definitive Rear Design Features of VW PC Products (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Figure 5.2-4 (continued) VBI Definitive Rear Design Features of VW PC Products (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Rim design has also a complementary effect on VBI, with its simple design. Even the sport model rims have simple, yet sporty enough, alloy wheel layouts that does not have conflicts with the overall design language.

Each auto-maker determine their own VBI features, or in other words it's *DNA.* The term DNA to define VBI has been used for some time, both by reviewers and CEO's, but it is an analogy, more than it is a technical or academic definition. Eventually though, VW has a set of explicit features that embody a basic VBI that is easy to understand. However, this doesn't mean that there are no issues. Firstly, it is hard to point out an implicit feature that is dependent on segment or body type. Although, the company has the third highest market value in the industry (Forbes, 2013), the most expensive VW; Phaeton model has not been successful in the market. Design wise, it is still a *das auto*; it is a VW product as it gets, however, apart from the side door chrome staves and some other chrome based design details aim to emphasise on prestige, it could not separate itself from the portfolio. Moreover, VW PC does not have an E segment car, which could have filled the gap between Passat line and Phaeton. Lastly, it interferes with brand heritage in many ways, not to mention the brand name's etymology, being *People's Car.* But regardless the unsuccessfulness of this mere product, it is still able to send a message to the world that they can spend billions on a transparent company to build such a car and still dominate the European market in many levels.

Interior design level is even simpler than exterior. This is another issue for Phaeton. Even though the car has one of the most sophisticated technologies, segment specific material quality and craftsmanship, and outstanding luxury equipment, it fails to separate itself from the rest of the portfolio. There is no doubt that it should not discontinue VBI features, but it also has to be able to revolutionize its design, since it is

not just a bigger Passat or a sedan version of Touareg. Its rivals are Audi A8, BMW 7, and Mercedes S Class, which have been in the market for more than a few decades. The only PI that is strong is the steering wheel, which has a unique shape and pattern that distinguish itself from the VW PC crowd.

Each product has a unique dashboard layout, with only a few similar areas that house secondary design details. In other words, dashboard layout works as a PI feature.

Primary controls have the same language across the entire portfolio with a few exceptions. VW has 6 different steering wheel layouts (Figure 5.2-5), two of them being very similar, and 3 separate manual and 2 separate automatic gearbox styles. The steering wheel designs in Touareg and Phaeton are distinctive from the rest and do not share any feature but the company logo. Beetle steering wheel has a circular centre with three arms and concept models suggest that future sports versions might use that steering wheel layout. The rest of the portfolio has the same base but with more resemblance with a rounded 'V' shape. While the manual gearbox styling has been updated starting with Up!, the automatic gearbox styling has remained almost unchanged, even after the new Golf. Phaeton uses a traditional gearbox handle, which goes back to the end of the 2nd millennium.

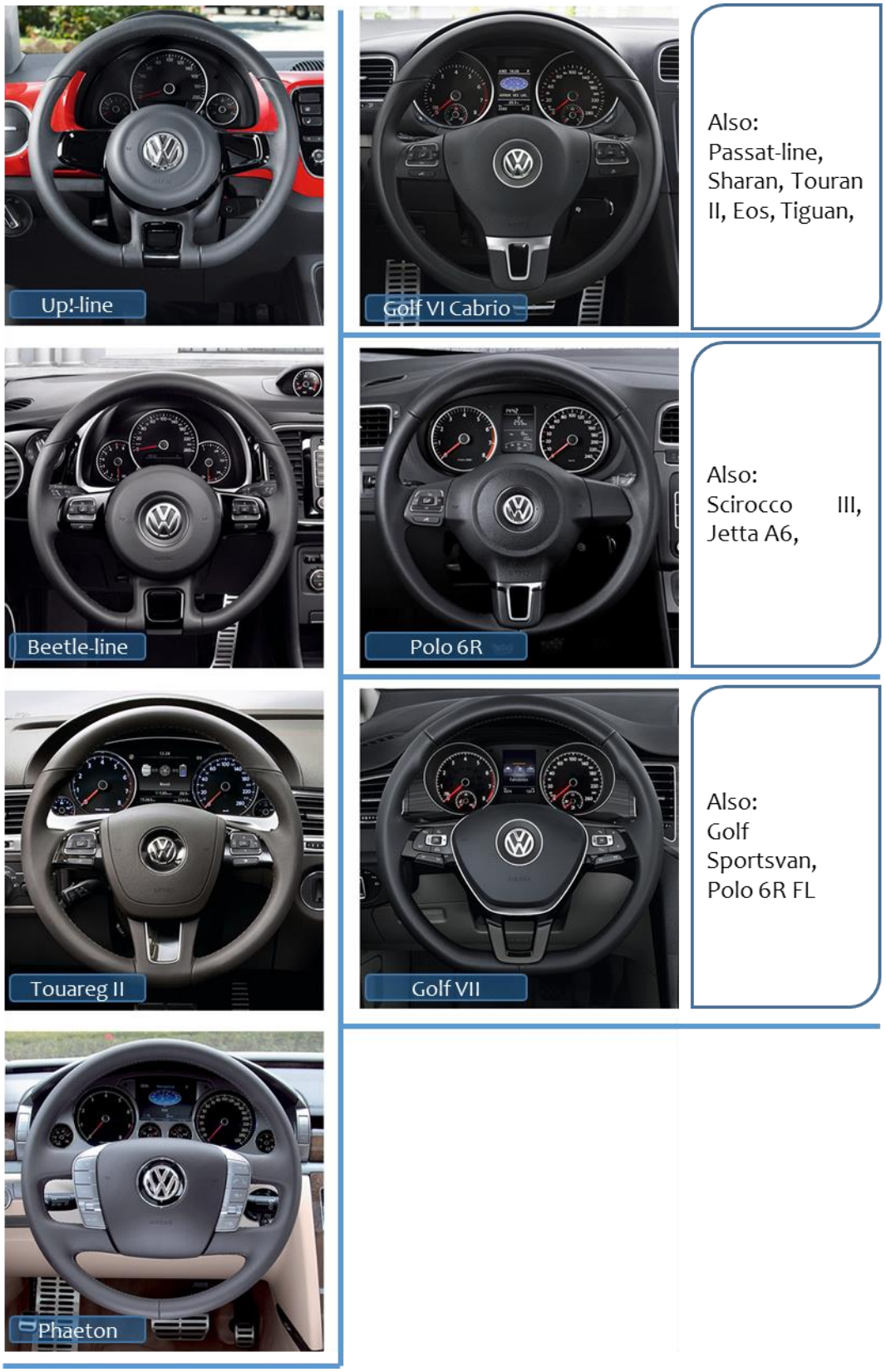


Figure 5.2-5 Steering Wheel Layout Types of VW PC Portfolio (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Central console styling is probably the most compelling part to reveal and group VBI and PI based features. At a first glance, all 14 models seem to have their own PI definitive console layouts. Frankly, central console layouts are model specific up to some level, but also, since all of them share a set of geometrical shapes and/or physical traits, they are not PI definitive as they might seem. Those similar/shared geometries and physical traits have been illustrated in Figure 5.2-6 (see Appendix B figures for extensive interior images). It is apparent that, except for Touran line, all models have a smooth (e.g. Scirocco) or sharp edged (e.g. Golf) **'U'** geometry. This geometry either wraps around the secondary control units (less-hidden or more-hidden), or define the outline of the upper part of the console. Also, there is a ledge or a visible separation between the A/C unit and infotainment controls. This ledge is more signified in some models, such as; Sharan, Tiguan and Up!-line.

Air vent styling is another feature that VW keeps simple and brand specific. While all models get a chrome-like outline for the air vents, they are also symmetrical and majority of them are horizontally aligned. In that regard, VW Golf has introduced asymmetrical air vent layout, which is a neo-traditional approach (see section 5.4.2 for Former Golf interior console layouts) and is unique to the current portfolio.

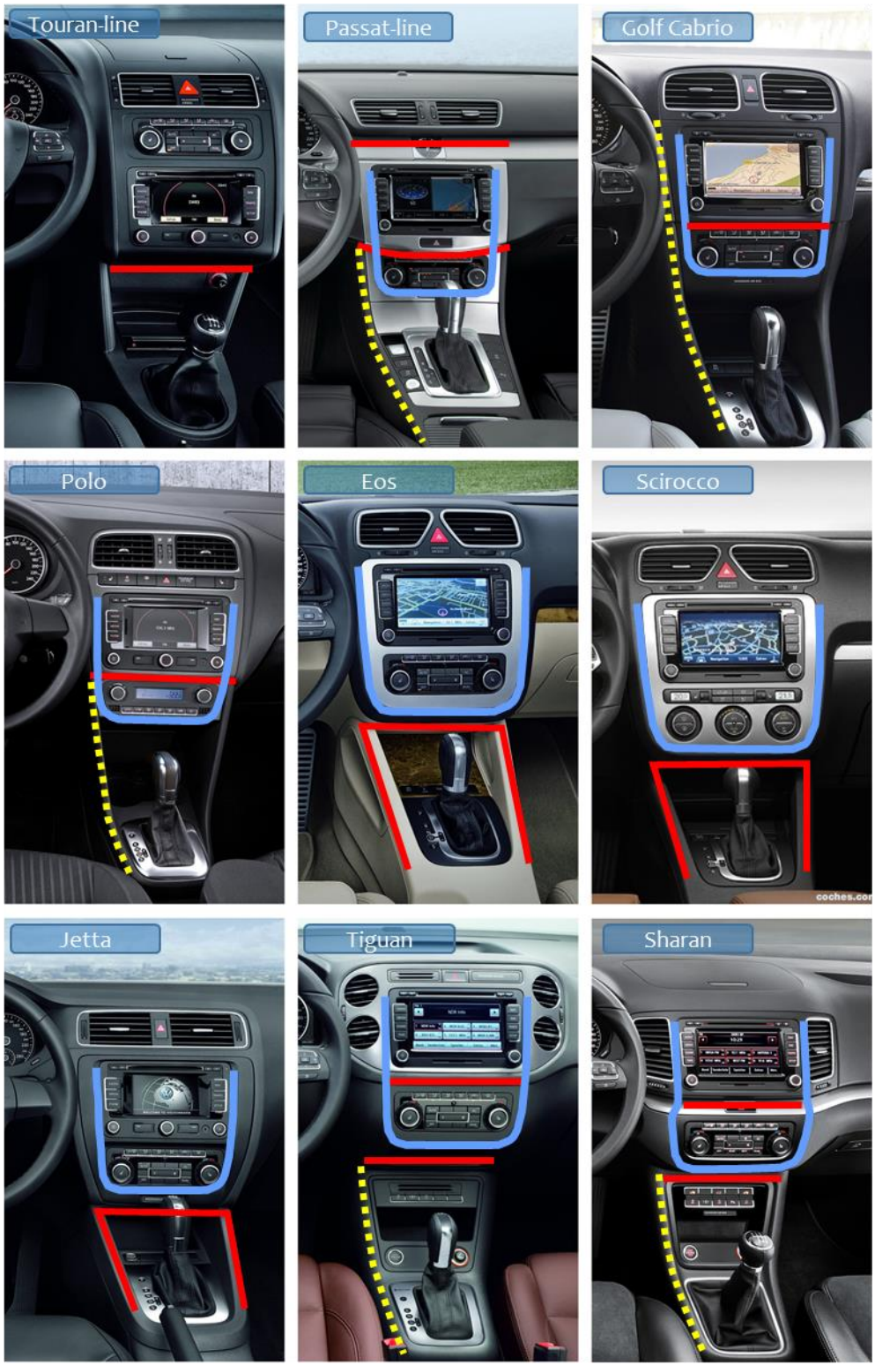


Figure 5.2-6 VBI Definitive Central Console Layout Geometrical Features of VW PC Products (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

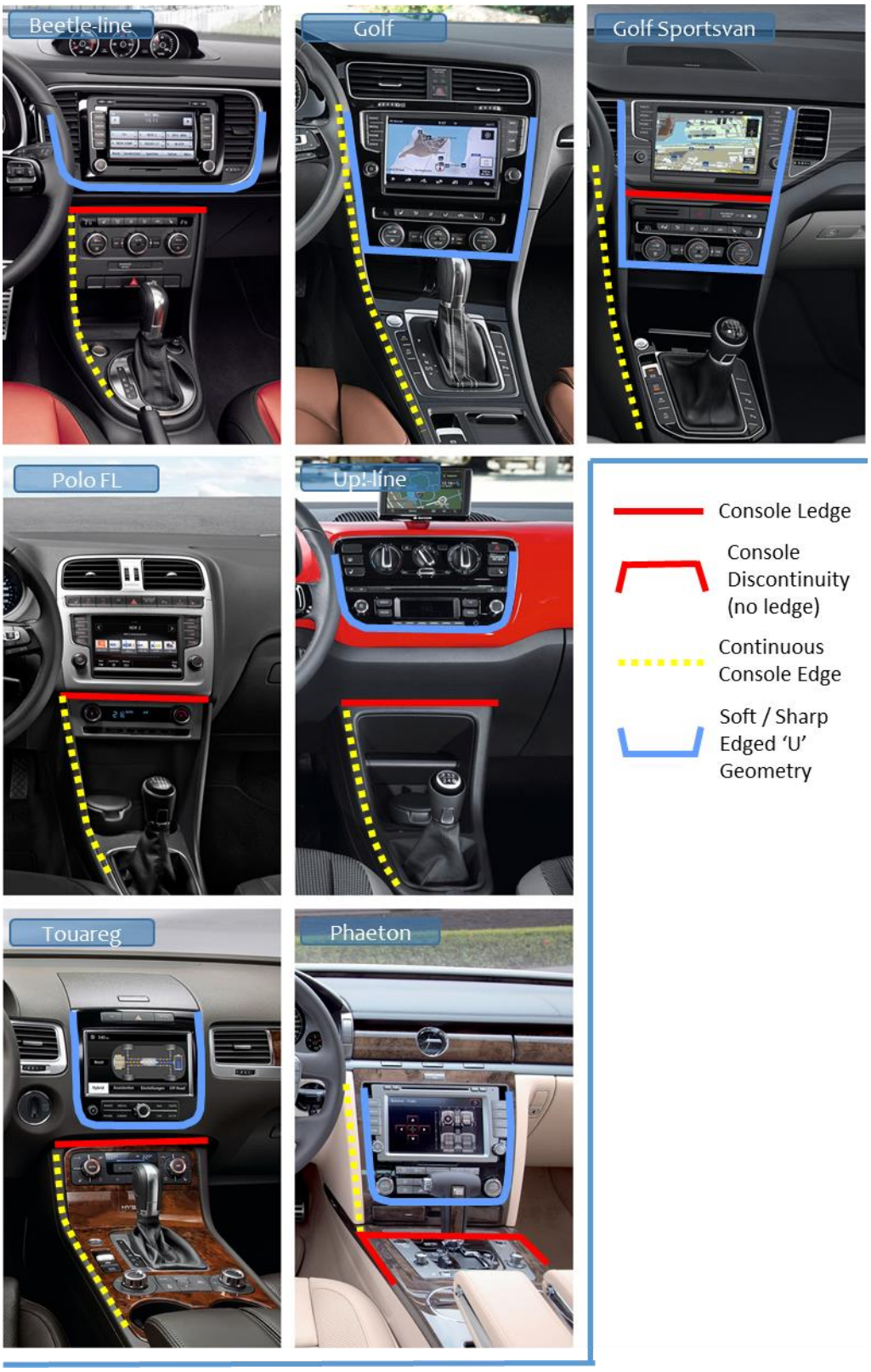


Figure 5.2-6 (continued) VBI Definitive Central Console Layout Geometrical Features of VW PC Products (Pictures originated from: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

As mentioned, Touran line has a different interior than the others. To be more precise, it has an outdated dashboard and central console layout. Regardless the platform change, only exterior design has been renovated in accordance with the current VBI. The changes on interior design are less discernable. VW PC central console, as stated, has two separate places housing A/C control buttons and infotainment system controls. In each product, these areas are significantly separated, so it is not like Volvo central consoles (see Figure 3.3-5) that has a unified set of controls for both systems. All VW central consoles, from up to down, have a horizontal air vent section, most likely with an aluminium or piano black stroke, an infotainment screen/button section in rounded rectangle shape and the A/C controls with 2 or 3 swivel wheel buttons. Touran central console, however, has the infotainment and A/C units flipped places. Also, it has rather blunt dashboard, since it is based on the previous Touran (2003 model) that is of a former VBI of the brand. Since VW central console has 3 separate sections, for over a decade, it was easy to replace the secondary controls with newly designed ones. The downside is that, in Germany, starting price of VW Touran is a few grand more expensive than the brand new Golf Sportsvan, since it is a more spacious car, but, considering the 11 year old dashboard and secondary design features that are outdated, the pricing does not seem competitive or fair. Since this case study is not about sales or marketing, this issue will not be pushed any further.

The preceding figure can also be used to observe air vent styling and alignment, as well as other central console design features. *(See Appendix C figures for uncompressed interior product images).*

Starting with Golf VII, the rounded rectangle space for infotainment system has been sharpened and has lost is traditional shape. The swivel wheel (main/secondary control

units) remained similar, however, the button quantities and layouts have been slightly changed, which is followed by Golf Sportsvan and even with Polo 6R facelift in 2014. Additionally, both Golf VII and Golf Sportsvan console layout suggest that the separation/ledge is likely to continue, but not for all models since Golf VII's console is rather unified and continuous until the armrest section between the seats. Sportsvan console has that explicitly used ledge below the infotainment system, but it has a more upmarket view. Also, it is apparent in both cars that the chrome-like stroking for air vents, button groups etc. are likely to be continued with the upcoming models. Chrome-like stroking is not a brand specific feature, many brands apply this kind of styling up to some level, but the way VW executes chrome-like applications has turned it to be a long-life explicit feature.

One feature that is not present in any VW PC product is that, no car has a central control unit for car main functions. The central screen is always surrounded by control buttons, with touchscreen capabilities in many models, however, no car has a main swivel wheel or touchpad control unit (as in ***all*** Audi models). All controls are executed through neo-traditional methods and touchscreen display. Surely, it is understandable when such feature is not present in Golf or below segment cars, even Passat may be excluded to have such feature, but this is industry-wide not acceptable for Phaeton using the same neo-traditional/usual techniques. All of its rivals in Europe have such special systems to ease the driver's experience. The infotainment system layout is almost the same with all the models ('U' shape stroking around the secondary control units), with the exception of Up!, since it uses a small separate screen in high spec versions, but this is another area of design that Phaeton should have been able to separate itself from the crowd to be competitive and special.

Gauge board design is another feature which is never *truly* product specific. All indicator outlines and rod centres has an aluminium or chrome-like stroke and they are always circular. On the other hand, in a greater detail, there seems to be 6 separate gauge board styling, gathered under 3 themes: sweetness, simplicity and technology. While Up! and Beetle lines signify sweetness with 3 circular gauges, Phaeton and Tiguan's gauge boards emphasis on technology with extensive usage of separate indicators and bigger screens. The rest of the portfolio have almost the same gauge board styling with minor differences. Figure 5.2-7 has conceptualized the gauge boards and divided them into groups. (See Appendix Figure 44 for unprocessed gauge board images).

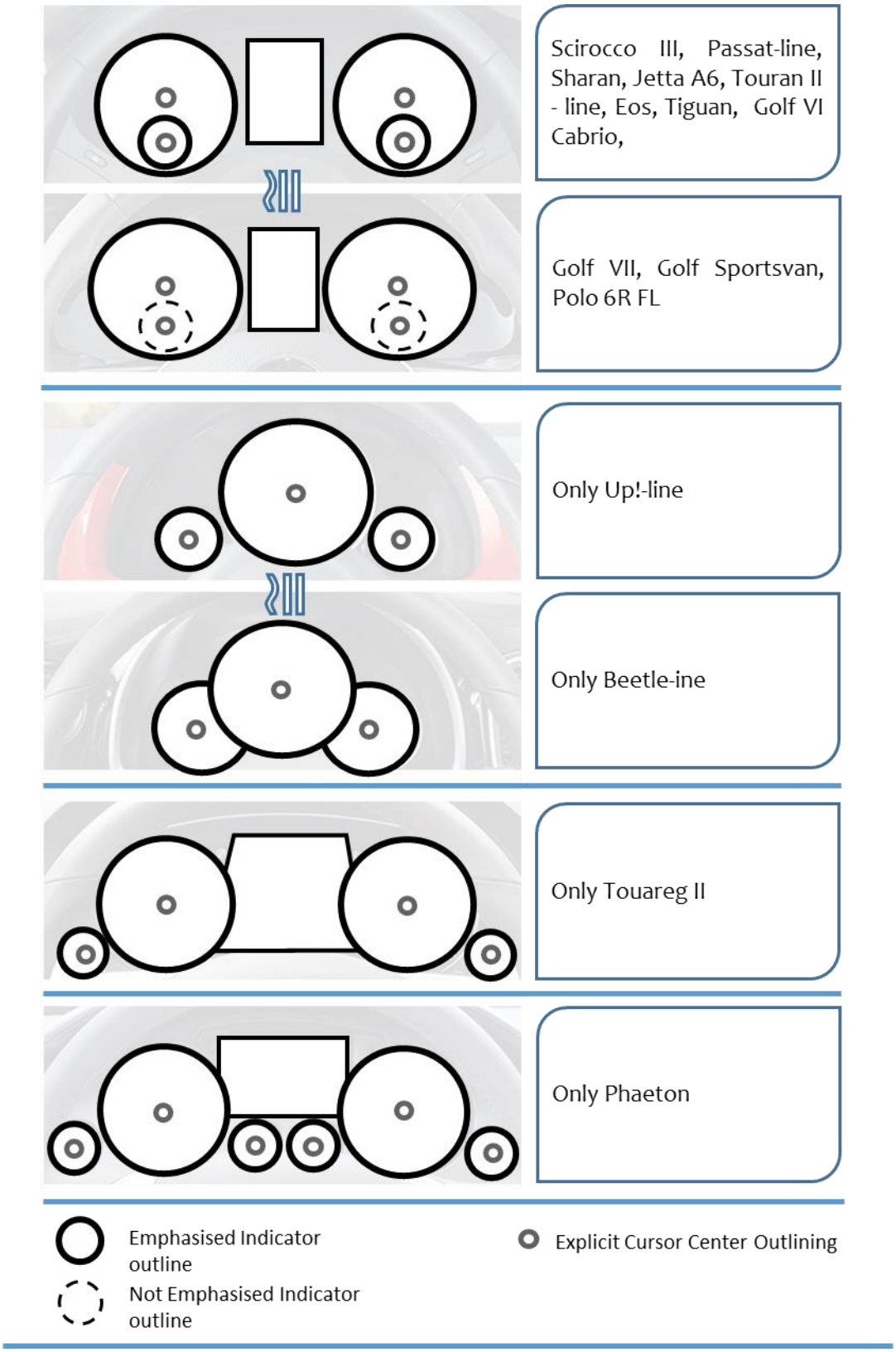


Figure 5.2-7 VW PC Products' Gauge Board Conceptualization and Grouping

Design wise, seats does not seem to be part of VBI or it is not as apparent as all the other features listed so far. However, R line models seem to have adopted similar nomenclature, pattern, and stitching details on seats (Figure 5.2-8). Additionally, R line models seem to use similar ways of altering the interior atmosphere of the car (Figure 5.2-9), mainly by intervening the nomenclature of primary control units, as well as seat patterns and nomenclature, and colour/material of secondary design details. However, it is debatable if such features are able to alter the atmosphere extensively. Suffice it to say that, it has a balance between the common VW PC VBI and sportiness.

Figure 5.2-8 R-line Nomenclature and Other R-line Design Emphasis Examples of VW PC Portfolio (Pictures: NetCarShow, n.d.)

Figure 5.2-9 Examples of Interior Design of R-line Products (Pictures: NetCarShow, n.d.)

If we turn back and compare R line models with their base models, the exterior design may or may not be that distinctive (Figure 5.2-10 and Figure 5.2-11), depending on the observer's/customer's expectations. Technically, for instance, there are only three different parts between a Golf hatchback and a Golf R, which are front and back bumpers and side skirts. These differences are merely cosmetic and without any effect on the body work. In that regard CC (formerly known as Passat CC) is quite the exception. While interior design has no significant differences from a common Passat B7, other than a few nomenclature and secondary design detail differences, the exterior body parts are completely different, creating a distinctive look. However the same thing about CC is also its weakness. Since exterior design and driving character are sporty, the same difference is not signified in interior as it should have been, which can be interpreted as a design wise confusion. The very same problem exist in Scirocco. With its most distinctive exterior design in the portfolio (and strongest PI), it still shares the same interior, except for the side door styling, with Eos which in fact is very similar to Jetta and Golf. It has an extremely unique look from the outside, not just in the portfolio but also among the crowd of EAM products, it has a very nice mixture of comfort and sportiness, but interior design is nothing but functional and humble as the rest of the portfolio.

Figure 5.2-10 Latest R-line Models of Beetle, Golf and Scirocco (Pictures: NetCarShow, n.d.)

Figure 5.2-11 Exterior Design / Nomenclature Details of R-line Products of VW PC (Pictures: NetCarShow, n.d.)

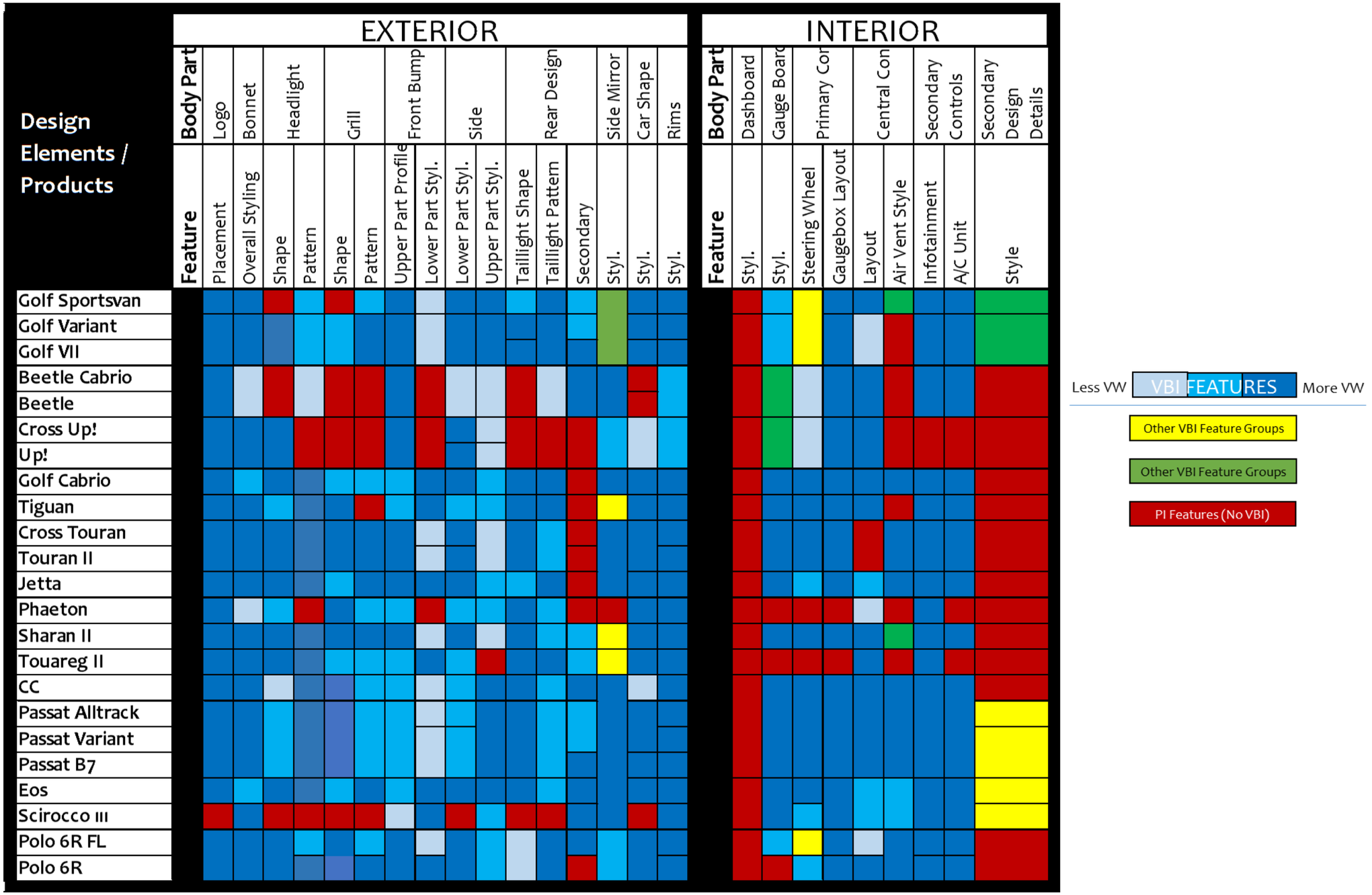
Bluemotion models seem to have a few similar features on the exterior design. Actually, there are only two of them that are worth mentioning: First, these models do not have a horizontal chrome-like strip(s) like their base models. They rather have a piano black background that only house the logo of the brand. Also, all models get a bluemotion tag on the back of the car, where the engine digits are present. Additionally, the grill may or may not have a very thin horizontal strip on the lower edge of the grill. Bluemotion design feature examples can be seen in Figure 5.2-12.

Figure 5.2-12 Significant Bluemotion Design Features of VW PC (Pictures: NetCarShow, n.d.)

Given the circumstances, and the discussion that has been executed within this section of the work, a table has been constructed, based on the design elements/features that has been pointed out in this section (Table 5.2-2). It should be noted that, constructing such figure is partially based on personal observation and experience, as well as undeniable geometrical similarities that has been found out during the study. The table sums up all major VBI determinants and which elements/features have been selected to define PI of the products. While reading the table, understanding the colours' meanings and outlining has great importance;

- **Green and yellow coloured** features are also part of the VBI definitive features, but they are not the main VBI definitive features. This may result from a newly introduced (or evolutionized) feature (e.g. new secondary control unit layout of Golf VII), or a feature that has no equivalence with the majority, but has at least one other product to have that exact or similar feature (e.g. Tiguan and Sharan II side mirror shapes). If both colours are present in the same row, which means that there are 2 other VBI definitive (but less significant) styling for that design feature.
- **Dark red coloured** features are specific to that product and it has no equivalent.
- **Black coloured outlining** is used to group some products in the same row. If, for instance, two products are coloured red and no outline between them, this means that the feature is exactly the same (e.g. all Passat's have the same exact dashboard and central console).

Table 5.2-2 VW PC Portfolio Design Elements and Distrubition of VBI Features amongst the Products



The primary interpretation of the table, would be that, Passat-line products are the ***most VW's*** *(exterior/interior)* and, as discussed earlier, alien products seem to be ***less VW's*** *(exterior)*. Phaeton and Touareg seems to be the most alienated cars for their interior atmosphere, but still Phaeton's overall interior design remains outdated and has an inability to compete with its rivals.

These interpretations may slightly vary from the scope of the viewer, depending on how he/she comprehends the VBI phenomenon. But the proposal of the work, personal experience and interpretation of the table has led to these conclusions

So, how can we conceptualize a VW exterior and interior VBI's? What technically a central console, or front of a VW PC product look like? Following figure illustrates the conceptualized VBI interior and exterior of a VW PC product. Those concepts may be regarded as a *'Why Not'* product in the portfolio, or an upcoming model. Car body type and box styling has been discarded, in order to achieve a more accurate outcome (Figure 5.2-13 and Figure 5.2-14).

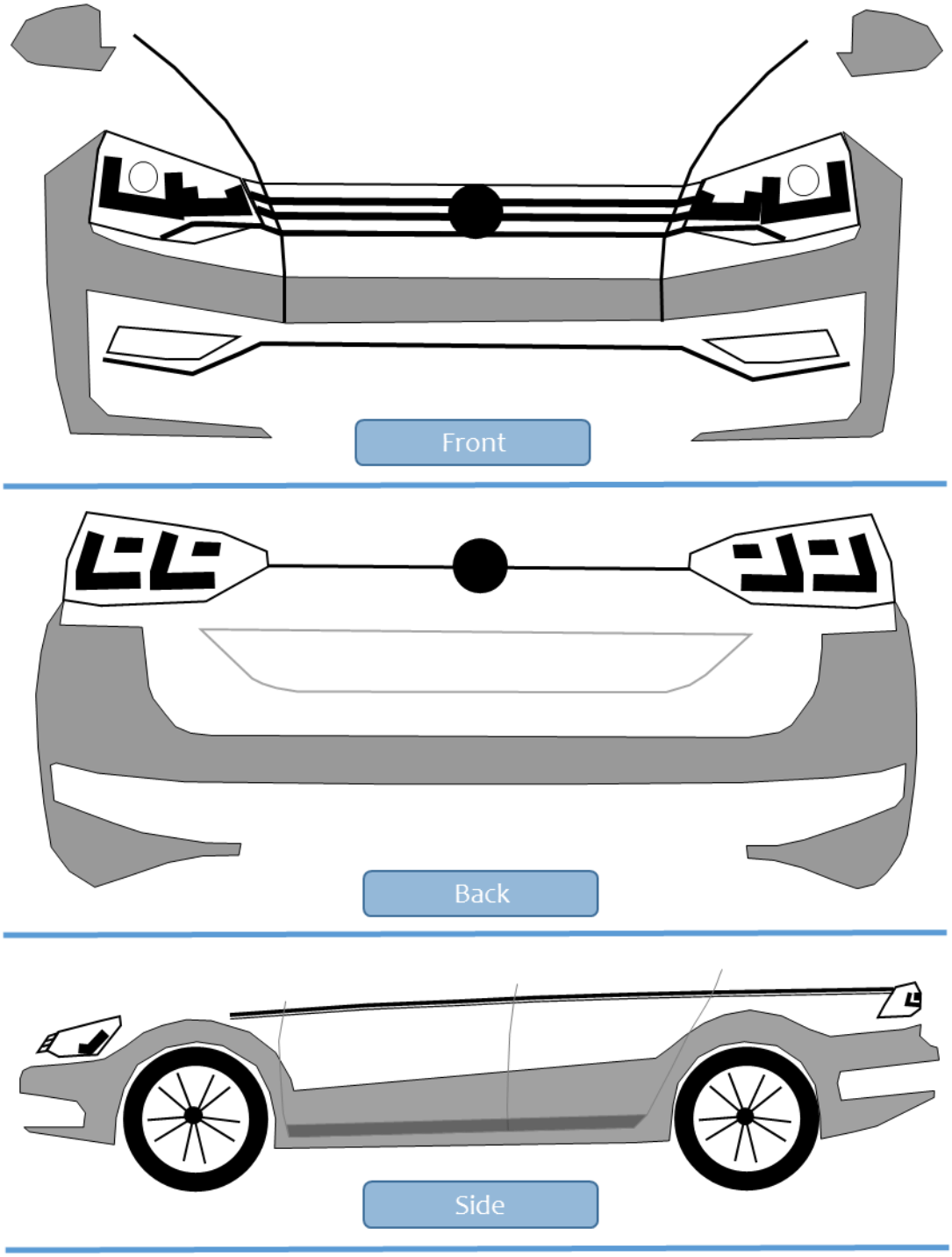


Figure 5.2-13 Conceptualization of VW PC Exterior VBI Definitive Features

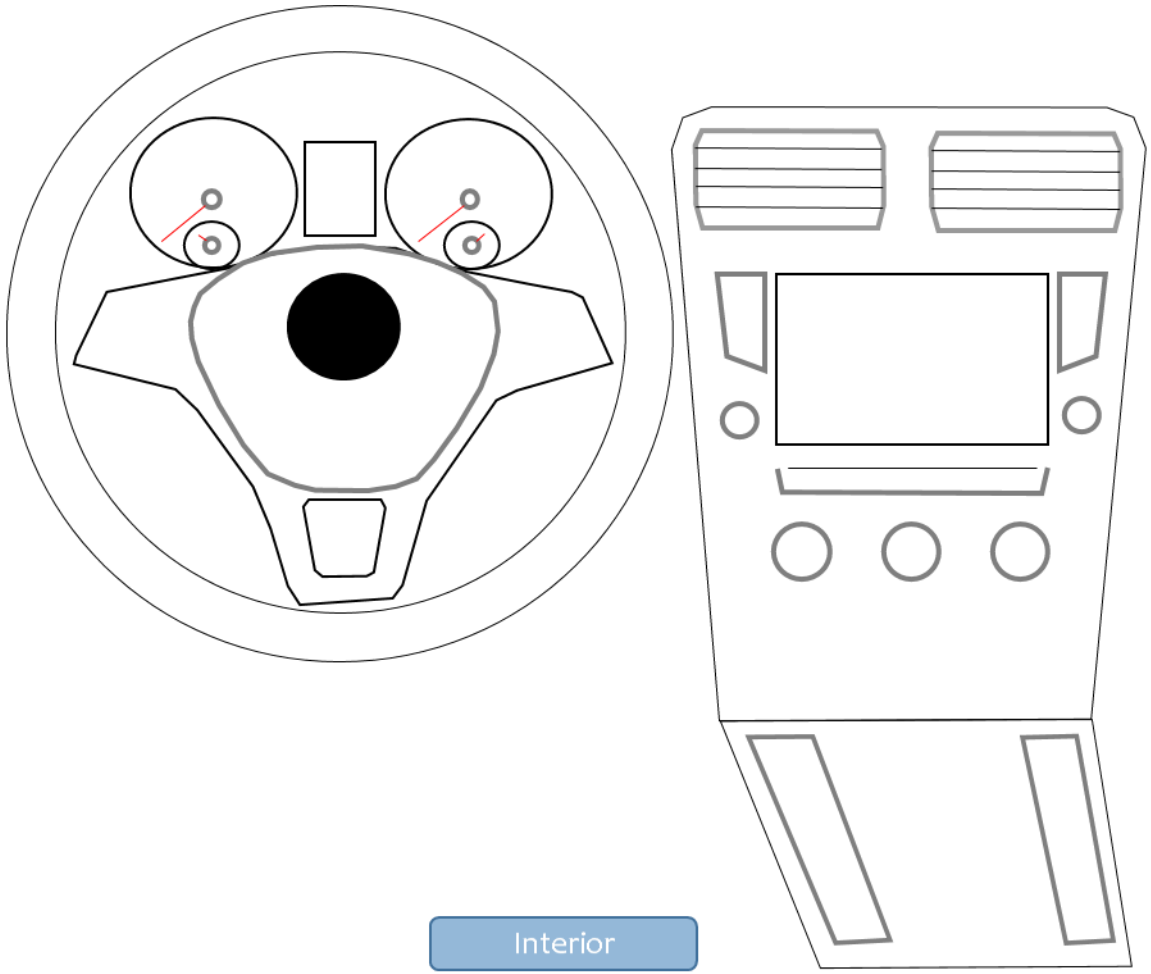


Figure 5.2-14 Conceptualization of VW PC Exterior VBI Definitive Features

5.3 *Identical/Similar Design Features between VW Group models: VW, Audi, Seat, and Škoda*

Group wise, VW is one of the companies that has the ability to recycle its VBI determinants. Broadly, there has been a *character flow* starting from Audi to VW and then to Škoda and Seat. This flow is still apparent on the exterior design, however, Audi seem to parted ways with the rest, since that brand's competitors are quite challenging. So design wise, Audi products have to look distinctive than the rest of the VW AG brands and have to be even more prestigious than what VW cars have become today.

Comparing Audi and VW PC portfolio historically may reveal how this character flow has been conducted and how have these features been recycled over time, which would have been another research topic, revealing a long-term design model that might be beneficial for many design-oriented projects. Since this is not the main concern of this research, it is suffice it to claim that, if Audi has used a VBI that used to have a name **A** and has renovated to **B**, then the current VW PC portfolio would be designed with recycling some features of A. When VW starts to abandon or renovate A, then some of those features are recycled to be used in Seat and Škoda portfolios. This should not be interpreted as that these 4 brands share the same VBI, or adopts the same language, but there are some vivid features that are shared nonetheless.

There has been quite a few complaints by design enthusiasts about the resemblance between these 4 VW AG brand products. Additionally, some others have also commented on the issue of resemblance between models within the same portfolios. Even though these complaints/ commentaries have been mainly subjective, and seem to have no impact on the success of the company, some technical details need mentioning

that are not well defined in terms of design. No extensive research has been found focusing on this phenomenon. Following figures illustrate some examples of identical design features between Audi, VW, Seat and Škoda products[11].

[11] Unprocessed product images for the following figures of this section can be found in Appendix D (Appendix Figure 45, Appendix Figure 46Appendix Figure 47Appendix Figure 48 and Appendix Figure 49)

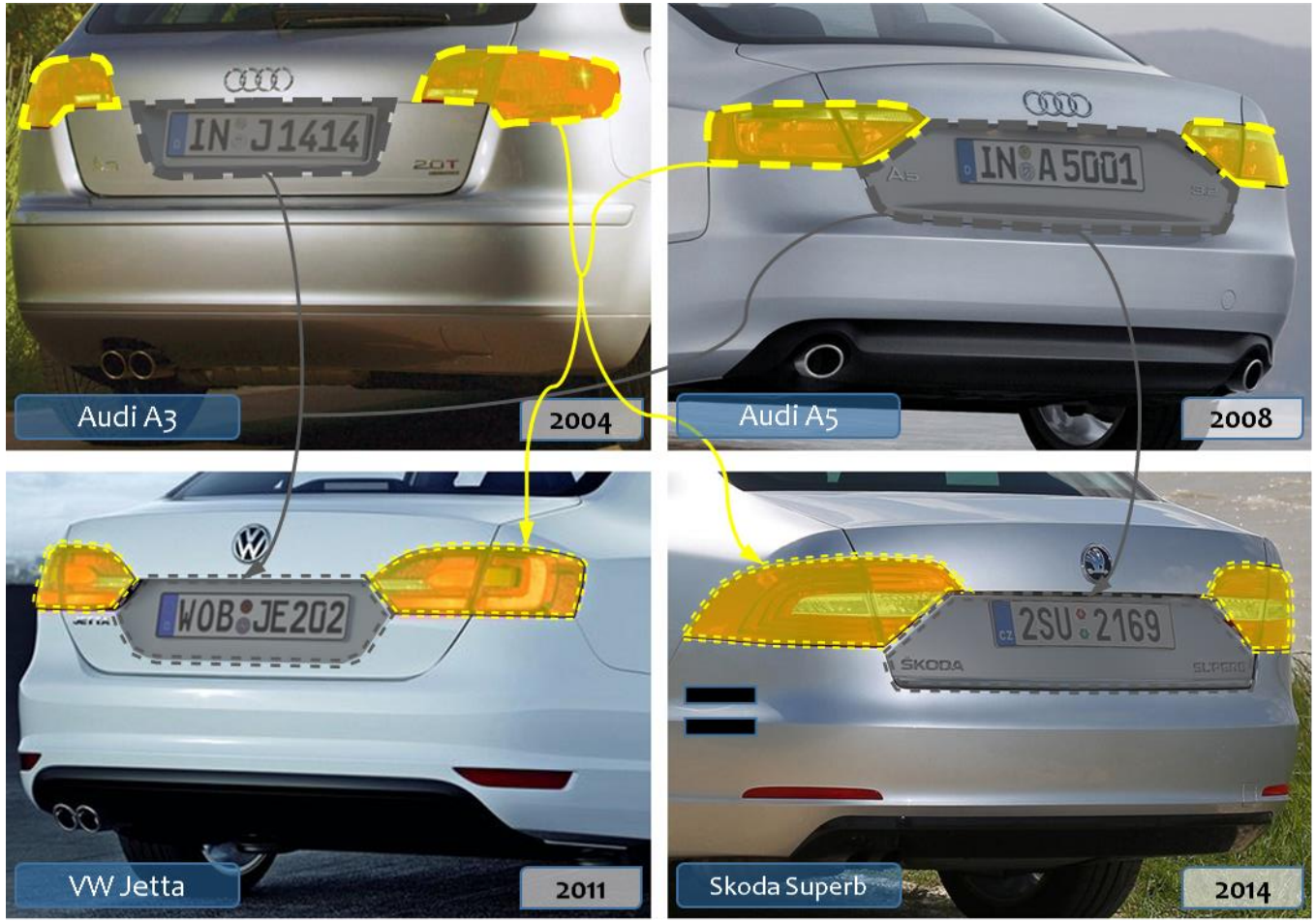


Figure 5.3-1 Rear Design Geometrical Similarities between Audi, VW, Seat and Škoda Products (NetCarShow, n.d.)

Figure 5.3-1 (continued) Rear Design Geometrical Similarities between Audi, VW, Seat and Škoda Products (NetCarShow. n.d.)

Figure 5.3-2 Explicit Side Styling Evolution Starting from Early 90s from Audi Products to early 2010 Model Products of VW and Škoda (NetCarShow, n.d.)

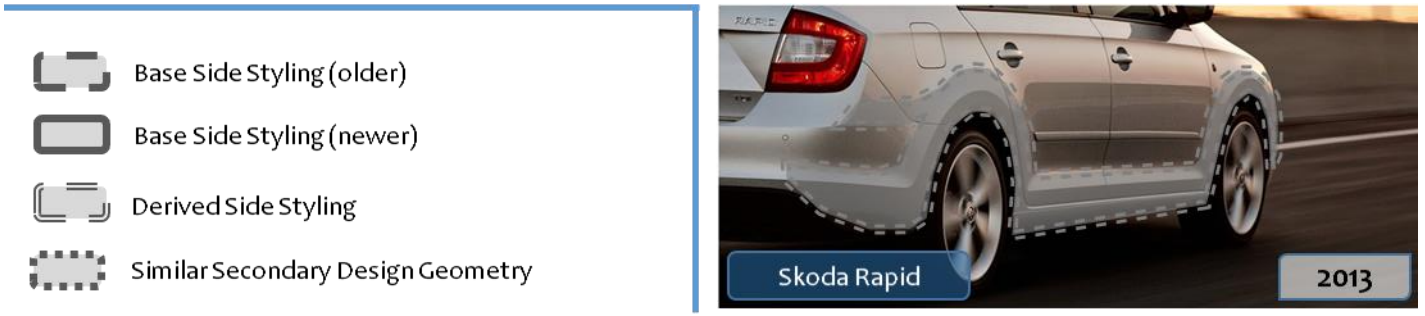


Figure 5.3-2 (continued) Explicit Side Styling Evolution Starting from Early 90s from Audi Products to early 2010 Model Products of VW and Škoda (NetCarShow, n.d.)

Figure 5.3-3 Resemblance between VBI Definitive Design Elements of Audi-Seat and VW-Škoda Products (NetCarShow, n.d.)

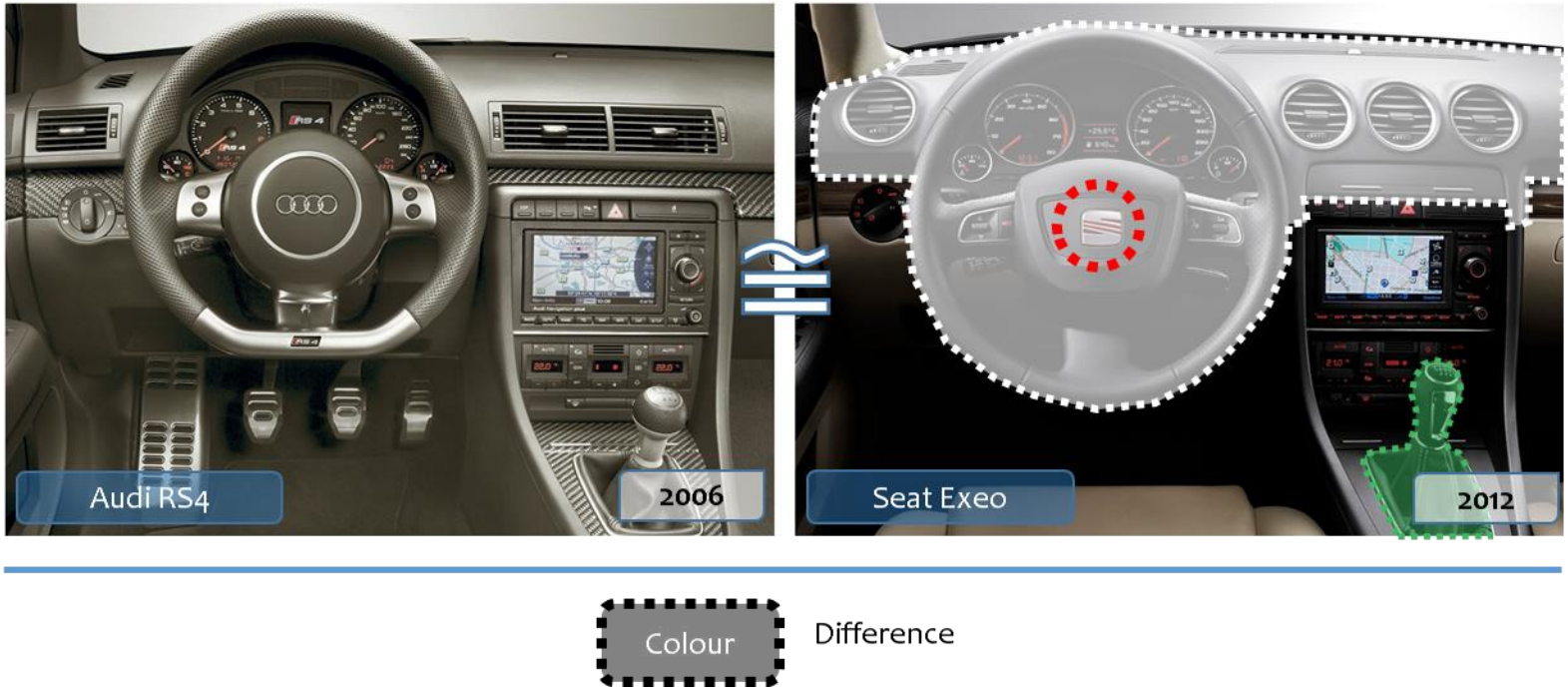


Figure 5.3-3 (continued) Resemblance between VBI Definitive Design Elements of Audi-Seat and VW-Škoda Products (NetCarShow, n.d.)

Figure 5.3-4 Resemblance between Main Control Units, Secondary Control Unit Layouts and Secondary Design Details between Audi, VW Seat and Škoda Products (NetCarShow, n.d.)

Figure 5.3-4 (continued) Resemblance between Main Control Units, Secondary Control Unit Layouts and Secondary Design Details between Audi, VW Seat and Škoda Products (NetCarShow, n.d.)

Figure 5.3-5 Identical Design Features between Different Marque's Same Platform Products (NetCarShow, n.d.)

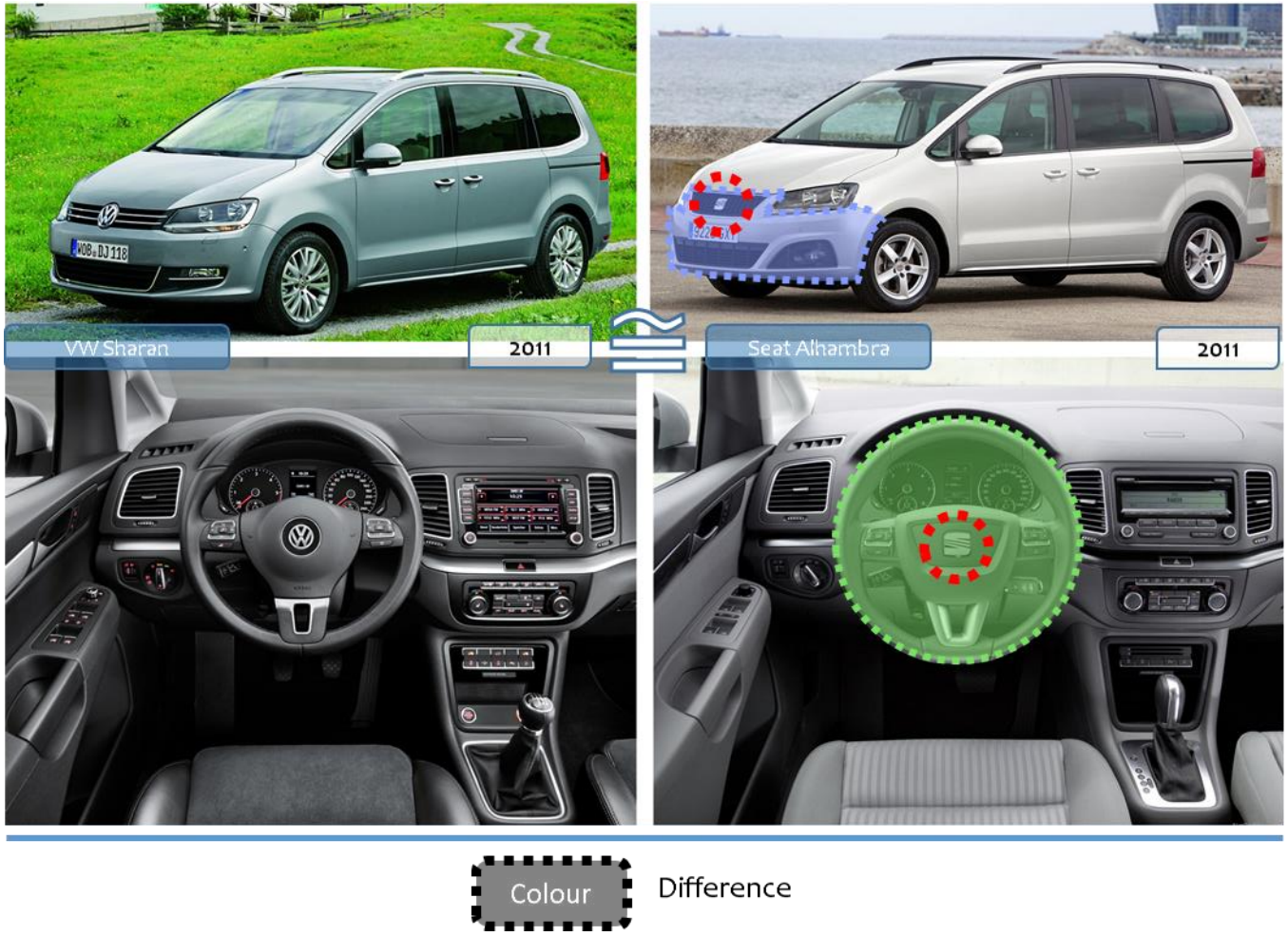


Figure 5.3-5 (continued) Identical Design Features between Different Marque's Same Platform Products (NetCarShow, n.d.)

5.4 A Comparative Historical Analysis of VBI on VW Passenger Cars: Beetle, Golf and Passat

The comparison that is executed in this section is to prove that, the VBI alterations/transformations of VW PC products have been dominantly evolutionary since mid-90s. In Beetle's case[12], the timeline is stretched too far and for almost half a century after its first production, the design of the product has almost stayed the same. So while addressing the last 4 versions of the classic Beetle, the exact model years are not given.

5.4.1 VW Beetle

First model introduced in 1938 and has been peen produced until 2003. It is probably the only car in the history to be produced non-stop without significant design updates for over 50 years. Even with the New Beetle entered the show in 1997, the iconic and unquestionably classical VW Type 1 has continued to be sold worldwide and still has its own fan pages and reselling advantages.

The form of Type 1 has been partially influenced by Porsche. The engine alignment and type (boxer engine) has had a massive positive effect on the shape of the car. The classical models have been known for their unique design, affordability and flexible usage around town. Eventually, it has become an iconic model of VW PC cars, which pushed the design team to produce a brand new Beetle in a neo-traditional form.

New Beetle (1997 model) exterior design, was highly influenced with Type 1. Even then, New Beetle was an alien car to the portfolio, but was actually the closest model to the brand heritage. The interior design, however, was the most alien interior for the last 20

[12] Official name for the classic Beetle isType 1, which is first introduced just before WW 2

years of VW PC interior VBI. The model has not shown any retro feature on interior design which may have created resemblance to the past of VW, nor any VW product back in the days. In that regard, interior PI was unique, but was not successful.

The Beetle (2012), however, probably is the most successfully designed product by VW up to now. It has evolutionized The New Beetle's exterior design, with current portfolio VBI additions. Overall, it continues to be alien to the portfolio, but it is a very successful transcendence between VW brand heritage, VW PC design heritage, and current VBI. This claim is even more supported on the exterior design. The dashboard layout and glove box position has been designed in such a way, it is able to reflect the classical models almost flat dashboard and glove box position/shape. Since the central console house the common VW PC instruments (infotainment system and A/C unit layout), interior design is not alien to the current VBI, with successful and strong references to the Type 1's legacy.

The significant features that have been recycled/reproduced are illustrated in the following figures.

Figure 5.4-1 Overview on the Evolution/Revolution of Beetle's Exterior Design Elements (NetCarShow, n.d.)

Figure 5.4-2 Overview on the Evolution/Revolution of Beetle's Interior Design Elements (NetCarShow, n.d.)

5.4.2 VW Golf

Golf is the top selling C segment hatchback car in the world, which is a well-known fact. Starting from 1997, the model has never had a serious facelift. In fact, Golf IV, Golf V, and Golf VI has been completely renewed in 7, 4 and 5 years respectively. Golf IV was the boxiest model of the four, with circular headlights. Both exterior and interior design has been revolutionized in Golf V and has been evolutionized on forward. After the boxy looks has been completely gone with Golf V with its smoother edges and headlight/backlight outlines and bumpers, the model has followed a path to sharpness in each renewal. This is less visible in the interior design, since most of the secondary control layouts have almost stayed unchanged.

The portfolio-wide explicit bonnet styling is present in all Golf models, with varying signification. While the physical emphasis on bonnet lines has been increased with each model update, Golf VII has transformed the convex profile of the bonnet, to a concave profile, which is the major feature on all existing models, except for Eos and Golf VI Cabrio. In 90s, concave profile has been present in Passat, Polo and Touareg models respectively as well, but between 2000 - 2009 model cars, concave profile remained only in above D segment products and it was not until Polo 6R and Scirocco III to lead the portfolio's bonnet profile to concavity, discarding it from the prestigious effect list (or it should mean that all VW cars are prestigious but Eos and Golf Cabrio).

With the latest model update, Golf has brought back Golf III's air vent design and, as a result, it is the only model to have an asymmetrical central console layout not only amongst the latest 4 models, but also in the current portfolio. The infotainment button layout has become triangular, which is also followed by the Golf Sportsvan and Polo 6R facelift.

Another update with Golf VII interior was to bring back the three swivel wheels that controls the A/C system from Golf V. That layout had been down to two swivel wheels in Golf VI.

Lastly, the steering wheel layout has also been successfully evolutionized with Golf V and on forward. While the dashboard and secondary design elements have been completely renewed, the gauge box seems to have kept is simple and minimalist layout, as it has been mentioned in section 4.2.

Since the platform engineering has been becoming more and more flexible and sophisticated, extensive renewal or complete change of chassis is likely to become less common in the following years.

Figure 5.4-3 Overview on the Evolution/Revolution of Golf's Exterior Design Elements (NetCarShow, n.d.)

Figure 5.4-4 Overview on the Evolution/Revolution of Golf's Interior Design Elements (NetCarShow, n.d.)

5.4.3 VW Passat

When compared to Golf's history, Passat has a long renewal cycle. The 4 models presented in the following figures has shown that, the product life cycle is maintained by extensive exterior facelift, rather than extensive renewals and keeping the interior design almost the same.

Passat B5 has been introduced in 1996 and had facelift in 2001. While the overall exterior has been preserved, front end of the car had a serious update, pushing the boundaries of evolutionary approach. Until 2005, Passat B5 facelift model (or simply Passat B5.5), the car has continued to be in the European market, with its extremely old interior and 9 year old platform. With Passat B6 (2005), interior design had a very extensive renewal, which then influenced all upcoming models' central console elements. Additionally, B6 has been built upon a completely new platform.

Passat B7 was officially announced as the new Passat by the company. Exterior design has been completely renewed, while preserving some features in a retro perspective. Also, it is one of the most significant revolutionary exterior design renewal for the last decade, but since it was done to match portfolio, following the sharpness that Polo 6R has provoked so portfolio wise, renewal remained evolutionary. On the other hand, this official announcement was practically misleading, since the platform has not been changed in any way and the dashboard has not have a single update. Most significant updates on interior has been the current portfolio steering wheel layout, door interior styling, extensive usage of control buttons around the gearbox handle and the replacement of quad light button with a weird (personally unnecessary) miniature analogue clock.

Considering the product life cycle, which Sörensen has pointed out, Passat renewal has always exceeded this period. Design wise crude but market wise smart renewal strategies has allowed VW to extend Passat's model life. In the similar time period, Golf has had 3 extensive renewals.

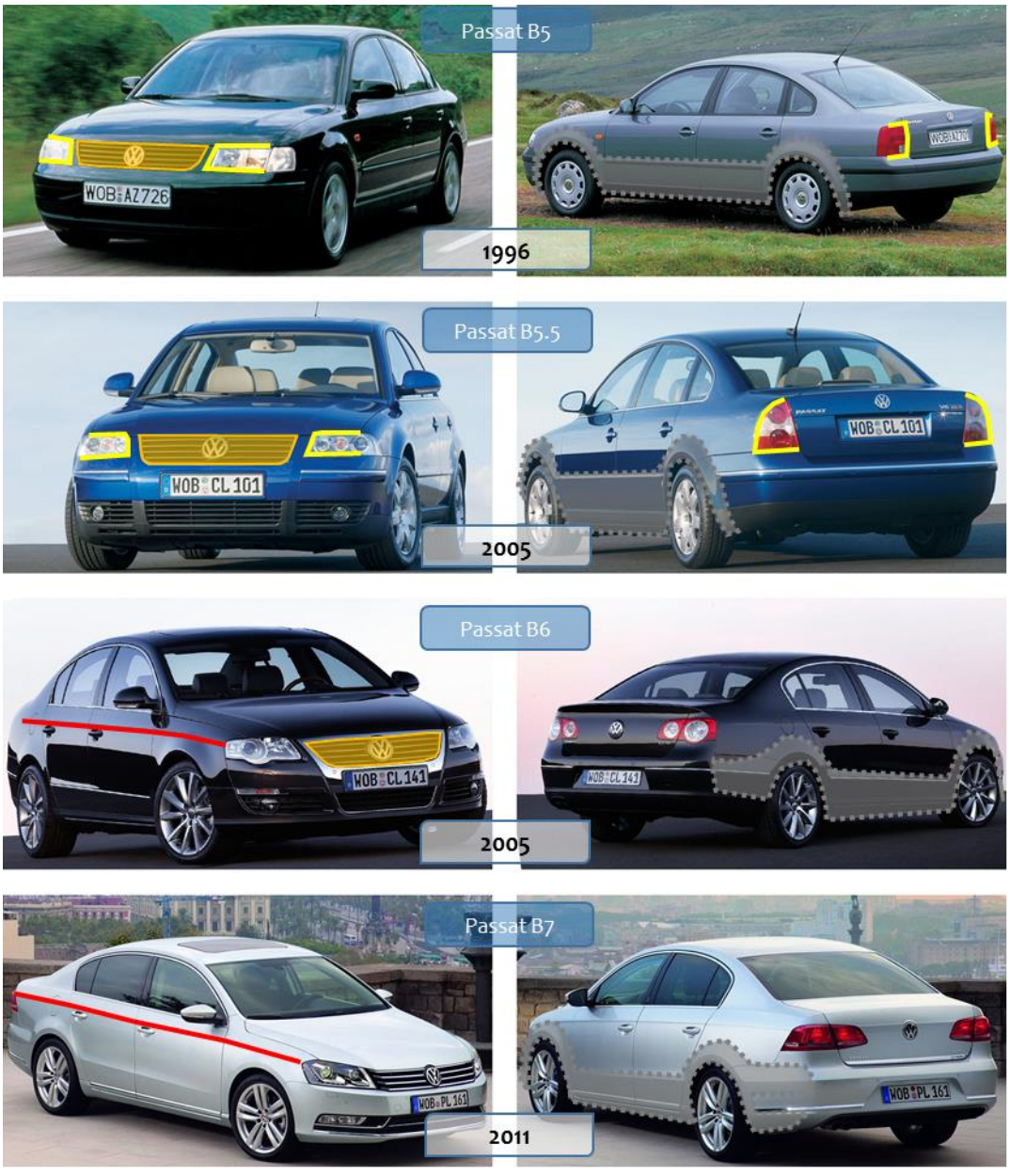


Figure 5.4-5 Overview on the Evolution/Revolution of Passat's Exterior Design Elements (NetCarShow, n.d.)

Figure 5.4-6 Overview on the Evolution/Revolution of Passat's Interior Design Elements (NetCarShow, n.d.)

6 CONCLUSION

RQ: How is VBI creation achieved in automotive design and how it is handled on VW models?

Answer to RQ: Modern approach on automotive design consists of product specific and portfolio related features, which the work has addressed as PI and VBI features. A successful mixture of both provides easy recognition of a brand through its portfolio and ease of distinguishing a single product with its balanced design character. Additionally, thanks to the brand heritage and richness of the auto group, VW design management has an ability to recycle some of outdated design features, while designing new models. Although, VW portfolio has provided such explicit features that create an easily understood and unique VBI, all but the alien products suffer from personality, which complicate the product identification process. A common user may confuse a Golf and Polo models, or may not be able to realize and experience the difference between a Phaeton and Passat, regardless the huge segment gap.

SRQ 1: What is the connection between brand and design and how Design Management field comprehend these concepts?

Answer to SRQ 1: Brand heritage has a significance for the design team. Since brand

definition is always subjective in consumer's mind, design management should build a strong bridge between the subjectivity and company's main goals. To do so, DM has to understand and carefully observe the brand's core values and manage the business side of design for a successful outcome in terms of design.

SRQ 2: What are the importance of design characteristics/features and how are they interrelated with brand?

Answer to SRQ 2: The work has given several citations on the matter, which all support the idea that physical domain has a grave importance since it is the embodiment of brand and the last stand between the consumer and the company. When DM process has been executed successfully, the subjectivity and company's goals are aligned. The case study has also supported this idea relatively. Since VW is expected and marketed to be the people's car, the simplistic approach on design language sets Das Auto and people's car definitions into motion.

SRQ3: What are the main design features of an automobile model and how they are executed/transformed in the entire product portfolio of VW

Answer to SRQ 3: Section 3.2 has pointed out the main design features of an automobile. The case study has used the frameworks presented in that section and detailed product parts/areas that house explicit and implicit features. Both personal experience and case study support the idea that bonnet styling, headlight shape and patterns, grill layout and patterns, side styling, backlight shape and patterns, and sub-model line signification (slightly different bumper and grill design and nomenclature in R-line and Bluemotion models; lower side, front and back bumper difference in cross-lines) define the exterior

VBI of VW PC. For the interior VBI of VW PC, gauge box and steering wheel layout, gearbox handle and air vent outlining styling, secondary control units, sub-model line nomenclature (R-line signification / nomenclatures on steering wheel, seats, and/or gearbox handle), and (up to some level) central console layout seem to be the main determinants. VW PC, as mentioned, has reproduced some features, not only in the current portfolio, but also within the last 20 years. Since the portfolio width is high and design approach is evolutionary this puts VW PC VBI into the Conservative – Evolutionary field (Figure 6-1). VW has 14 different model-line names; 3 different sub-lines (cross-; R-; Bluemotion); all Euro Car Segment coverage except for E and 23 total products on sale in German market. Therefore, the portfolio has 22 different PI's, however, the resemblance between the highlighted features for the sake of VBI, complicates the recognition process of each product separately. Even considering solely model-lines, creating multiple PI's is not in VW's strong suit, in terms of design.

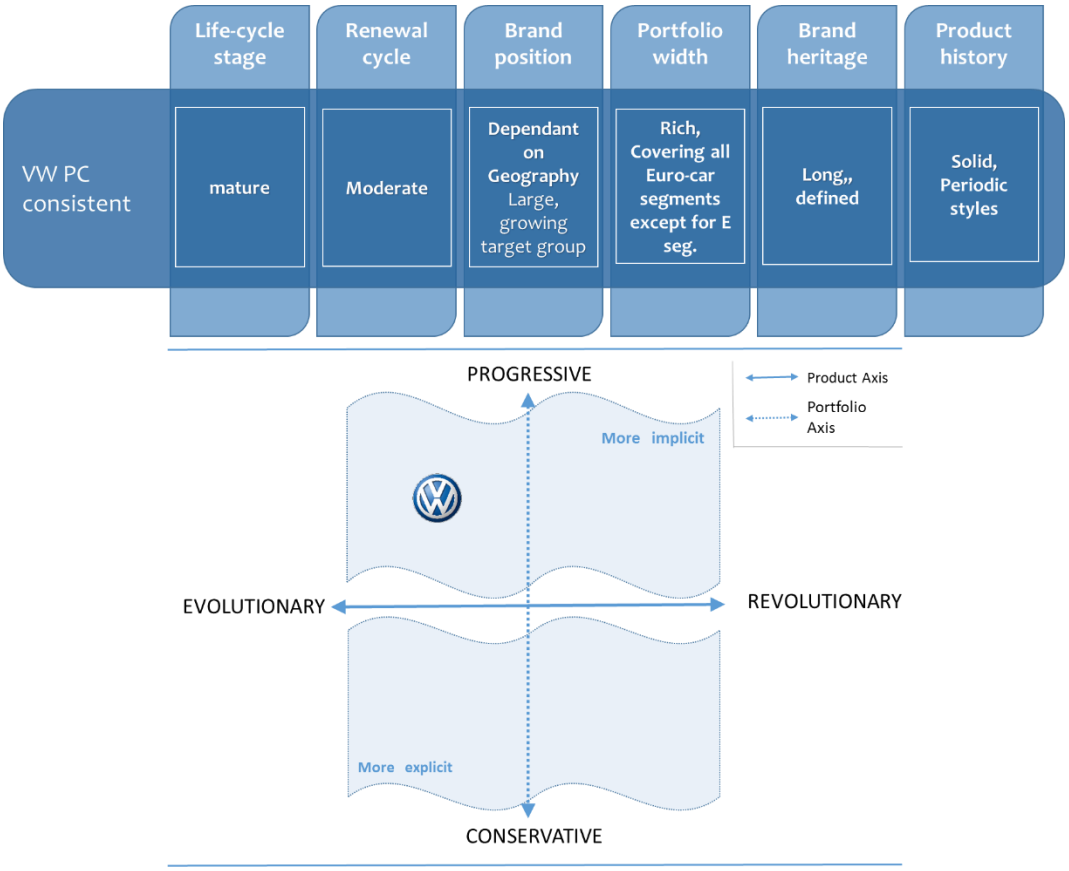


Figure 6-1 VW PC Portfolio Strategy and Design Philosophy Character

Simply put, VBI creation is not an easy process, when there are more than several competitors and there is over a century history. However, PI creation is even harder. Despite the fact that VW brand has a strong presence in the market, its VBI is so simple that it shrinks the individuality of the products, complicating the PI recognition process. It is not this work's place to claim if this was the driving factor of Phaeton's unsuccessfulness, but it would have been a nice case study example for **'VBI feature recycling between different brands of the same auto group to lower DM costs and increase company revenue. Does it have a planned framework?'**, based on comparisons between VW AG brands' current VBI's, in depth historical analysis, counter-comparisons

to find out how the VBI feature recycling has been executed between Audi, VW, Seat and Škoda products.

If we turn back to my own statement about design, which is, **'There are some brands who follow the design, and there are some other brands who define that design',** where can VW be put? Is it a follower, or the leader? If this research was in engineering or MBA fields, the answer would probably be 'a leader', since the company has earned numerous achievements and awards in both fields and today, it is the most profiting automotive union in the world.

Design-wise, VW is neither a leader, nor a follower. There is nothing ground-breaking or creative in VW design language, both literally and figuratively. VW PC uses old-school techniques where many brands have abandoned and transforms unoriginal, not brand specific design features into neo-classical features which, eventually, become a VW specific feature. Then the process seems to recycle itself over and over again. By doing so, both VW AG and VW PC portfolios remain somewhat differentiated from the current trends. This strategy as a whole literally proves Hermann Oberth's statement to be true. ***'Our educational system is like an automobile which has strong rear lights, brightly illuminating the past. But looking forward things are barely discernible.'***

Majority of the audience is not ***indifferent*** about VW brand, considering its brand value amongst the manufacturers and since there exists more than several worldwide and nationwide VW unions and consumer made websites. Although, VW AG/PC brand equity but might be indifferent about the individual products. Is it a bad thing for the company? Probably not as we designers might think it is. Bottom line, VW has a very easily understood VBI, but majority of the products suffer from PI, as outlined on many occasions and supported with illustrative techniques as possible. This works well for the

common models and even design wise problematic resemblance between models may even give the idea of a Polo driver that it is just a smaller version of the iconic and considerably prestigious C segment Golf. It is also obvious that, except for the alien models, all VW PC products seem to be consisting of basic geometry on exterior design, lacking organic design elements, or nature references (e.g. Opel Astra's implicit *hawk/eagle* reference with its headlight shape and patterns). That is the reason, VW design lacks empathy, but since it is THE CAR, which does not exist in nature, and automobile is one of the most sophisticated design entity that the mankind has ever created which anybody could touch and see, and experience, it is also quite understandable and less subjectively censurable, considering the brand's and company's success.

In the ***design field***, VW has been doing, what Apple has been trying to do with their portfolio strategy. VW has a progressive way of handling the portfolio with very easy geometries on their products, shrinking the variety of PI's to only a few; Apple has been producing iconic and very easily understood and unnatural, basic geometrical products, while keeping the portfolio width small. The very same strategy has also been executed by even one of the world leading PC Game manufacturers; Blizzard. Same portfolio strategy with Apple and almost identical strategy of character design with VW PC VBI strategy.

Combining and analyzing these 3 iconic company's portfolio strategies and design management related approaches on character modelling/product design would have been an extensive and illuminating research topic for ***design studies***.

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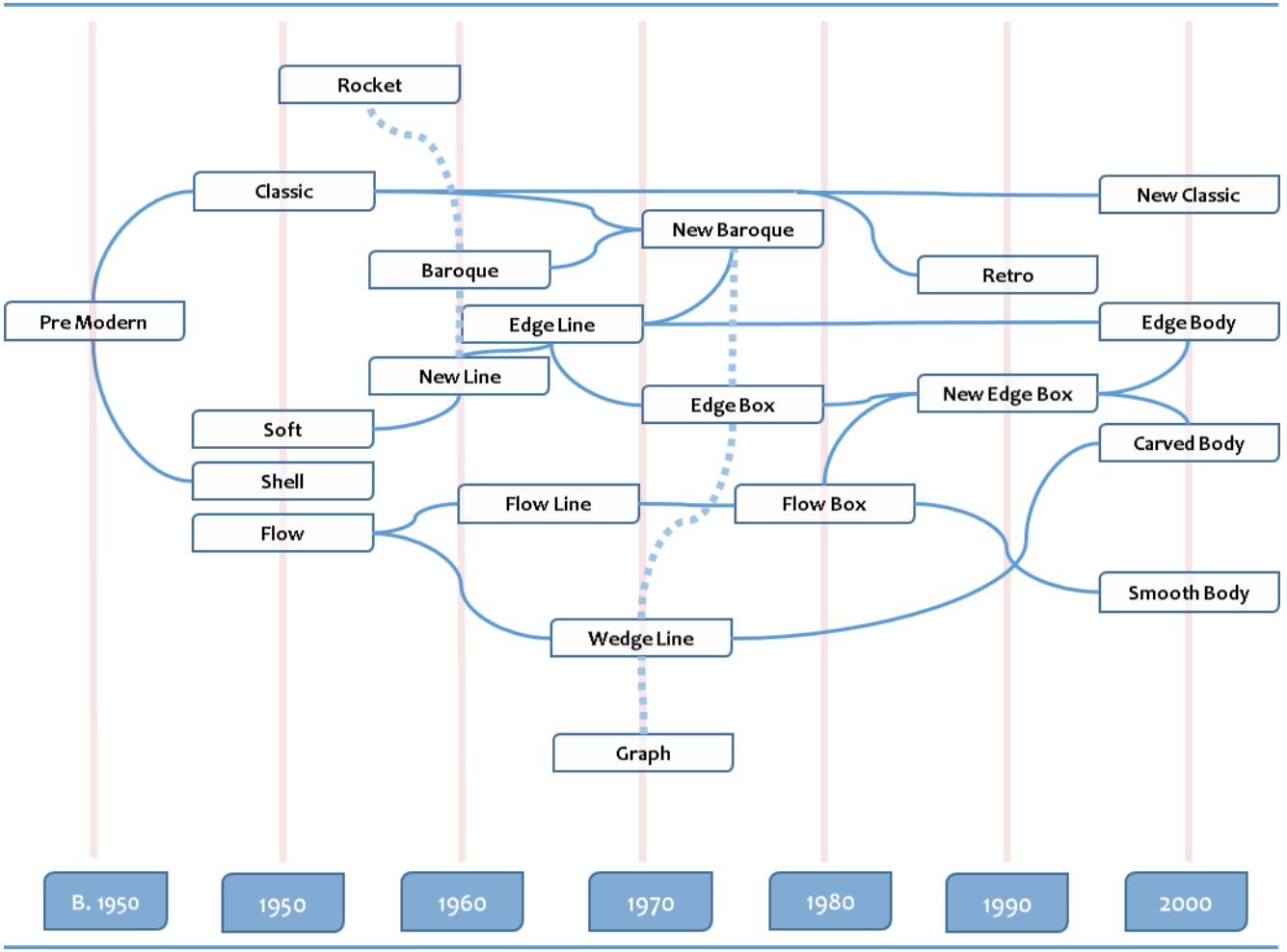
APPENDICES

Appendix A *Trends in Modern Car Design*

Tuminelli has addressed the trends in modern car design and the periods of the alterations/transitions happened. The work has addressed some VBI feature examples from the European market; has analysed all major VBI determinants in the current VW PC portfolio; compared some significant similar features between VW, Audi, Seat and Škoda and executed a brief comparative historical analysis of VW Beetle, Golf and Passat respectively. Although Tuminelli's illustration is not directly related to VBI phenomenon, it may contribute in understanding VBI feature transitions depending on trends.



Appendix Figure 1 Trends in Modern Car Design (Originated from Tumminelli, 2004)

Appendix B *Current VW PC Portfolio in Germany Market*[13]

Current VW PC portfolio consists of 22 different models and a newly updated Polo 6R model. Due to obvious reasons, clear and considerably larger product images could not be supplied within the body of the work, which is why, the existing product portfolio images have been addressed as appendix figures, in chronological order of the product appearances. However, if a product shares the same interior with a formerly introduced vehicle, the lately introduced product images have been put following the formerly introduced model.

Model years indicate the first model year of that product (e.g. VW Sharan II was introduced in March 2010 Geneva Motor Show, but first model year to be sold in Germany was 2011) and predecessor emphasis that there has been an official model under the same name. If there is no predecessor indicated (e.g. Eos), it means that that product is the first of its line or the former model used to have a different name.

[13] www.vw.de

Appendix Figure 2 VW Polo 6R (2009) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 3 VW Polo 6R (2009) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Product: **VW Scirocco III**
Model Years: **2009 –**
Predecessor: **VW Scirocco II (ended 1992)**

Exterior Design

Appendix Figure 4 VW Scirocco III (2009) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Scirocco III**
Model Years: **2009 – (Dashboard layout is based on VW Eos, minor differences)**

Interior Design

Appendix Figure 5 VW Scirocco III (2009) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.; coches.com, n.d.)

Appendix Figure 6 VW Passat B6 (2010) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 7 VW Passat CC FL (2012) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

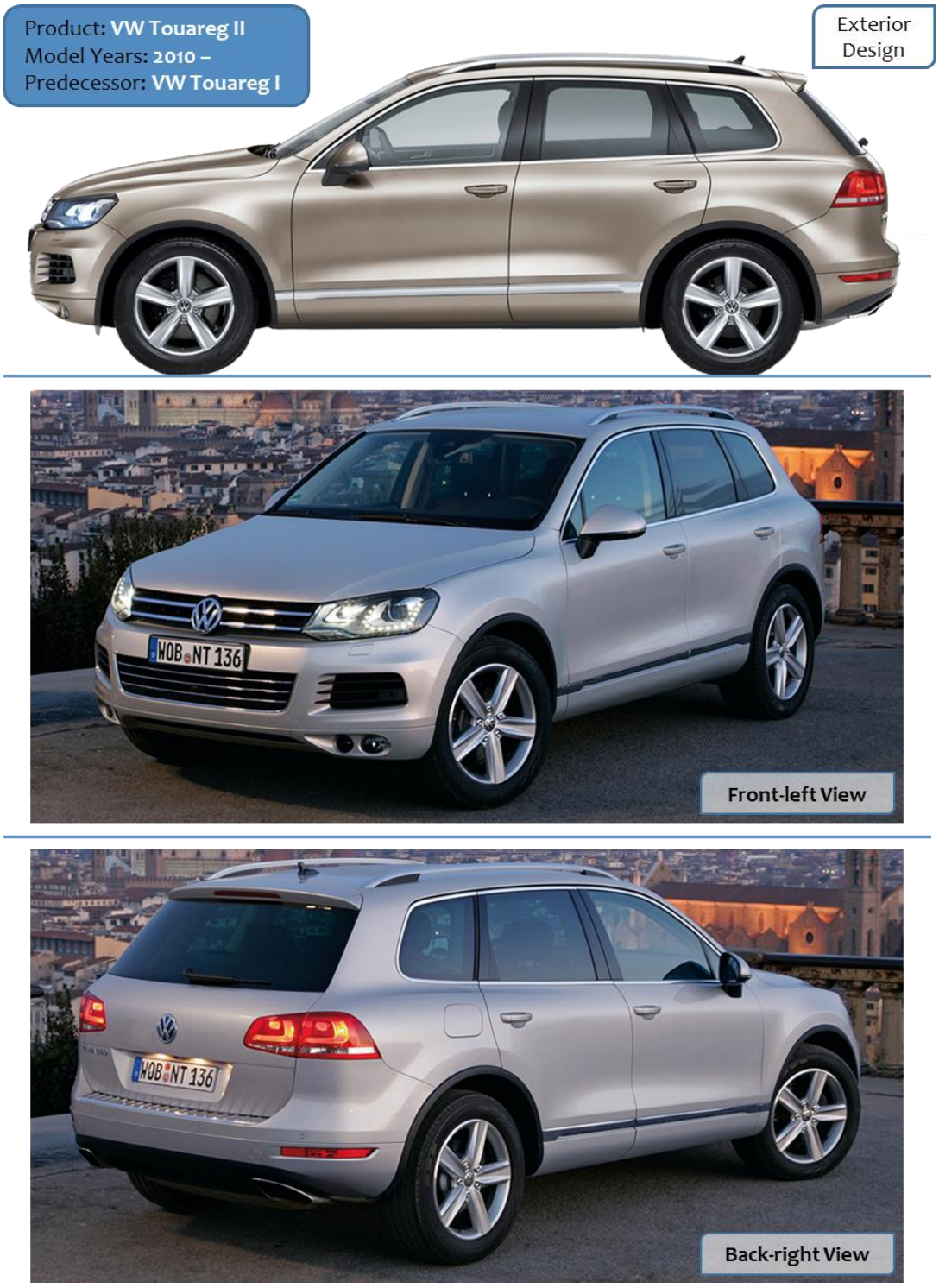
Appendix Figure 8 VW Passat B6 Variant (2010) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 9 VW Passat B6 Alltrack (2011) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: VW Passat B7 (identical with Passat Variant, Passat Alltrack and VW CC. Minor secondary design detail differences b/w models)
Model Years: 2010 – (no change in dashboard layout with previous generation. Main controls, secondary control units and a few secondary design details has been updated in accordance with the portfolio's design language)

Interior Design

Appendix Figure 10 VW Passat B6 (2010) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)



Appendix Figure 11 VW Touareg II (2010) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 12 VW Touareg II (2010) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Appendix Figure 13 VW Sharan II (2011) Images for Exterior Design Observation

Appendix Figure 14 VW Sharan II (2011) Images for Interior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 15 VW Phaeton (2011) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: VW Phaeton
Model Years: 2003 – (no change in dashboard layout with FL. Central console, main controls and some secondary controls get re-designed)

Interior Design (2011 -)

Appendix Figure 16 VW Phaeton (2011) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Product: **VW Jetta A6**
Model Years: **2011 –**
Predecessor: **VW Jetta A5**

Exterior Design

Appendix Figure 17 VW Jetta A6 (2011) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 18 VW Jetta A6 (2011) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Appendix Figure 19 VW Touran II (2011) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 20 VW Cross Touran (2011) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: VW Touran II (Interior design is identical with Cross Touran)
Model Years: 2011 – (no change in dashboard layout with platform change)

Interior Design

Appendix Figure 21 VW Touran II (2011) Images for Interior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Eos**
Model Years: **2007 – (2010 FL)**
Predecessor: **–**

Exterior Design (2010 -)

Appendix Figure 22 VW Eos FL (2010) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Eos**
Model Years: **2007 – (no change in dashboard layout with FL)**

Interior Design (2010 -)

Appendix Figure 23 VW Eos FL (2010) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Appendix Figure 24 VW Tiguan FL (2012) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Touareg II**
Model Years: **2008 – (no change in dashboard layout after FL)**

Interior Design
(2012-)

Appendix Figure 25 VW Tiguan FL (2012) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Product: **VW Golf VI Cabrio**
Model Years: **2012 –**
Predecessor: **VW Golf V Cabrio**

Exterior Design

Appendix Figure 26 VW Golf VI Cabrio (2012) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 27 VW Golf VI Cabrio (2012) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Product: **VW Up!**
Model Years: **2012 –**
Predecessor: **–**

Exterior Design

Appendix Figure 28 VW Up! (2012) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Cross Up!**
Model Years: **2012 –**
Predecessor: **–**

Exterior Design

Appendix Figure 29 VW Cross Up! (2012) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Up! (identical with Cross Up!)**
Model Years: **2012 –**

Interior Design

Appendix Figure 30 VW Up! (2012) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Appendix Figure 31 VW Beetle A5 (2012) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Beetle Cabrio**
Model Years: **2012 –**
Predecessor: **VW New Beetle Cabrio**

Exterior Design

Appendix Figure 32 VW Beetle A5 Cabrio (2012) Images for Interior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Beetle (identical with VW Beetle Cabrio)**
Model Years: **2012 –**

Interior Design

Appendix Figure 33 VW Beetle A5 (2012) Images for Interior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Golf VII**
Model Years: **2013 –**
Predecessor: **VW Golf VI**

Exterior Design

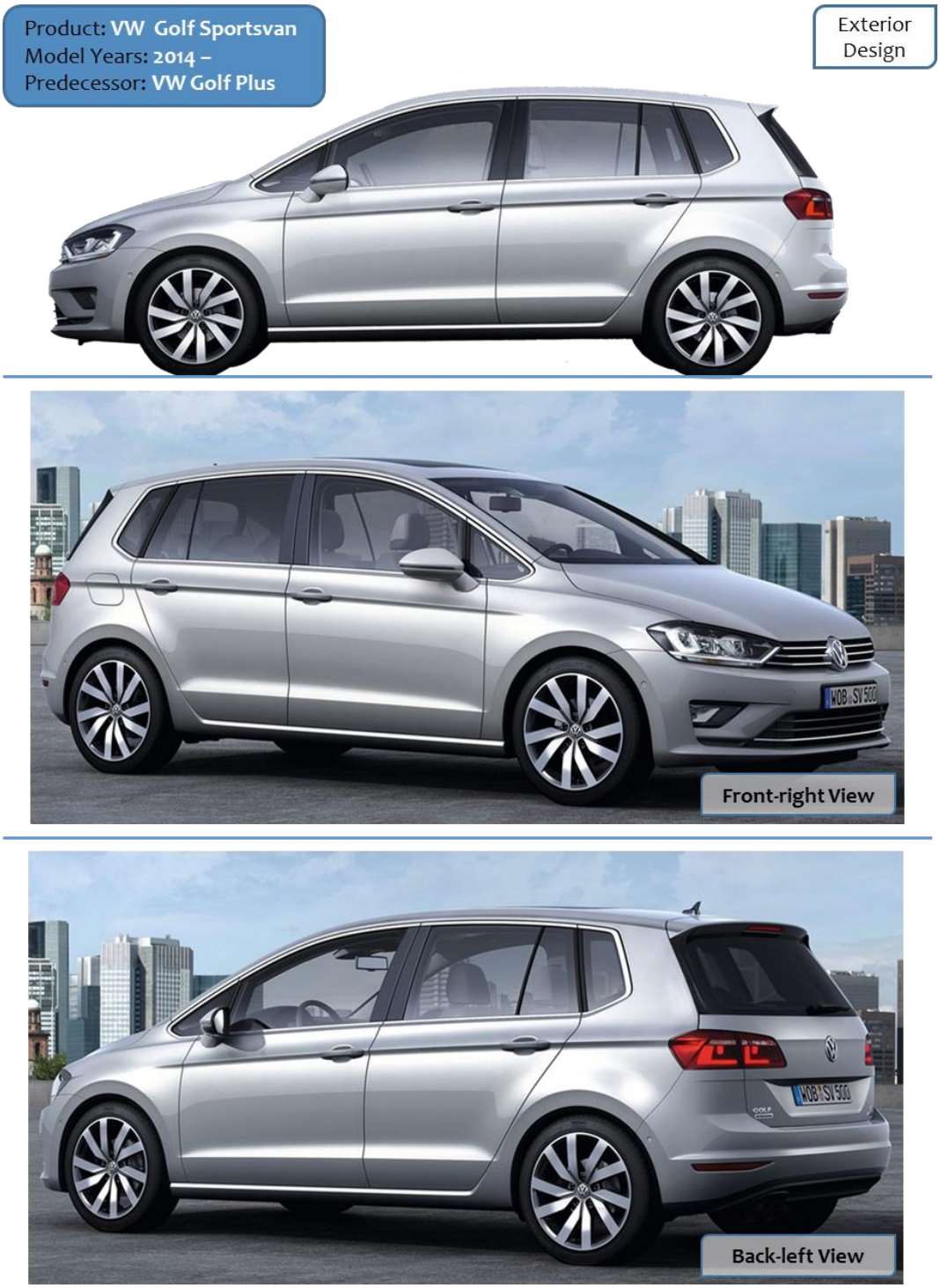
Appendix Figure 34 VW Golf VII (2013) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Product: **VW Golf Variant**
Model Years: **2013 –**
Predecessor: **–**

Exterior Design

Appendix Figure 35 VW Golf VII Variant (2013) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 36 VW Golf VII (2013) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)



Appendix Figure 37 VW Golf Sportsvan (2014) Images for Exterior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 38 VW Golf Sportsvan (2014) Images for Interior Design Observation (Pictures: NetCarShow, n.d.)

Appendix Figure 39 VW Polo 6R FL (2014) Images for Exterior Design Observation (Pictures: Automobiles Review, n.d.)

Product: **VW Polo 6R FL**
Model Years: **2014 - (No change in dashboard layout. Central console, main controls and secondary control units gets updated in accordance with the Golf VII design language)**

Interior Design

Appendix Figure 40 VW Polo 6R FL (2014) Images for Interior Design Observation (Pictures: Automobiles Review, n.d.)

Appendix C *Unprocessed Case Study Images of Section 5.2.2*

Section 5.2.2 has illustrated major VBI features of VW PC models from certain angles of the products. The following figures are presented in similar order with the case study but they are without the illustration on images, and/or image cropping for effective figure generation. The size of the images and/or direction may vary.

Appendix Figure 41 Unprocessed Product Images for Figure 5.2-1 (Pictures: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Appendix Figure 41 (continued) Unprocessed Product Images for Figure 5.2-1 (Pictures: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

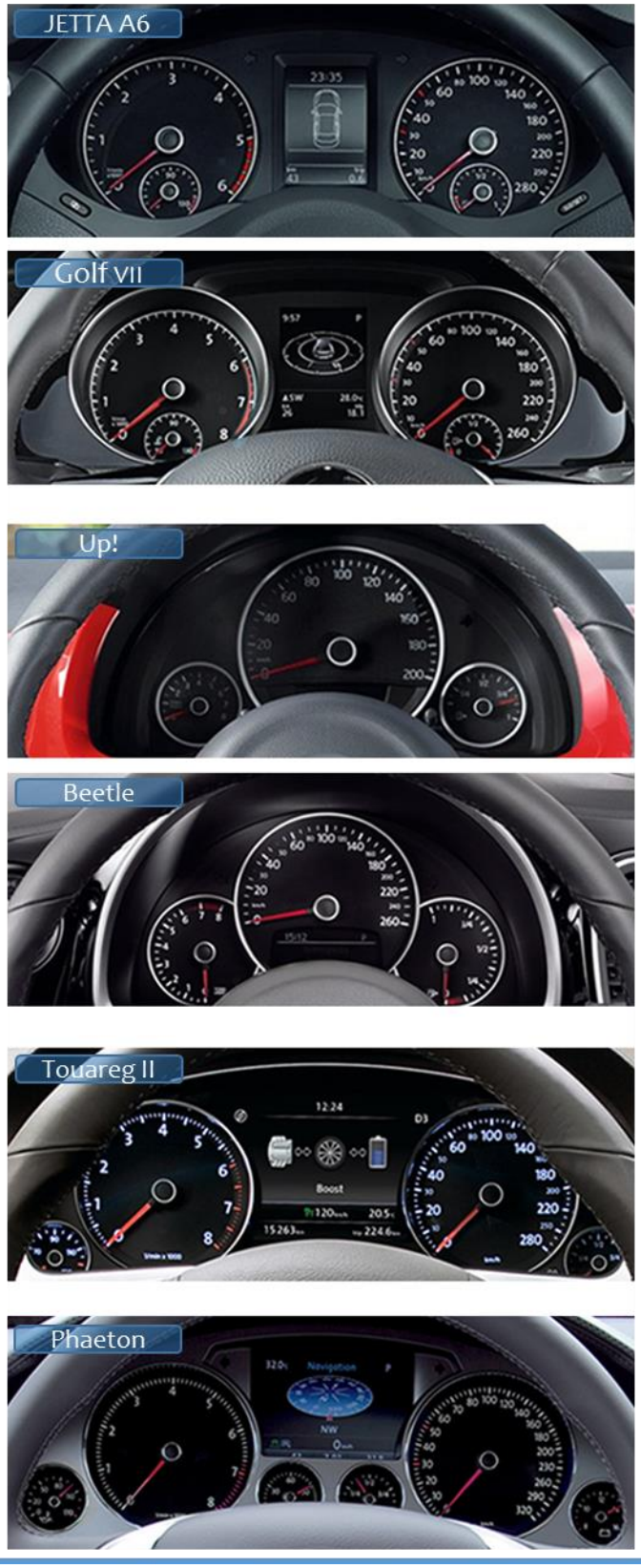
Appendix Figure 42 Unprocessed Product Images for Figure 5.2-3 (Pictures: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Appendix Figure 42 (continued) Unprocessed Product Images for Figure 5.2-3 (Pictures: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Appendix Figure 43 Unprocessed Product Images for Figure 5.2-4 (Pictures: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Appendix Figure 43 (continued) Unprocessed Product Images for Figure 5.2-4 (Pictures: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

Appendix Figure 43 (continued) Unprocessed Product Images for Figure 5.2-4 (Pictures: Automobiles Review, n.d.; NetCarShow, n.d.; VW, n.d.)

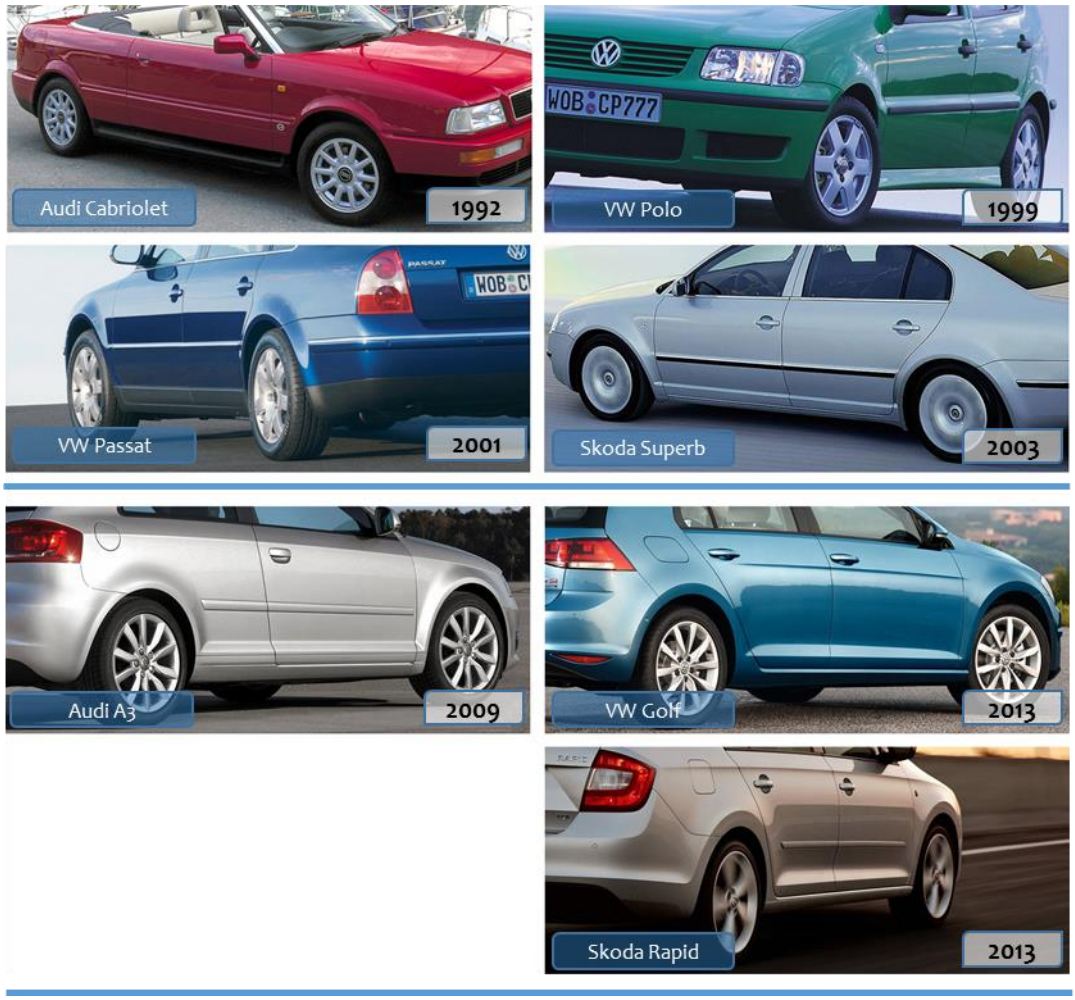


Appendix Figure 44 Unprocessed Product Images for Figure 5.2-7 (Pictures: NetCarShow, n.d.)

Appendix D *Unprocessed Case Study Images of Section 5.3*

Section 5.3 has illustrated some significant design features of VW AG models from VW, Audi, Seat and Škoda from certain angles of the products. The following figures are presented in similar order with the case study but they are without the illustration on images. The size of the images and/or direction may vary.

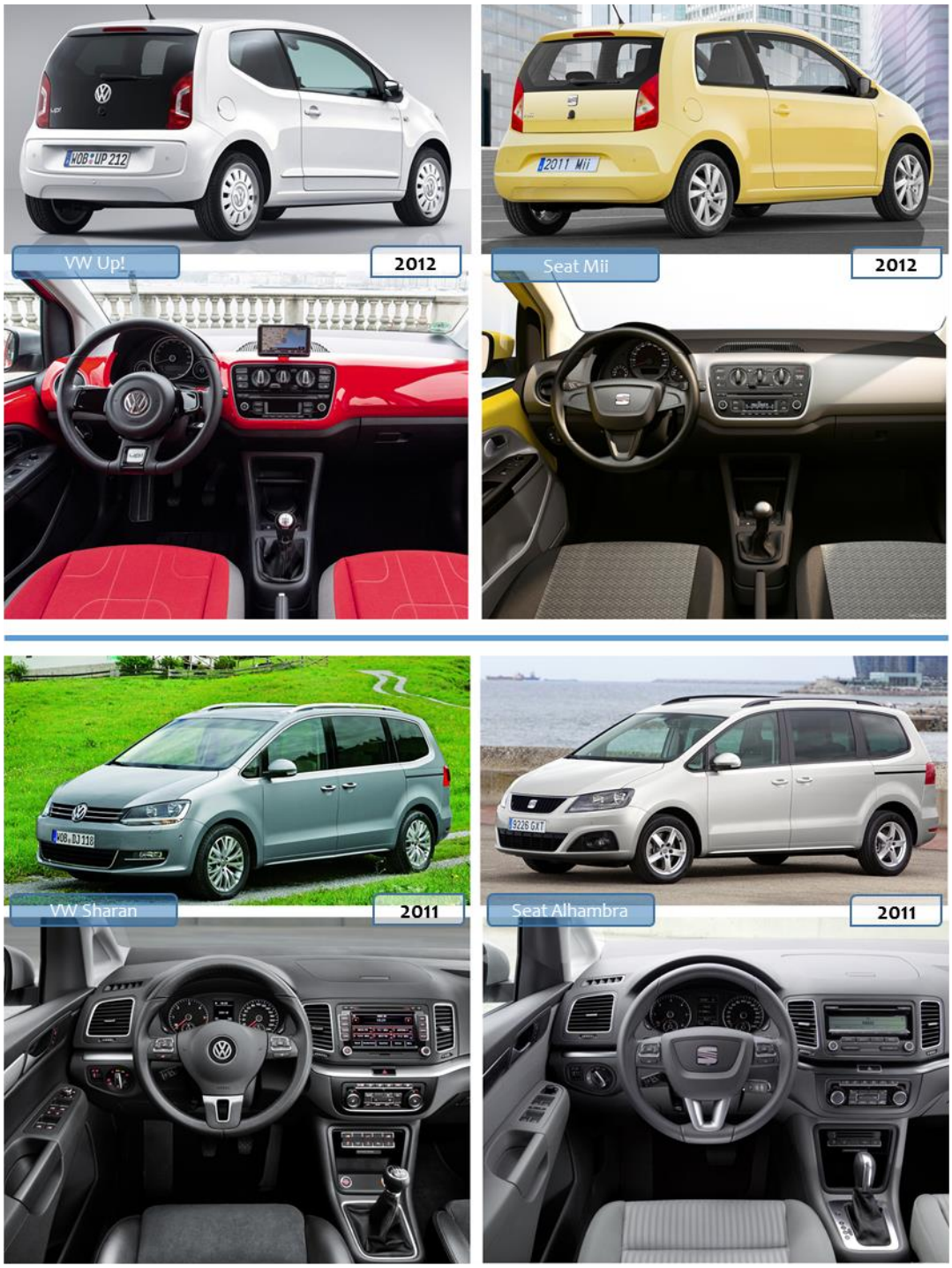
Appendix Figure 45 Unprocessed Product Images for Figure 5.3-1 (Pictures: NetCarShow, n.d.)



Appendix Figure 46 Unprocessed Product Images for Figure 5.3-2 (Pictures: NetCarShow, n.d.)

Appendix Figure 47 Unprocessed Product Images for Figure 5.3-3 (Pictures: NetCarShow, n.d.)

Appendix Figure 48 Unprocessed Product Images for Figure 5.3-4 (Pictures: NetCarShow, n.d.)



Appendix Figure 49 Unprocessed Product Images for Figure 5.3-5 (Pictures: NetCarShow, n.d.)