



Driving Innovation in the Car Industry: the Case of Luxury Cars

By Isabelle ROUSSEAU

Under the direction of Anne-Flore MAMAN LARRAUFIE (Ph.D.) and formatted by Cécilia GOUTRAN

info@semioconsult.com

The luxury car industry is a century-old industry beginning with a car - generally driven by a man, assisted by a mechanic - and heading from now on towards an autonomous car. Are luxury cars facing disenchantment? On one side, powerful engines seem to go against the global green consciousnesses. Some speak of a certain lack of interest from the younger generations and believe that car ownership rates are declining among millennials. On the other side, customers expect the same fluid experience anytime, anywhere, there is no exception for cars. The risk of disruption by new entrants - not belonging to the traditional luxury car industry - is already there as well. So, how can we drive innovation in a more than a centennial industry?

As part of her thesis at ESSEC, Isabelle Rousseau conducted a study **on vocal in-car technology applied to luxury car industry. Her approach was based on what deeply defines luxury and on understanding the way luxury houses may innovate.**

Acknowledging the mutation of the whole automotive industry, SémioConsult® supports Isabelle Rousseau's proposal to try to understand how to drive innovation through luxury cars.

Do not hesitate to get back to us, should you need a deeper analysis of the market or should you have any queries regarding this project: info@semioconsult.com.

What defines luxury?

From luxury goods to luxury experiences, from Haute Couture to Premium and Masstige, the definition of luxury is constantly challenged. However, the below segmentation remains a point of reference.

1. **Absolute luxury:** the top of the pyramid, tailor-made or produced in limited editions. Little communication is made, and brands remain exclusive to an elite of billionaires. For example, the Netjets airline or the No Address Hotel in Paris.
2. **Aspirational luxury or premium:** the usual and more commonly found luxury brands. For example, the Mercedes-Benz «S» model or the first class of most airlines.
3. **Accessible luxury or masstige: from mass (market) + (pres)tige;** describing prestige for the masses. For example, when the Abu Dhabi's Porsche Center imports the Porsche Boxer, which is around half the price of the 911 model, it is considered by brand experts as serving the masstige market.

Luxury is perceived by customers through six parameters:



1. Excellent **quality**, for example in the perfect maintenance of the premises,
2. Very **high price**, consequence of the excellent quality, to be worthy of commanding a premium price,
3. **Scarcity** and exclusivity,
4. Pleasant and **precise service**. Customers are sensitive to the atmosphere of an airport lounge, a hotel, a boutique, included details such as a pleasant smell and harmonious sounds, postures, ways of speaking and relationships to time and space,
5. Link to tradition and history, cultural and historical **heritage**, notion of craftsmanship, a mix between a privileged relationship with the past, the hyper-modernity in the equipment and a more long-term

vision,

6. The feeling of being part of a **unique** moment, being capable of inspiring a deep connection or resonance with the consumer.

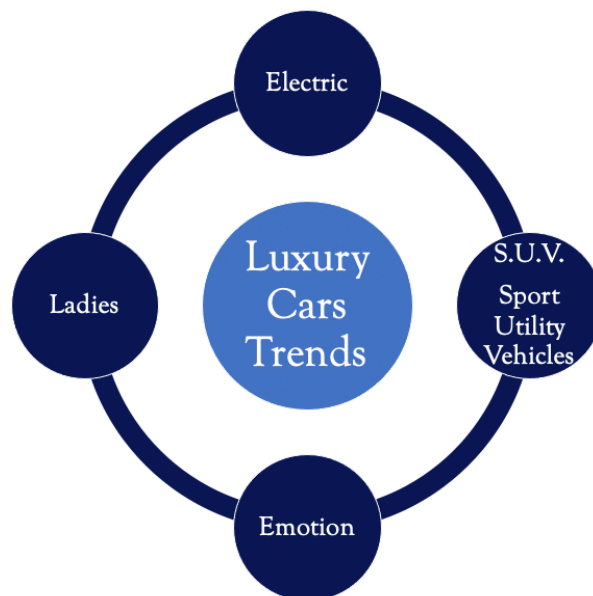
Focus on luxury cars

Each luxury car brand may have its own definition, but a general consensus seems to rely on a combination of exclusivity, performance and technology but also and above all the way luxury brands interact in the long term with their customers, sometimes over several generations.

If the cradle of manufacturers of luxury cars is said to be in Europe, a turning point happened in the late 80s with the arrival of Asian actors in this segment (Hyundai with Genesis, Toyota with Lexus, Nissan with Infiniti, Hongqi from China). Almost all luxury car automakers belong to multinationals where the top 10 makes all of the 2019 €13.18 Bn (US\$ 15.8 Bn) revenue with 0.2 M cars sold. The segment is led by Mercedes-Benz with a market share of around 16%, followed by BMW and Cadillac¹.

Trends and challenges in the luxury cars industry

In a context of speed limitation, car disenchantment, growing environmental concerns, car-sharing rather than ownership, what could be the future of luxury cars?



Electric: On one side, with 0 to 96.6km/h in as little as 2.4 seconds, Tesla S is able to compete with the top sports cars. On the other side, a venerable Maison like Lagonda reveals its long-term ambitions on becoming the first luxury car brand to be fully electric. Porsche announced an investment over € 6Bn in electric mobility by 2022 with the ambition of using electric engines for between a quarter and half of its cars by 2025, beginning with the Taycan model. Electrical Vehicle (EV) demand is increasing - mainly in China and North America - even if the internal combustion engine remains the largest share of sales.

¹ January 2020 Statista Luxury Cars Report

SUV: Sport Utility Vehicles (SUV) is the best-selling car model. It is also the case for the luxury car market. Analyzing weak signals, Porsche was the first luxury carmaker to launch - well before others - its first SUV named Cayenne in 2002. In 2019, Porsche's second largest segment was the Small SUVs segment. It accounted for 22% of the makes revenue in 2019 ². Observing this highly attractive segment, all luxury carmakers - except McLaren - have launched or are launching their SUV model.

Emotion: Combination of exclusivity, performance and technology is not enough for Christophe Georges, President & CEO, Bentley Motors Inc³. Luxury carmakers have to share their value, their universe. Ultra-high-net-worth individuals are looking not only for exceptional goods but also for emotion "What money cannot buy", the ultimate way to be unique. They require more than a purchase, they long for stories. For example, the Bentley's on-demand fuel delivery service named Filld allowing owners in California to skip a stop at the fuel station or the Bentley suite at the St. Regis New York with unique piece of furniture designed by Bentley and where you can find surprising details like the drapes of the Bentley St Regis suite are trimmed with lengths of seatbelts.

Land Rover created the *One Life* magazine describing trips to unknown lands. Another example would be what Lexus calls a Garage, where car culture and lifestyles are shared next to a modern-Japanese restaurant.

Most luxury carmakers are shaping up new strategies to ease the acquisition of luxury cars. As an example, both Mercedes-Benz (in 2009) and BMW (in 2011) have created their own car-sharing platform while Hype offers you to rent self-drive or chauffeur-driven luxury cars in India.

Ladies: A Frost & Sullivan study (2016), named "women in cars", found that 3 out of 4 women feel misunderstood by car companies. Since women are gaining more financial independence and social status and even become self-made millionaires (a third of China's millionaires are women), they are now leading the way, they spend their money to reward themselves for hard work for example, including in domains traditionally devoted to men like cars.

The 2017 and 2018 studies reveal that the lion's share of the affluent woman's discretionary spending is allocated more in luxury experience. For example, in travel (tickets, accommodation, cruises) or in luxury goods to express their self-confidence. For example, a De Beers' report shows that self-purchase by U.S Millennials accounted for 31% of all non-bridal diamond sales in 2015.

Not only do women drive as much as men do, but now they buy one car for themselves. The Frost & Sullivan report also reveals that there are more females than males with driving licenses in the USA. Surprisingly, not just within the young age group. Women massively buy cars, big ones, SUVs and luxury ones included. For instance, the Mercedes SLK and the Land Rover Evoque models have seduced more women customers (60 %) than men and even Rolls Royce announced that businesswomen drivers now purchase around 15% of their vehicles, especially the Wraith model.

Luxury cars are no longer reserved to men. Women increasingly dare to choose and to drive their own luxury car.

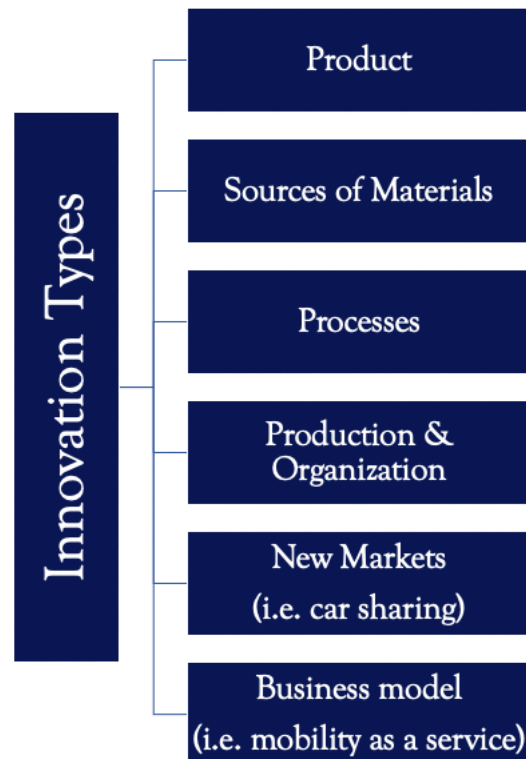
² Statista Porsche Report 2020

³ <https://www.luxurysociety.com/en/articles/2014/09/in-conversation-with-christophe-georges-president-ceo-bentley-motors-inc/>

Innovation types and forms

Joseph Schumpeter (1942) links competitive advantage with combining processes in a new way. To be considered as an innovation, economic value has to be created. Otherwise, the word invention is more appropriate.

Innovation is not just about products but also about processes, organization and services. For example, innovation types in car industry may be:



As Pr. Clayton Christensen mentioned, it is more comfortable for established companies to focus on incremental innovations, mainly because they perfectly know their existing customers and their competitors.

Innovation forms



Incremental



Disruptive

Market	Mainstream or mature markets	Emerging markets
Product or service	Over-satisfying the needs of the current customers - Does not affect other elements	Disruptive products or services are simpler and cheaper Modify the conditions of use
Customers	Current customers with well-known needs	New customers who badly know this new technology
Organization	Large companies installed in dominant design	Small or autonomous from hierarchy
Decision	Top-down decision	Action before careful plan, fail fast and inexpensively
Origin	Threat-driven innovations	Opportunity-driven innovation
Approach	Routine of success	Driven expeditions into the marketplace
Time	Dominant advantage but no flexibility	First-mover advantages
Limits	Speed of change	Cost of evangelization

Author: Isabelle Rousseau.

Sources: *The innovator's dilemma* & *The innovator's DNA* and Mattwest design, *The structure of scientific revolutions*, *Réenchanger l'industrie par l'innovation*, *Gestion de l'innovation*.

What is generally seen is large sustaining innovation periods intersected with more disruptive innovation periods. In an ideal organization, companies can both exploit the potential of their current market while exploring more disruptive innovations. Those firms tend to be an “invincible company”⁴.

Generally, because innovation can be seen as a disruptive element calling into question the established competences and organization (Hout & Stalk, 1990), innovation is not widespread throughout the whole company but confined to the R&D department.

Clayton Christensen considers that a company is innovative if the percentage of projects devoted to platform and cutting-edge innovation is higher than 25%. He demonstrates with his own study⁵ that the most innovative companies benefited from a significant premium of around 35% over the past five years.

⁴ The Invincible Company

⁵ The innovator's DNA

What kind of innovation?

Strategic innovation is to “build and develop a sustainable competitive advantage”. The luxury industry favors a long-term vision to give life to timeless goods. This is one of the reasons why choosing the right innovation is crucial for luxury carmakers.

In 2012, Christophe Midler, Rémi Maniak and Romain Beaume predicted that the main innovative items in the automotive industry would be:

1. Driving assistance, in order to avoid crash and limit human impact,
2. Enhance pleasant life on board,
3. Propulsion efficiency,
4. Communicating Car, such as car-to-car communication, embedded network, voice and data.

In response to this prediction, a benchmark was conducted in 2019 and 2020 to understand what the current projects undertaken by luxury carmakers are. The following table sums up the different trends and shows that there is a certain consensus in the industry to release SUVs (apart from McLaren). This result is consistent with the former prediction since SUVs enhance comfortable life on board while providing great performance, propulsion efficiency and excellent driving assistance. Fully electric cars come second overall followed by autonomous driving and hybrid technology. However, vocal recognition is not presented as a leading objective for brands apart from Aston Martin who is working on it and Mercedes-Benz who has already released this feature.

Table: Luxury carmakers current projects

Brand	Hybrid	Fully electric	Autonomous driving system	Autonomous car (fully replace human)	SUV (Year)	Vocal recognition
Aston Martin					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Audi		<input checked="" type="checkbox"/>		✓ 2025	<input checked="" type="checkbox"/>	
Bentley	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> 2016	
BMW		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	✓ 2021	<input checked="" type="checkbox"/>	
Cadillac	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Jaguar		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Lamborghini					<input checked="" type="checkbox"/>	
Lexus	<input checked="" type="checkbox"/> 2005		<input checked="" type="checkbox"/> 2020		<input checked="" type="checkbox"/>	
Lotus					<input checked="" type="checkbox"/> 2020	
Mercedes-Benz	<input checked="" type="checkbox"/>	✓ 2022	<input checked="" type="checkbox"/>	✓ 2021	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Mercedes me
McLaren					No	
Porsche	<input checked="" type="checkbox"/>	✓ 2025	<input checked="" type="checkbox"/>	Not announced	<input checked="" type="checkbox"/> 2002	
Rolls Royce	No way	✓ 2030			<input checked="" type="checkbox"/> 2018	
Tesla	No	<input checked="" type="checkbox"/>		✓ 2020	<input checked="" type="checkbox"/>	

Author: Isabelle Rousseau

Legend: already available - ✓ project

Focus on a use case: in-car voice recognition

Vocal assistants are part of our daily life, via your smartphone (Hey SIRI, or Hey Cortana) or via a speaker “Ok Google”. Voice User Interfaces (VUI) enable communication between humans and machines through voice-based interactions, almost as efficient as humans.

Voice user interfaces, which include AI and Natural Language Processing, have finally matured to a level where they work more or less intuitively. The goal in speech recognition is to reach and exceed human capacity. Human speech accuracy is estimated to be between 4 % and 5.5 %. Recently, IBM claims to have achieved a 5.5 %.

Vast amounts of unstructured records in various languages and accents, noisy or calm environment are now massively collected and used to train the speech recognition solutions. The most advanced solutions integrate grammar, syntax, structure but also use machine learning and Artificial Neural Networks (ANNs) to understand human speech in long and complex sentences after extensive training.

In a future article, we will unveil the lessons of the Delphi study conducted with a panel of experts located on four continents, of different age and occupation on the use of voice in luxury cars and the way to implement such a strategy by analyzing and understanding better their customers and eventually improving the entire driving experience.

Conclusion

Not only has continuous innovation become a necessary condition for success in globalized luxury industry, to differentiate and avoid price wars, to prevent disruption, to address new markets, but as a matter of fact innovative luxury is an integral part of luxury spirit that need to be constantly encouraged to create meaningful value.

SémioConsult® is a consulting agency relying upon an internationally accepted expertise, mostly related to luxury business with its codes and specificities.

Specialised in brand positioning and identity management, as well as in anti-counterfeiting strategies, it includes in its client portfolio official entities along with prestigious French and Italian brands. www.semioconsult.com

Sources:

- CHRISTENSEN Clayton (1997) The Innovator's dilemma - Harvard Business School Press.
- CHRISTENSEN Clayton, DYER Jeff, GREGERSEN Hal (2013) The innovator's DNA - Pearson.
- CHRISTENSEN Clayton (2013) Conference at Ecole Polytechnique - Paris Tech - "Rebuilding creativity"
- FROST & SULLIVAN (2016) Women as Vehicle Customers North America.
- GAREL Gilles et PETITGIRARD Loïc (2017) Fabriquer l'innovation [Manufacturing innovation (Trad.)] - FUN platform.
- LUXURY DAILY (2018) State of luxury.
- MAMAN-LARRAUFIE Anne-Flore (2017) The 12 brand archetypes, essence of luxury.
- MIDLER Christophe, MANIAK Rémi, BEAUME Romain (2012) Réenchanter l'industrie par l'innovation [Re-engaging industry through innovation (Trad.)] - Dunod.
- PALMER Andy (2020) Automobile industry future by Made in Britain - Webconference.
- STATISTA Mobility market Outlook (2020) & Porsche Report (2020).
- TURKI-KERVELLA Carmen (2015) Le luxe et les nouvelles technologies [Luxury and new technologies (Trad.)] - MAXIMA Laurent du Mesnil.
- VIGNERON Franck (2014) Comment gérer une marque de luxe [How to manage a luxury brand (Trad.)].