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Tactful Management

INNOVATIONS IN AUTOMOTIVE INDUSTRY AND ITS INFLUENCE ON CONSUMER BEHAVIOUR

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ABSTRACT

Innovation - Any company owes to an innovation for its establishment, at least with regards to its competitors in the business. Innovation has become critical to the survival of firms and a tool to defend competitive advantage. Yet, it is not enough to progress technologically for a sustainable development, it also means understanding the market need, having market oriented products offering better quality and/or supported services, arrange efficiently, producing in time keeping a check on costs. Consumer behaviour is a dynamic field of study. Consumer behaviour to innovation depends on the innovativeness of the consumer. Consumer innovativeness refers to the consumption of newness. Automobile industry has seen the innovation since its introduction in the late 18th century. Many innovations even in automobile industry have failed to see the light of the production. Yet the one which reach the market often take a lot of time to get accepted by the consumers. This paper with an intense review of literature attempts to examine the consumer behaviour towards automobile innovations. It further describes the innovations in automobile industry. It can be seen that the consumer behave differently with each innovation. There are quite a few innovations which have been made as a default feature in the cars. However, that is not the case in India. The Indian market is yet to understand the importance to advanced technology and safety.

KEYWORDS: *Innovation, Automobile, Consumer behaviour, Innovation resistance, Adoption*

Innovation is taking two things that already exist and putting them together in a new way

– **Tom Freston**

INTRODUCTION :

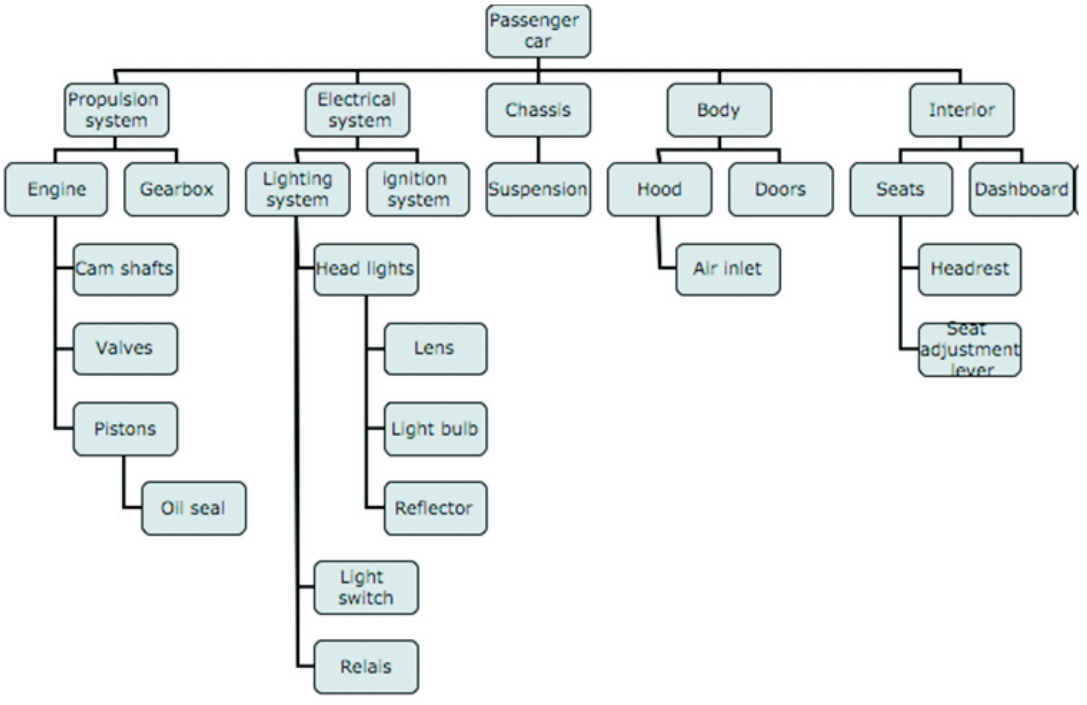
Rogers (2003) defines innovation as an ideas, objects, and methods that are perceived to be new by consumers and users. Innovation is core to any entrepreneurial venture. Any company owes to an innovation for its establishment, at least with regards to its competitors in the business.

Innovations are the key factors for the economic growth across the globe as well as a driver for competitiveness (Vives X, 2008). Innovation has become critical to the survival of firms and a tool to defend competitive advantage. Innovation can make it possible for firms to improve their market share, establish the prominence of their brand, move way ahead of the competition, create breakthroughs, and attract more customers (Mu et al., 2009). Yet, it is not enough to progress technologically for a sustainable development, it also means understanding the market need, having market oriented products offering better quality and/or supported services, arrange efficiently, producing in time keeping a check on costs. Hence, innovation becomes more and more extensively stretched phenomenon and a tool. It represents a panacea to continuous political, social, ecologic and economic changes (Cooper R.G., 1994). Garcia and Calantone (2002) recognized an umpteen number of definitions of innovation from the literature, leading to some kind of ambiguity when using the concept and yet contributed to a sluggish development of knowledge in the field. Furthermore, they argue that to be able to increase understanding of the development processes of different types of innovation it is important how they are classified (Garcia and Calantone, 2002). In the OECD Oslo manual technological innovation is coined as: "Innovation is an iterative process initiated by the perception of a new market and/or service opportunity for a creation based on technology which leads to progress, production and marketing tasks striving for the commercial success of the discovery." McDermott and O'Connor (2002) broaden the concept not only to include novel technologies but also a mixture of technologies that put forward valuable benefits. They further note that the evaluation of a technology as innovative needs to be related to existing technologies, both from an internal and external perspective. In the same vein the Oslo Manual (OECD, 2005) uses the concepts new to firm and new to the market.

Since the end of 19th Century, soon after the automobiles were invented it has been dreamed about and speculated upon in the works of science fiction. The most unrelenting fiction of these legends was the idea of a flying car, a concept which has been used more often in sci-fi stories. While the world may still be in the making of a mass-produced flying car, there has been a remarkable amount of innovation in the automotive industry since these vehicles were first invented. Almost since a decade, a significant amount of technology has been introduced into the ever evolving automobile innovation connected to alternative powered vehicles, navigation systems, and safety top the list of automotive technology improvements. The automotive industry is enormously progressive, leading some in the field to assert that the car would be the most technologically superior product that most consumers will ever buy. The industry is transitioning to a software-based industry from a mechanical-based field. In fact, some would argue that the industry is transitioning from a transportation focus to a technology focus (Reuters, 2015). Drivers for change and technology development in the automotive industry are in many cases subsets of much wider issues that affect not only the automotive industry but other activities and businesses. These broad issues include health and safety, environmental concerns and pollution control, climate change, and the potential or actual scarcity of resources. The degree to which one or other of these issues takes priority varies over time (Flink, 2013).

We can see two approaches to explain the evolution of technology in automobile world, Technological Determinism and Social Construction of Technology (SCOT). It can be seen that these two approach are opposite in nature. Whereas SCOT which emerged in late 1970s stresses the role of society, which exists diverse groups with diverse powers, plays in the progress of technology. An automobile is a complex assembly of parts varying in complexity and dependency. Identifying technical transformation in automotive technology requires a hierarchical structural model that makes it feasible to analyze changes on different levels. The model implemented here is framed by Gijs Mom and it includes a hierarchical division on the level of artefact, subsystems, main functional sets,

supplementary functional groups, part assemblies and basic parts. The structure given by GPA Mom (2003) is handy in this situation.



Source: Mom, G. P. A. (2003).

CONSUMER INNOVATIVENESS

As a marketing phenomenon, innovativeness can at the very least be defined as inaccurate. Organization innovativeness, or ''creation of newness,'' represents a firm's capability to develop and launch novel products at a fast rate (Hurley and Hult, 1998). Product innovativeness, or ''possession of newness,'' is the degree of newness of a product (Daneels and Kleinsmith, 2001). Consumer innovativeness, or ''consumption of newness,'' is the inclination to acquire new products more frequently and more quickly than other people (Midgley and Dowling, 1978). In this article, the word ''innovativeness'' will be used solely with reference to consumer innovativeness.

There is no real agreement on the meaning of innovativeness. It may be described as early purchase of a new product (Cestre, 1996), as well as a propensity to be fascinated by new products (Steenkamp et al., 1999). Following the distinction made by Midgley and Dowling (1978) between actualized and innate innovativeness, most authors seem to consider innovativeness a trait, the nature of which is still under question. Innate innovativeness is a ''predisposition to buy new and different products and brands rather than remain with previous choices and consumer patterns'' (Steenkamp et al., 1999). Midgley (1978) makes a clear distinction between innate innovativeness; a trait possessed by every human being, and actualized innovativeness, which is actual innovative behaviour. There is no consensus in the definition of innovativeness. From ''inherent novelty seeking,'' which may have consequences other than new product buying behaviour, to ''predisposition to buy new products,'' which defines the concept by its main consequence, through ''independence in innovative decisions,''.

CONSUMER RESISTANCE TO INNOVATION

Consumer's resistance to innovations is a exceptional case of general resistance to change. Resistance can broadly be defined as an aversive motivational status, initiated while single perceives that one's preference is susceptible, and directing opinion and proceedings towards retrieval the susceptible preference (Brehm 1966; Brehm and Brehm 1981). Consumer's resistance to innovations reveals itself in varied shape. The majority of the time innovation resistance occurs passively. Consumers resist innovation exclusive of intentionally allowing for acceptance for innovations. Literature differentiates numerous drives of this passive resistance towards innovations. At first, passive resistance could be a outcome of behavior (Bagozzi and Lee 1999). Sheth (1981, p.275) terms habits "the single most powerful determinant in generating resistance." A unique human tendency is to endeavour for uniformity and status quo, comparatively than to acknowledge new behaviours (Gourville 2005). This status quo nepotism leads consumers to significance the reward of products they possess more than the payback of innovative one.

It addition it can be seen from the literature that, innovative products are evaluated comparative to the product they previously possess. People analyse any upgrade comparative to the products they previously posses like gains and treats all deficiencies like losses. While losses to be exaggerated comparative to similarly volume gains, the prospective losses as of adopting an innovative consider extra closely than the prospective gains (Tversk and Kahneman 1991). One more driver of passive resistance may be information consumers are open to the elements (Herbig and Kramer 1994). Malhotra (1984) and Keller and Stealin (1987) disagree that consumers processing capability can be converted into congested if they attempt to practice to a large amount of information in a restricted time. Information surplus frequently occurs once innovation evolves so quick that it is not easy on behalf of the consumer to classify all the information and build contrast among the existing alternatives (Hirschman1987).

Innovation resistance can be active in nature (Bagozzi and Lee 1999) when a person decides not to accept an innovation following evaluation of the innovation has occurred. Szmigin and Foxall (1998) distinguished three forms of active innovation resistance that vary from fewer concentrated or active to extra concentrated or active: postponement, rejection and opposition. In case of postponement consumer do not have a pessimistic assessment of an innovation as such, they may perhaps decide to holdup the acceptance, for instance, in anticipation of the conditions for acceptance are extra appropriate. Kleijnen et al (2009) demonstrated those monetary reasons (e.g. price) or a clash with habits of using existing products as the major reasons for postponement. In second case of rejection implies a physically powerful declination to accept the innovation (Rogers 2003). Rejection occurs for example as an innovation is in clash through an accessible faith construction or when an discouraging figure regarding the innovations is developed (Ram and Sheth 1989). Additionally, the extent of supposed hazard related through using an innovation is one of the key hurdles that increase rejection of innovation (Ram and Sheth 1989). Perceived threat represents a consumer's one-sided opinion of uncertainty about the penalty and product of adopting an innovation. Risk looks like a multidimensional build consisting of diverse sort of losses (Stone and Grønhaug 1993): financial, physical, social, psychological, performance, time or convenience losses. So in the end, innovation may possibly not simply get together with rejection but might even suggest consumer to employ in strategies to stop the innovation accomplishment, like complaint or boycotting (e.g. Penaloza and price 1993). This type of resistance is called conflict (Kleijnen et al. 2009). Frequently, these behavioural responses limit from consumer anxiety both with existing business practices and with the collective confrontation of innovations (Herrmann 1993). This kind of consumer resistance may perhaps differ

from group dealings similar to the boycotts, to person proceedings similar to the complaining actions, pessimistic gossip or switching actions.

This concept is not contradictory to the adoption concept but this adoption concepts directs consumer in the direction of resistance to innovation. Innovation resistance is not only related to consumer characteristics, it is also significant for the diverse organizations to identify the important factors which caused the consumer resistant to innovation. This concept is also vital to understand the phenomenon of new product failure in the consumer market.

CONSUMER BEHAVIOUR TO AUTO INNOVATION

Automotive industry has been evolving even since it was introduced way back in 1885 by Karl Benz, may it be transmission, steering, braking, lighting, comfort or safety features in the car. Some of the innovations associated with passenger cars were readily adopted by both manufacturers and the consumers; however, there were umpteen numbers of innovations which never saw the light of production. There were few more innovations which took quite a time to get adopted in the passenger cars first by the manufacturers and then by the consumers. Resistance to innovation could be the result of many factors, be it intrinsic or extrinsic from the perspective of the consumer. Following are some of the advanced technologies which though were invented many years ago but found the acceptance by the consumers very late. These are some of the technologies which consumers yet to get sorted out in Indian car market.

Airbags: John W. Hetrick a retired industrial engineering technician invented airbags in 1951 as a result of an accident he and his family went through. He called it as 'safety cushion assembly for automotive vehicles'. He got the patent for the same in the year 1953. In 50s Ford and General Motors started experimenting with the idea of inflatable cushion. In 1967, auto major Mercedes- Benz started to develop airbags for its vehicles. An unprecedented rise in road accidents and a new government law that make automatic occupant protection system compulsory for every can in the USA starting 1969 made the Benz to venture in to this feature in their car. However, it was Oldsmobile Toronado to become the first car with passenger airbags in 1973 (A Short History of the Airbag, 2006). In 1991, Congress in USA ordered National Highway Traffic Safety Administration (NHTSA) issued a regulation that made airbags as a basic requisite in all the cars and light trucks, as manufacturers were in line of implementing the same already. The first rule took effect over 40 years after the invention of airbag (Cirincione, 2006). It can be seen that an invention like airbag has taken nearly 20 years to reach the consumers. However, in many countries airbags are optional even today. In India, the government has made the airbags compulsory in all cars from October 2018 ("Indian Government Makes ABS And Airbags Mandatory in Cars from October 2018 - Indian Cars Bikes," 2016).

Turn Signals: Though many motorists have complaints that some drivers don't know whether it exists or how to use it, all cars in today's world are equipped with blinking turn signals which lets the vehicle behind you to know what you are up to. That was never the case in the olden days cars though. Turn light of the car was patented by Edgar Walz Jr. in 1925. His device had a light with two arrows and a brake light. It was Joseph Bell who patented the first electric device with a flash. Later in 1939, Buick launched turn signals as a default feature and named it as "Flash-Way Directional Signal". Even then, the electrical turn signals couldn't diffuse in the market until mid 1950s. Previous to this a number of modified and accessory devices as well as hand signal were adequate (Gross, 2013). This innovation which is a basic feature in today's cars took little more than 25 years to be accepted by the consumers.

Power steering: Vehicles were made bigger and heavier for better convenience features and for better safety. With this kind of vehicle design it was difficult to turn the steering wheel which eventually

led to the invention of hydraulic power steering developed in 1926. Due to the great depression and the war environment the invention didn't find many takers. However, the military applications opened up helping Davis t develop the system. Soon after the World Was, Chrysler was the pioneer to inculcate a hydraulic power-steering system. This happened only in 1951 when Davis's patent had expired. Chrysler used the similar principle as that of Davis. Later Davis signed an agreement with General Motors for using his technology in its cars. The technology took 25 years to get introduced in a commercial car. Power steering in India is still an option and not a default feature.

Anti-lock Brakes (ABS): All automakers like to publicize innovations or "firsts." Time and again, on the other hand, we discover that a similar attribute or utility launched many years before. At times it can be seen that a good idea may have come to the market earlier than the technology was truly understood. In other case, lack of consumer adoption led excellent ideas to put on hold for years. A German term 'antiblockiersystem' is the original meaning of ABS. This technology was patented in the 1929 (NHTSA). In 1971, Chrysler, Ford and General Motors launched the first generation of automotive ABS units. Initially they were fitted only in the top end models and over a period of time they percolated down to less expensive cars. Now this technology is standard equipment on every car on the road in developed countries. Locking of the brakes when applied is prevented by this system. Sensors provide information to unlock the controller, which releases the brakes momentarily. The efficiency of the vehicle deceleration gets better by the modulation of the brake pressure level. With better controllability and increasing deceleration, ABS reduces the likelihood of crashes and is then considered as an active safety system. ABS also in some reference is described as a crash averting technology (Innovations in Driving, 2012).

Electronic Stability Control (ESC): This technology introduced by many manufacturers helps the drivers to sustain control of their vehicle during severe steering by keeping the car leading in the expected direction of the driver, even though the car reaches very close to the limits of the road traction. This technology does to the today's car what the brain stem and cerebellum do for the human body: it holds everything in balance. This technology came to light in the year 1987 when its innovators Bosch worked with Mercedes for this technology. This eventually was included in the car in 1992. These little steps by these companies helped existence of ESC in present motoring; and Mercedes Benz was pioneer in introducing it in S-class sedan in the year 1995, though it was supplied by Bosch. In Indian market this technology is not as popular as in the developed countries. In India, consumers treat safety features in a car luxury feature as it attracts higher price, hence most of the consumers end up owning basic variants. The market penetration of ESC in India is very limited as consumers don't find value in this advanced technology ("Electronic stability control," 2016, "Electronic Stability Control: A Life Saver - The New Indian Express," 2016, Ross, 2016).

Hybrid Vehicles: While combining petrol and electric motors in a vehicle looked like a marvel of automotive expertise of the 21st century, the origin of hybrid technology actually date to the end of the 19th.Combining petrol engine with electric motors in a car may look like an innovation of automotive researchers of the 21st century, but the beginning of hybrid technology actually dates back to the end of 19th century. First electric vehicle was built in Scotland by Robert Anderson of Aberdeen way back in 1939 (Berman, 2014). In 1898, a 23 year old engineer from a graduate of the Vienna Technical College named Dr. Ferdinand Porsche with help of Jacob Lohner, a coach builder in Vienna built the first hybrid car with an electric motor and an internal combustion petrol engine. The Lohner-Porsche vehicle was able to reach a top speed of only 35 to 40 miles for an hour (Berman, 2007). In USA, the real rush forward in development happened in 1993, as the Clinton administration announced the configuration of the Partnership for a New Generation of Vehicles (PNGV) consortium; which had the "Big Three"

automobile manufacturers (General Motors, Ford, and Chrysler) and nearly 350 smaller technical organizations (V. Wouk, 1997). Collective sales of highway legal plug-in electric passenger cars and light utility vehicles in the whole world crossed the one million unit mark in September 2015 (Nic Lutsey 2015). In the Indian market the cost of the hybrid vehicles is still bigger. The operational costs are also normally higher than a comparable diesel-powered car. Automakers have found that acceptability amongst Indians for hybrid cars is growing and in spite of the sales numbers being trivial, the potential is much higher now than ever earlier (Parekh, 2015).

CONCLUSION

Products tend to go through a life cycle. Initially, a product is introduced. Since the product is not well known and is usually expensive, sales are usually limited. Subsequently over a period of time the product gets diffused in the market. Similar is not the life of every innovative product. Innovative products often face challenges to be accepted in the consumer market. Several forces often work against innovation. Several specific product categories have case histories that illustrate important issues in adoption. Automobile industry has come out with many innovations since the day it was invented. Not just in product but in process too. Yet, it is not enough to progress technologically for a sustainable development, it also means understanding the market need, having market oriented products offering better quality and/or supported services, arrange efficiently, producing in time keeping a check on costs. Consumer behaviour to innovation depends on the innovativeness of the consumer. Consumer innovativeness refers to the consumption of newness. Consumer globally and in India specifically should start appreciating the important of having advanced technology in their vehicles. Safety is no more the feature of a luxury car and with safety features you and your car will be protected from avoidable mishaps. Indian market is still immature to understand it and hence automotive companies should invest enough in creating awareness of these innovations offered in automobiles.

REFERENCES

1.A Short History of the Airbag. (2006, September 25). Retrieved August 31, 2016, from https://www.consumeraffairs.com/news04/2006/airbags/airbags_invented.html

2.Bagozzi, R.P. & Lee, K, 1999. Consumer resistance to, and acceptance of, innovations. Advance in Consumer Research. Vol. 26. No. 1, 218-225

3.Berman, B. (2007, October 24). Hybrid Cars - History. The New York Times. Retrieved from http://www.nytimes.com/2007/10/24/automobiles/autospecial/24history.html

4.Berman, B. (2014). History of Hybrid Vehicles. Retrieved from http://www.hybridcars.com/history-of-hybrid-vehicles/

5.Brehm, Jack W. 1966. A Theory of Psychological Resistance. New York: Academic Press Inc.

6.Cestre G. Diffusion et innovativite´: de´finition, mode´lisation et mesure. Rech Appl Mark 1996;11(1):69–88.

7.Cirincione, R. (2006). Innovation and Stagnation. Center for the Study of Responsive Law. Washington, DC.

8.Cooper R.G. (1994). New Products: The Factors that Drive Success. In: International Marketing Review, Vol. 11, Iss. 1, pp. 60-76.

9.Daneels E, Kleinsmith EJ. Product innovativeness from the firm's perspective: its dimensions and their relation with project selection and performance. J Prod Innov Manage 2001;18(6):357– 73 (November).

10.Dannenberg, J., & Burgard, J. (2007). A comprehensive study on innovation in the automotive industry. Oliver Wyman. Retrieved from www.oliverwyman.com
11.Electronic stability control. (2016, September 1). In Wikipedia, the free encyclopedia. Retrieved from https://en.wikipedia.org/w/index.php?title=Electronic_stability_control&oldid=737148519
12.Electronic Stability Control: A Life Saver - The New Indian Express. (2016). Retrieved September 2, 2016, from http://www.newindianexpress.com/auto/2014/11/29/Electronic-Stability-Control-A-Life-Saver/article2546836.ece
13.Flink, J. J. (2013). Innovation in automotive. Summary of a Meeting Held at the Royal Academy of Engineering, (April).
14.Garcia, R. & Calantone, R. (2002). A critical look at technological innovation typology and innovativeness terminology: a literature review. The journal of product innovation management, 19(2), 110-132.
15.Gourville, John T. 2005. The course of Innovation: Why Innovative New Product Fail, MSI Reports 05-044
16.Gross, J. (2013, July 12). Who Made That Turn Signal? The New York Times. Retrieved from http://www.nytimes.com/2013/07/14/magazine/who-made-that-turn-signal.html
17.Herbig, Paul A. and Hugh Kramer 1994. The Effect of Information Overload on the Innovation Choice Process: Innovation Overload, Journal of Consumer Marketing, 11(2), 45-54.
18.Herrmann, Robert O. 1993, The Tactice of Consumer Resistance: Group Actions and the Marketplace Exit, Advances in Consumer Research, 20, 130-134.
19.Hirschman, Elizabeth C. 1987. Adoption of an Incredibly Complex Innovation: Proposition from a Humanistic Viewpoint, Advances in Consumer Research, 14, 376-377
20.Hurley RF, Hult GTM. Innovation, market orientation, and organizational learning: an integration and empirical examination. J Mark 1998;62(3): 42–54.
21.Indian Government Makes ABS And Airbags Mandatory In Cars From October 2018 - Indian Cars Bikes. (2016). Retrieved August 31, 2016, from http://www.indiancarsbikes.in/auto-news/indian-government-makes-abs-and-airbags-mandatory-in-cars-from-october-2018-150683/
22.Innovations in Driving: Anti-Lock Brakes. (2012). Retrieved September 2, 2016, from http://www.popsci.com/cars/article/2012-08/innovations-driving-anti-lock-brakes
23.Kahneman, Daniel and Amos Tversky 1979. Prospect Theory: An Analysis of Decision Under Risk, Econometrica, 47(2), 263-291.
24.Keller, Kevin Lane and Richard Staelin 1987. Effect of Quality and Quantity of Information on Decision Effectiveness, Journal of Consumer Research, 2, 200-212.
25.Kleijnen, Mirella, Nick Lee, and Martin Wetzels 2009. An Exploration of Consuer Resistance to Innovation and Its Antecedents, Journal of Economic Psychology, 30, 344-357.
26.Malhotra, Naresh K. 1984. Reflections on the Information Overload Paradigm in Consumer Decision Making, Journal of Consumer Research, 10, 436-437.
27.McDermott, C. M. & O'Connor, G. C. (2002). Managing radical innovation: an overview of emergent strategy issues. The journal of product innovation management, 19(6), 424-438.
28.Midgley D, Dowling GR. Innovativeness: the concept and its measurement. J Consum Res 1978;4:229–42.
29.Mom, G.P.A. (2003). What kind of transport history did we get? Half a century of JTH and the future of the field. Journal of Transport History, 24(2), 121-138
30.Mu, J., Peng, G. and MacLachlan, D.L. (2009), "Effect of risk management strategy on NPD performance", Technovation, Vol. 29 No. 3, pp. 170-180.

31. NHTSA Light Vehicle Antilock Brake Systems Research Program Task 5, Part 1: "Examination of rivers' Sales Statistics | OICA. (2016). Retrieved September 4, 2016, from http://www.oica.net/category/sales-statistics/Collision Avoidance Behavior Using Conventional and Antilock Brake Systems on the Iowa Driving
32.Simulator" http://wwwnrd.nhtsa.dot.gov/vrtc/ca/capubs/abs51ids.pdf
33.Nic Lutsey (2015-09-29). "Global milestone: The first million electric vehicles". International Council on Clean Transportation (ICCT). Retrieved 2015-10-10
34.OECD (2005). Oslo Manual. Guidelines for Collecting Data and Interpreting Innovation Data. Paris.
35.Parekh, N. (2015). Is India finally ready for hybrids? Retrieved September 2, 2016, from http://www.autocarindia.com/auto-news/is-india-finally-ready-for-hybrids-395943.aspx
36.Penaloza, Lisa and Linda L. Price 1993, Consumer resistance: A Conceptual Overview, Advances in Consumer Research, 20, 123-128
37.Ram, S. and Jagdish N. Sheth 1989. Consumer Resistance to Innovations: The Marketing Problem and Its Solutions, Journal of Consumer Marketing, 6(2), 5-14
38.Reuters, T. (2015). The State of Innovation in the Automotive Industry: 2015, 1–19. Retrieved from ip-science.thomsonreuters.com
39.Rogers, E. 2003. Diffusion of innovations. 5th edition. New York: Free Press.
40.Ross, P. E. (2016). Pioneer of Electronic Stability Control Wins European Inventor Award. Retrieved September 2, 2016, from http://spectrum.ieee.org/cars-that-think/geek-life/profiles/van-zattan-wins
41.Sheth, Jagdish N. 1981. Psychology of Innovation Resistance: The Less Developed Concept in Diffusion Research, "Research in Marketing, 4, 273-282.
42.Steenkamp JBEM, Hofstede F ter, Wedel M. A cross-national comparison into the national and national cultural antecedents of consumer innovativeness. J Mark 1999; 63(2):55–69.
43.Stone, Robert N. and Kjell Grønhaug 1993. Perceived Risk: Further Considerations for the Marketing Decipline, European Journal of Marketing, 27(3), 39-50.
44.Szmigin, I., & Foxall, G. (1998). Three forms of innovation resistance: the case of retail payment methods. Technovation, 18(98), 459–468. doi:10.1016/S0166-4972(98)00030-3
45.Tversky, Amos and Daniel Kahneman 1991. Loss Aversion in Riskless Choice: A Reference-Dependent Model, The Qaurterly Journal of Economics, 106(4), 1039-1061.
46.V. Wouk. "Hybrid Electric Vehicles". Scientific American, pp. 70-74, Oct. 1997.
47.Vives X. (2008). Innovation and Competitive Pressure. In: The Journal of Industrial Economics, Vol. 56, Iss. 3, pp. 419-469

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