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FROM FRENCH AUTOMOBILES DEVELOPMENT TO ADAPTATION FOR INDIAN MARKET

Degree Programme in International Business
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The purpose of this thesis was to analyse new product development and adaptation in French automobile industry through two main automobile manufacturers, Renault and PSA Peugeot Citroën, for the Indian market. The analysis was carried out to understand and to master new development processes, product adaptation strategies and to give recommendations for the future.

After the introduction of the purpose, objectives and conceptual framework, the theories consists of defining new product development and explaining the different processes to develop a new product. Two main processes exist, sequential and flexible processes. Each process has specific stages and is based on a specific management. Then, the theories studied were focused on international product adaptation including a diversity of theoretical strategies to adapt product for foreign market.

The empirical part of this thesis based on research consists of analysing the secondary data. The implementation of the thesis, collection data and quality assessment are explained and justified in the research methods chapter. Renault and PSA websites, specialized newspapers articles online and governmental references were used as main sources. French automobile industry is described followed by an analysis of the new French models developed in France to continue with an overview of the Indian automobile market, the current demand, the competition and finally to explain French manufacturers' products adaptation strategies established for the Indian market. The recommendations aim at improving French automobiles management in the new products development and International adaptation.

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1 INTRODUCTION

1.1 Purpose of this thesis

The topic of this thesis deals with French automobiles development and adaptation to India. From a specialisation in marketing for industrial products, the topic represents a consolidation of the current specialisation chosen. It is an interesting way of increasing skills and knowledge in these two strategic marketing fields. In addition, automobile industry is an important sector in France and India is becoming the new attractive market justifying the choice of topic for this thesis. French car manufacturers and competitors have detected the high potential of Indian market. This thesis based on research represents a guidebook with a focus from new product development in French automobile industry to product adaptation for a foreign market. Developing new cars is a long and complex process and the best strategy must be selected but product adaptation is also essential if French manufacturers want to succeed in India. New product development is an expensive and challenging process that requires taking the right decisions from the idea of product to the possible adaptation abroad. New product development or introduction of an existing product in a targeted foreign market can fail easily.

1.2 Objectives of this thesis

In this research, two objectives will be dealt with. The main objective of this thesis is to study, understand, describe and analyse new product development representing a complex process for companies. The success of new cars in the Indian market is uncertain. For this reason, studying and understanding what the customers' expectations are in terms of automobiles and taking the right product adaptations decisions are strategic. Customers' satisfaction is in centre of companies' attention.

This thesis conducts to answer these questions:

- What is the current situation of French car industry?
- How French car manufacturers proceed to develop their new products?

- What are the new French models and technologies in France?
- How is the demand and competition for French manufacturers in India?
- How French automobile manufacturers adapt its products to Indian car market and can improve it?

To reach my objectives, my theoretical questions are:

- Why new product development is important for companies?
- What is new product development?
- What are the key concepts to manage in new product development process in order to develop a successful new product?
- Which strategies can be selected to adapt a new product in an international environment?

1.3 Conceptual Framework

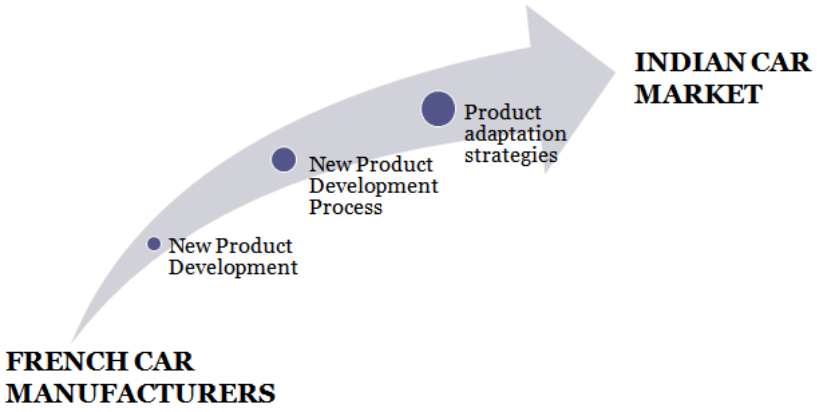


Figure 1: Conceptual framework of the study

This thesis will analyse in a theoretical point of view through the following conceptual framework. The new product development is essential if French car manufacturers want to survive in this competitive environment. The adaptation of French cars to Indian market has also to be taken into account in order to be completely successful and satisfy customers' expectations. Three main steps illustrated in the figure 1 will be analysed to reach the stated objectives and serve as a basis for the empirical part. It consists in understanding the reasons and defining new product development be-

fore focusing on the different new product development processes. The last part will deal with product adaptation strategies.

2 NEW PRODUCT DEVELOPMENT AND ADAPTATION

New product development is challenging and represents a fundamental process for the firm. This process is risky and companies do not know until the launch if the new product will be a success or a failure.

2.1 New product development

New product development cannot be ignored and companies have to be reactive offering new products to their customers. Besides, organizations need to develop new products for different reasons. A positive growth gives an excellent impression to investors or people directly linked to the firm. Successful new products development allows firm to remain competitive and extend the risk on several products meaning that if one product fails, others products can save the firm. Companies want also to offer a large diversity of products to their customers and be different with unique products in a competitive environment. A common taste or need do not exist that why offering different products attract more customers. Being the first in the market discovering a new technology also increases firms' motivation. Then, because customers' needs are always changing, companies want to satisfy them as much as possible and conserve their market shares in the market. (Patrick 1997, 10)

Customers' needs are constantly changing. Companies are aware that one same need for all customers is an utopia in the current competitive environment. They give importance to new product development and try to develop the right product in order to manage this expensive and complex process. It is not only a financial investment but also an investment of time for the company. The percentage of failure after two years in the market is very high reaching 90%. Many reasons can be quoted such as the launch of new product with technical problems or one of the elements in the mix marketing is not meeting customers' expectations. A negative image of new product

can circulate easily and quickly. (Armstrong & Kotler 2003, 322; Kotler, et al. … 2010, 229)

New product development is defined as "the development of original products, product improvements, product modifications, and new brand through the firm's own R&D efforts". This concept aims at creating new products or existing products and drives it to the market. Two methods are commonly used, acquisition and innovation. The company takes less risk having acquisition than innovation for the simple reason that the product or patent has existed before. The company has the possibility to measure the risk and be more prepared concerning a potential failure. In this way, the company is using the external environment to develop a new product. Innovation means that the product is completely new created by the R&D team from the company. (Armstrong & Kotler 2003, 322)

Paul Trott (2005, 394) informs that only 10% of new products are totally considered as new and discovered by R&D department of the company. However, new product development is not only classified under two categories but until six categories.

- The product can be new to the world meaning that it belongs to 10% of new products developed. The product is new for the firm creating a new market in the international environment.
- The company creates a new product line. The market already exists and the company offers a new product for this targeted market. Competitors are already established.
- After having entered in a market with product line already offered to customers, the company can add and develop new products to the current line.
- Company is always interested in the feedback from customers when they launch new product. This category is called improvements and revisions for existing products. It shows that the company improves and revises its existing products in order to meet as well as possible the customers' needs.
- New products are also developed to reduce costs. The company keeps the same technical qualities for an existing product and at the same time reduces production costs.
- The last category of products considered as new in product development is product improvements. Firm studies what competitors are developing to im-

prove their own products and offer new technologies to customers. (Cooper 2001,14)

This thesis is focused on French car industry. This industry is an excellent proof that new product development is a complex process. The life of the business is depending on the right product launched which is going to satisfy customers. In automobile, French manufacturers develop constantly new models. The fact that oil is becoming rare represents new challenge. Besides, they are forced into planning new cars for the future. They also chose to extend its current lines of cars offering new models, designs and technologies. New product development remains vital in automobile industry.

2.2 New product development process

2.2.1 Traditional process

New product development involves for the organization following a long and complex process. The most common new product development process presented is a linear model. This sequential model includes eight main stages:

- Idea Generation corresponding to the research of ideas. Firms use the internal sources. The internal environment is composed by the company itself thanks to a R&D team. The competitors' products can be analyzed to control what is developed in the market. New trends can be detected by distributors or providers due to the fact they are close with customers. Specialized Magazines as well exhibitions informed about the new customers' needs, technologies and materials. Firms are also interested in what customers or potential buyers' needs are. They observe and listen to them.
- Idea screening can be compared to a filter for ideas. Only profitable ideas attract companies' attention. New product development represents a high financial process. Technical, legal or ethnic barriers can easily lead to a failure. The company wants to avoid it in the market.

- Concept Development and testing. In this stage, the idea is more concrete and a product concept is developed. It represents the idea of the new product in detail. Then, the product concept is tested in order to be improved. Qualitative studies with small groups or quantitative studies are used to determine if the product is going to be appreciated by customers and successful in the market.
- Marketing strategy development allows to prepare the product before the commercialization. The targeted market is specified, the positioning is chosen and sales objectives settled. It is important to define the mix marketing and identify the return on investment expected.
- Business Analysis shows if the objectives and plans of new product for the company are realist and profitable in the long term. The company examines the former product development to insure the success or at least not repeat the same mistakes than before. They evaluate and forecast costs and profits.
- Product development**.** From a simple concept, the company decides to develop the new product. R&D team creates the product. This stage can be counted by month or years. The team uses all the knowledge gathered to meet customers' expectations as much as possible and insure the success of this new product in the market. The conformity of the new product is checked concerning technical point of view.
- The test marketing represents a test in the market. The company tests if the mix marketing is realistic. This stage is an excellent opportunity for the company to have a feedback and to improve the developed product before the launch in the market.
- The last stage is the commercialization. A date and a strategy of commercialization are decided. The company takes into account the competitors' plans. The new product is introduced to the market but also the sales employees and distributors. The risk during this stage is high. The returns on investment will depend on the strategy of commercialization. (Armstrong & Kotler 2003, 323-335)

Other linear New Product Development models exits. The Paul Trott's model is different at two points. The marketing strategy development is not included and one

step is added, monitoring and evaluation. Whatever if it is marketing strategy development or monitoring and evaluation, the two stages are logical and the company cannot ignore it. The marketing strategy development is a preparation of the future new product. This step allows defining what is going to be the targets, positioning and the sales expected. The new product is created in marketing to meet the customers' needs. (Trott 2005, 398)

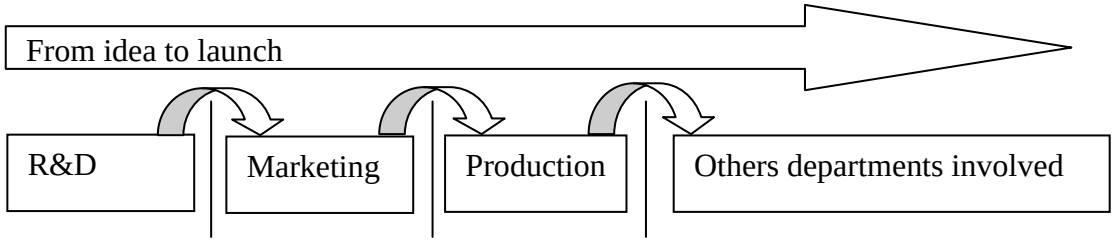
However, this eight-stage linear model does not really represent the reality. It represents an inconvenient from a financial point of view. The company needs more cash outflows than cash inflows. The financial investment is a challenge and the profit comes when the market accepts the new product meaning that the sales are growing. (Trott 2005, 397)

2.2.2 Flexible process

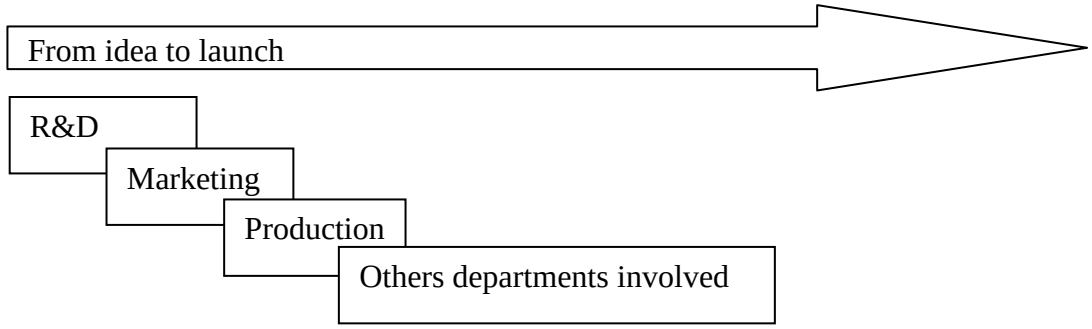
Firms develop its own Product development process adapted to its industry. New concepts in new product development are used corresponding to the new rules in the marketplace. Companies have to be fast and flexible in their new product development process.

The sequential process compared to a relay course is not the most adequate model for developing new products. In the traditional process, the new product is developed step by step passing from a department to another department. Each department has its own specificity and function. The flexible new product development is seen as a rugby game. This new approach of new product development process is more flexible (Takeuchi & Nonaka 1986)

Type A: linear process



Type B: flexible process



Type C: flexible process

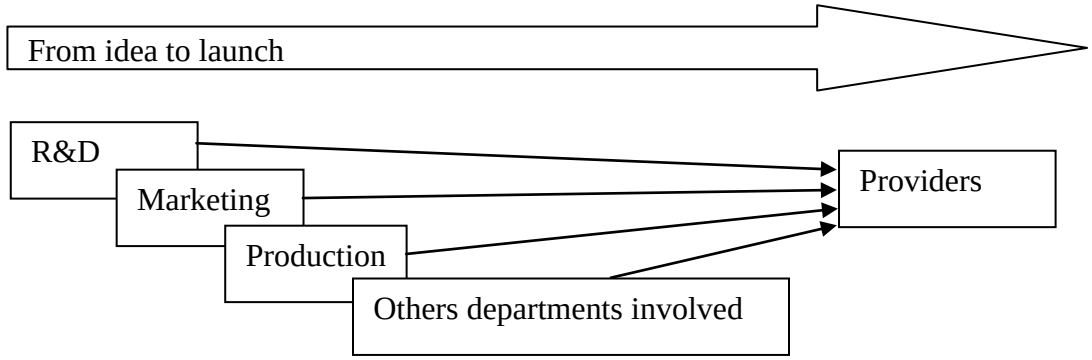


Figure 2: adapted from Sequential (A) vs. Overlapping (B and C) phases of development (Takeuchi & Nonaka 1986)

The three different new product development models from the traditional linear to the non sequential and flexible process are illustrated in the figure 2. The A model represents the linear sequential way of new product development. Each step is strongly separated from the next one compared to the B and C models where the steps are linked together. The first model seems to be reluctant to the changes and mistakes can be done due to the lack of communication between departments. The two modern concepts encourage the work in team, a better communication and flexibility in the process. Efforts are in common giving more motivation to the team members. Mistakes are easily detected and managed in a faster way. (Takeuchi & Nonaka 1986)

Indeed, thanks to the flexible model, the new product is developed by employees coming from different departments working together from the beginning to the end. This method reduces the costs and brings the company into a creative environment, opened toward innovation. (Armstrong & Kotler 2003, 335)

This flexible product development game involves advantages and inconveniences. The Top management gives challenging objectives and more responsibilities to the project members. The team members can take initiatives. This method leads to the share of knowledge, experiences in the group and forces them to be more communicative with others members, to improve the organization respecting the deadline and to overcome their limits in a creative perspective. The sequential model is more structured and risks are strictly controlled. The C model links the project members to the providers. Threats related to the marketplace are avoided and solved directly at all steps of the new product development process. However, in the two flexible models, the team needs to learn how to communicate, share, increase the proximity between members and providers for the C model, be able to manage problems and also manage the tension or conflicts in the group. (Takeuchi & Nonaka 1986)

Dariush Rafinejad (2007, 164) presents a sequential new product development divided into five step. This process is divided into the exploration and the feasibility (E&F), the product project planning, the development and characterizations (alpha), the manufacturing and customer qualification (beta) and the last step is the production ramp and commercialization (gamma).

In order to save time and gain efficiency, the process is becoming more and more flexible. Flexibility is seen as an investment in the new product development process. Indeed, flexibility is important for products using high technologies. It is hard to forecast the competitors' actions and the customer's need. In addition, the improvements in technological field are changing quickly. In order to be the first offering the new product in the market targeted, the process can become flexible. The step alpha and beta can be overlapped meaning that if the team's members transmit rapidly knowledge concerning the needs of customers, their opinion, test market, the production environment and a detailed design plan, the company is able to start to manufacture the product before. Obviously, this flexibility is possible thanks to an excellent interaction in the team. The team is cross functional and interactions between members can lead to an efficient flexibility and process. This kind of process depends on the level of risk that the company is ready to take, the complexity of the products and the market targeted. The technology used influences also the choice of acceleration and flexibility in the new product development process. (Rafinejad 2007, 171-172)

Flexibility in New Product development is challenging and risky but this new process is able to ensure the success of the new product in the marketplace. Firms are aware that the competition is strong and need to accelerate the process. Flexibility represents the new generation of new product development but others processes ensure also success and are based on other elements. Market research seems to have a vital role in new product development process.

2.2.3 New role of market research

The New product development "Stage-Gate process" presented in the figure 3 has been created by Robert G. Cooper. It represents the "second generation process" and breaks the traditional sequential new product development process. The Stage-Gate process is characterized by five steps with stages and gates from the idea to the launch.

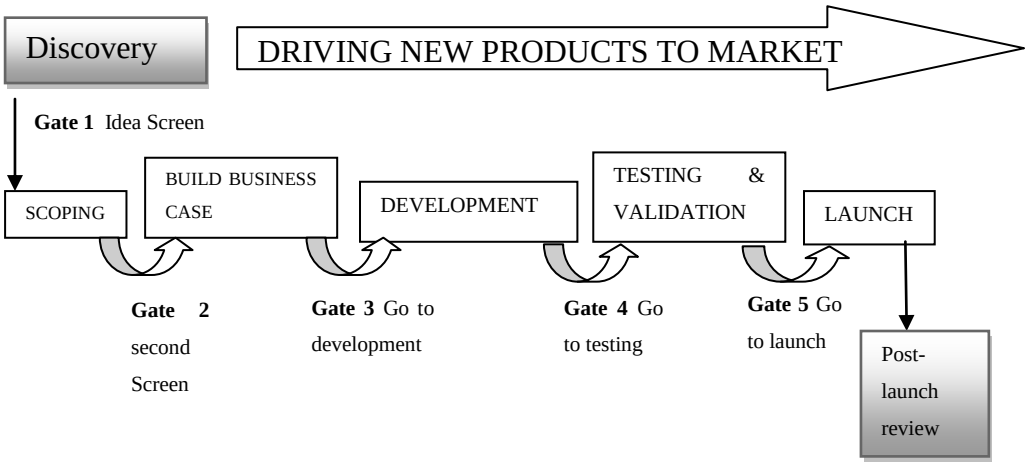


Figure 3: adapted from the typical Stage-Gate Model (Cooper 2001, 130)

The main stages are the discovery, scoping, building the business case, development, testing and validation, and launch. These stages are combined with gates. The Firms need to accelerate new development process and reduce uncertainty. Before each stage, the gate serves to control and reduce omissions or gaps. It could be compared to a quality-control checkpoint. This process is also based on a cross-functional and parallel activities meaning that each department is actively participating in the same project. At the beginning, the team gathers and selects an idea. This stage is the most

important and leads all the process toward success or failure. The Gate 1 called the idea screen controls the technical feasibility, the market attractiveness and if the idea corresponds to the strategy of the company and the external environment. These criteria are discussed thanks to two methods, "the must-meet criteria and a scoring model" (Cooper 2001, 133) to take a decision and move to the next stage. While in the discovery stage, it is more a desk research. The stage 1 named scoping is measuring deeply the potential of the market and handling a preliminary technical assessment. The gate 2, Second screen, is similar to the first gate adding criteria based on sales forces and customer reactions but also with the financial return. The next stage, building the business case, defines the product, investigates if it meets customer's expectations and prepares detailed technical, financial, market analysis. Passing at the gate 3 named go to development, the detailed project plan is accepted or cancelled. The costs are increasing more and more at each stage. This gate evaluates the success of the project studying each previous stage. Once accepted, the next stage is the development. A prototype is created and the marketing department continues it work with market analysis and customer opinions. The stage 3 is controlled at the gate 4 go to testing and valid the marketing plans, financial analysis and the prototype developed for the next stage. Then the stage is testing and validation. It allows to test the quality and performance of the product, the reaction of the potential customers, to update the financial analysis and improve the production. Before going to the launch, the gate 5 checks the results. The launch at stage 5 represents the plan of action. The product is prepared to enter the market to insure it success. The last step, Post-Launch Review, serves to improve the project. The product is commercialized and comparisons are carried out between the project and the current situation in the marketplace. A post-audit shows the positive and negative aspects preparing the company for the next new product development. (Cooper 2001, 133-141)

With the Stage-Gate process, the company improves the quality of new product development process. The mistakes are reduced thanks to this method of gates before each stage. The process is more complete without omissions. The gates signal a weakness in the process before passing to the next stage. This second-generation process so called by Robert G Cooper is characterized by parallel activities. All the departments are working together. This process is also compared to the rugby methods which is more efficient than the relay race method. The rugby method is inten-

sive and company saves time because several activities are carried out simultaneous. The team is also cross-functional. We observe that the attention is especially focused on the first stages (1 & 2) which are important and determine the success of the new product. Indeed, more the company has information, more the uncertainty is reduced. Obstacles are faced easily. The new product has better chance to be unique for the customers corresponding to its expectations.

In this new process, market research is essential. Each step is linked to the marketing activities allowing to be focused on the end-users' expectations. The sequential process integrates the market research but only in the Marketing strategy development stage located in the middle of the process. One stage in the traditional approach is devoted to the marketing research. Each step has a specific function. If the Stage-Gate process is analyzed, marketing function appears during the whole new product development process. The attractiveness of the market is analyzed at the beginning of the process. The size, growth of the market and the acceptance by end users thanks to focus groups are determined in the stage 1 to orientate in a good way the product concept. The needs are also quickly specified with market investigations and market research studies. These details given in the stage 2 about the preferences of the customers increase the success rate of the new product. A competitive analysis with a concept testing belongs also to this stage. It provides an analysis of the potential competitors and informs about the opinion customers concerning the future new product. The reaction of the customers is also taken into account in the process and is evaluate at each gates. In the stage 3, market launch plans are created and in the stage 4, the company launches a test market to measure the effectiveness of the plans and to test the product. The final stage represents the launch of the new product in the market. The marketing launch plan is before confirmed and implemented at the gate.

2.3 International adaptation strategies

New product needs to be adapted if firms plan to export it in a foreign market. International product adaptations decisions represent an essential strategy that ensures also the success of the new product. This strategy is as long as the new product development process passing from market selection, market entry strategy to international marketing program for the four main elements including product, promotion,

price and distribution. The focus in this thesis will be especially on international product adaptations.

2.3.1 International marketing strategies

Marketing has many variants. International marketing is used to adapt as much as possible the product abroad. International marketing is defined as “a marketing in an internationally competitive environment, whether the market is home or foreign” (2010, 1) In addition, with the globalization, international marketing is strongly close with global marketing. There is no difference between International and Global marketing. (Cherunilam 2010, 2)

The company has to decide if it wants to export the product in one foreign market or several markets and then, choose its strategy. Armstrong and Kotler (2003, 577-578) divide the strategic decision into two categories. The key elements of marketing mix can be adapted or standardized. Adapted marketing mix is an international marketing strategy adapted to each market targeted or to the market targeted. The domestic strategy is completely different from the international strategy. Even if the costs are heavy, the strategy is adjusted increasing the market shares. Standardized strategy is the opposite. The company uses the domestic strategy for the international market without adaptation.

The strategy to go international can be based on three mains decisions. Firms can decide between concentrated, undifferentiated or differentiated strategies. Concentrated strategy means that in one or many foreign markets, the international marketing mix is similar to the home marketing mix. This strategy is risky but it more adapted to niche marketing with specific segment. The undifferentiated strategy is a standardized strategy where the marketing mix is the same for all foreign markets. Concerning the differentiated strategy, the marketing mix is adjusted to each market as the adapted marketing mix strategy. (Cherunilam 2010, 178)

Going to international includes also following four orientations. The first orientation is being ethnocentric. The company sees its home strategy superior and believes that its products do not need adaptations to succeed abroad. The next orientation and opposite orientation is polycentrism. Each market is unique and the marketing is

adapted. Regiocentrism and geocentrism are the two last orientations. Regiocentrism means that company is concentrated on a particular region considered as unique and following a regional strategy. Geocentric orientation considers the world as one market with a world market strategy. (Keegan & Green 1997, 10-13)

2.3.2 International product adaptation

To go deeply in the international product strategy analysis, companies can consider that the product does not need adaptation opting for a straight product extension. This risky decision is not costly and any manufacturing modifications or additional promotion is needed if the customers are satisfied. (Armstrong & Kotler 2003, 578) Keegan & Green (1997, 294) qualify this decision as the easiest product marketing strategy and the most profitable. The launch is worldwide and market research is ignored by the company but it can also be the consequence in the long term of market failure.

Then, the product can be adapted. This decision involves changes to meet customers' satisfaction. (Armstrong & Kotler 2003, 579) Indeed, the product can be adapted keeping the basic home-market communication strategy in the foreign market. Also, the company can adapt only the promotion changing the basic communication approach with similar product to target the suitable segment in the foreign country. However, it is possible to adapt the communication and the product at the same time. (Keegan & Green 1997, 295-297) Finally, the product can be totally new in the foreign market. An existing or adapted product would not be able to meet the customers 'expectations. Kotler (2003, 580) explains there are two ways of inventing new products in a foreign market. It can be an existing product reintroduced into the market and completely adapted to the customers 'needs or the creation of a new product.

3 RESEARCH METHODS

3.1 Collection and analysis of data

This thesis is based on secondary data. Research methodology for the empirical part is concentrated on Internet sources. Automobile industry represents one of the main industries in France. Automobile Associations or Committees, Ministry of industry, French automobile manufacturers, Newspapers and specialized automobile magazines, Interviews gather many data. Focused on French automobile development and adaptation for Indian market, the research will be mainly in French. French manufacturers want to use the high potential of Indian market explaining the fact that reports and analysis can easily be found on the Internet in French. However, certain data concerning new product development process in French automobile groups and adaptation strategies for Indian market remain confidential.

3.2 Quality assessment

Internet offers a large choice of sources that why my research goal leads to governmental or specialized automobile organism reports and market research, recent articles. An online Interview between Head of Peugeot in India and automobile magazine completes my research concerning Peugeot. Concerning Renault, the website gives good qualitative information and it is compared with data found in online Newspapers articles.

4 RESEARCH FINDINGS

4.1 French automobile industry

4.1.1 French car industry situation

Governmental measures

Automobile industry has suffered since the crisis in 2008. All countries were affected by this crisis. French automobile manufacturers had to be reactive reducing the production and adapting their products. France has always been one of the most important manufacturers in automobile industry that why Government took measures in order to sustain the sector. Six billion of euros as a loan with particular interest rate and six hundred million of euros to establish the scrappage premium were distributed to the two French car manufacturers. The scrappage premium measure encouraged drivers to replace their old cars by a new one. The goal of these governmental measures was to stimulate automobile consumption in this current and global crisis situation, solve the financial problem, improve the production methods reducing costs, stimulate R&D but also to prevent or at least to reduce lay-offs in French automobile industry. With all these measures, French automobile industry still has threats with a growth slowing down due to the high fiscal and social charges in industry. The investment in R&D is also not enough even if automobile industry represents the first investment in R&D in France. (Website of Committee of French Automobile Manufacturers CFAM 2009; Website of Senate 2012)

Employments threaten

The automobile sector represents an important industry in France. The two main French automobile groups opt more and more for the relocation penalizing employment in France. Between 2004 and 2009, 4 400 posts disappeared in Renault Group and PSA cut 19 500 posts. French automobile manufacturers favour countries with cheap qualified manpower in spite of positive turnovers in 2010. French cars sales have decreased in France by 22% in January 2012 and in general in European mar-

ket. This reduction is due to the saturation in the European automobile market. It is vital to develop research and development with alternative and clean cars. (Website of Senate 2012)

4.1.2 Importance of Research and Development

R&D in the French car industry

Four R&D clusters give a competitive position to French automobile manufacturers in the international market.

- Mov'eo centre is based in Ile-de-France, Lower and Upper Normandy. This centre is in charge of 70% projects in R&D in French car sector. It is focused on the improvement of the performances in terms of consumption, environment, road safety and many others fields related to automobile sector. (Website of Mov'eo 2012)
- MTA centre (Advanced Mobility and Transport) is located in Poitou-Charente. Created in 2010, this platform aims at finding new propulsion systems. The development of the electric vehicle represents an important part of its activity. (Website of MTA 2012)
- Centre of the future vehicle situated in Alsace and Franche-Comté has for mission to anticipate the new industrial and technological trends but also the future needs of the customers. (Website of cluster future vehicle 2012)
- iDforCAR in the west of France encourages innovation for SMEs and helps manufacturers developing specific or limited edition cars. (Website of iDforCAR 2012)

Toward a new French automobile

French car industry is offering new motorizations to customers. PSA has understood these new needs and is the first manufacturer producing since 2011 hybrid diesel vehicle. (Website of Senate 2012) The group plans by 2020 to produce between 15%-20% of electric and hybrid vehicles in Europe. Renault Group is also aware about these changes. Renault is among the first manufacturers since 2011 which has

launched four new models completely electric. In addition, Elisabeth Rocha, Office of Information and Economic Forecasts' vice-chair, insures in the long term the automobile market will become multiform and multiproduct. French manufacturers will offer a high number of cars from low cost, green, classical, premium to urban automobiles. (Website of French Ministry of Industry 2010)

4.1.3 Global approach

Outsourcing strategy

Since fifteen years, new models of cars are produced in China. This area has become the main production zone in the world for car makers. Europe does not represent any more the first area in the world for cars assembly. However, for European car makers, Germany followed by France at the second rank remain among the first producers countries in Europe thanks to high skilled workforce and an important place of the car industry. However, French manufacturers produce one fourth French cars in Eastern Europe. In the long term, French manufacturers want to invest more and more in emerging countries where the production costs and salaries are lower. They want to participate actively in globalization and insure a strong presence in the foreign markets. In a high competitive environment, French makers have also to be reactive and reduce costs offering innovative models to customers. Renault and PSA produce more and more in foreign countries than in France. This strategy is focused on Eastern Europe but also Asia central and extreme orient. PSA Peugeot Citroën drives its strategy in Czech Republic, Slovakia and Russia whereas Renault is present in Romania with the buyback of the manufacturer Dacia, in Slovenia and South America. In order to insure their success, Renault invests also in R&D delocalizing technological centres in Romania and in India. (Website of French Ministry of Industry 2008) The number of cars per inhabitants in certain foreign countries is low and French manufacturers plan to satisfy and provide these customers directly. (Website of Committee of French Automobile Manufacturers CFAM 2009)

French cars in an international environment

French car industry benefits from the foreign demand. Indeed, three vehicles on four are exported abroad of which three fourth are sold in European countries. In Europe, one car on four is French brands. Certain area represents a high potential for French groups such as China and India. The car market is becoming very competitive with the presence of foreign competitors that why manufacturers try to control their costs share their knowledge or establish cooperation in order to strengthen scale economy. The investment in R&D is essential and especially focused on the development of new models, the drivers' safety, the reliability and the conservation of the environment. (Website of French Ministry of Industry 2008)

4.1.4 Main automobile groups

Renault Group

In 2010, thanks to an attractive range of individual and commercial cars, Renault market share increased. Its turnover reached 38,971 million euro and the group sold 2.63 million cars. In general, the brands produced by Renault were sold with success especially out of Europe with a rise of 26.2% in the individual and commercial cars market. In 2011, the demand from non European countries will stay high compared to the French market with a reduction forecasted around -8%. However, Renault plans to overcome its 2010 turnover and sales due to the attractiveness of its new thermic cars range and the launch of the electric car range in the international market. The group has a strong presence in fifteen markets in the world. In Europe, France and Germany have the two first positions as a main car markets for the group. Concerning the non European markets, Renault has market shares especially in Brazil and South Korea. Brazil represents the third most important market of the group followed by South Korea. (Website of Renault Group 2010)

PSA Peugeot Citroën Group

In 2010, PSA Peugeot-Citroën group is positioned at the second rank as a European manufacturer. Its market shares in Europe represent 14.2%. Its turnover reached 56.1 billion euro with 3.6 million of cars sold in the world. 40% of the total sales were out of Europe. The R&D plays an important role in its strategy of growth with an environmental consideration. Indeed, the group invested 2.1 billion euro and focused on the development of alternative energies. PSA plans to increase its market shares in BRIC countries which have a high potential. The group reinforces its presence in these markets and develops Peugeot brand in India. (Website of PSA Peugeot Citroën 2011)

4.2 New French automobiles development process

PSA Peugeot Citroën and Renault groups represent the two main French manufacturers. Innovation in automobile sector is essential to survive in this competitive environment. French manufacturers have to be reactive and be the first developing unique and new automobiles if they want to be different from local or others international competitors strongly present in car market.

New Renault product development process

Renault has for main objectives to improve safety, interior, technical performances of its vehicles and reduce the impact in the environment. Research and development centres and a large network of centres in the world are its key of success in new product development. The establishment of design centres and technical centres abroad allow also to develop the right design for local customers and to test the new products before the commercialisation in the foreign market. (Website of Renault. 2012)

Since 1990, the methods used in the R&D centres are closed to rugby methods with cross-functional teams and parallel activities. All departments work together and share their experience and knowledge to develop successful new Renault automobiles. The efforts are in common and the communication is better reducing the barri-

ers between departments. This new management of new product development process in Renault group represents a team project and is no more based on sequential logic accelerating the process. (Website of OMEGA 2012, 92-93)

From the idea to the launch, Renault favours cooperations and an open Innovation. New cars development represents an assembly of industrial products explaining the close relationship between the French manufacturer and its providers in new product development process. (Dupas 2011)

Providers share its known-how, technological and industrial knowledge. However, its industrial and intellectual properties give to them a position important in the project of new cars development. (Website of OMEGA 2012, 90)

In addition, Collaborations exist with prestigious universities, companies from different sectors and sociologists. This strategy leads to a synergy and the sharing of experiences. Open Innovation strategy gives opportunity to contribute and participate in the process with an innovative idea. Group's members can also express their ideas and integrate the process. Two expositions not related to automobile sector are organized each year to detect the new needs in the current society. Opinions' audience are carefully analyzed. In order to find and develop new technologies but also to accelerate the development process, Renault tries to be associated with start-ups companies. (Dupas 2011)

People directly linked to Renault group especially employees can participate actively in the process. Specialists are in charge of developing creativity and initiative to find new ideas in the internal environment of the automobile group. A challenge is also organized each year with the creation of team following objectives such as the improvements of ergonomy or quality aspects. This challenge increases the collaboration and the birth of collective new ideas. (Weill & Sarazin 2005, 6)

New PSA Peugoet Citroën product development process

Due to a technological environment changing constantly and new needs appearing, PSA group wants to have more flexibility in new product development process. For this reason, latest technologies and materials with developed automation are used in the manufacturing stage to anticipate new trends and accelerate the process. The

group feels concerned and tries to produce in environmental-friendly way. Green production process allows to reduce the costs and wastes of materials or energy. (Website of PSA Peugeot Citroën 2012)

PSA group follows the same strategy than Renault favouring exchanges between departments, partnerships and cooperations. They created in 2010 “StelLab” called also “Sciences & Technologies Exploratory Lean Laboratory”. This laboratory represents a place opened toward innovation and creativity where communication between all members linked to the group is possible. (Website of PSA 2012)

PSA shares its knowledge with BMW Group by creating a centre to develop and manufacture electric and hybrid technology. In this joint venture, suppliers have an important position. They are strongly invited to express their ideas. (Website of bpc electrification 2012)

4.3 New automobiles development and technologies in France

4.3.1 Renault models and technologies

The French manufacturer bases its new product development on high technical qualities and customers’needs are the main motivation. To guarantee successful product, manufacturers develops a large diversity of cars with an innovative design and low dioxide carbon emission cars. Their objective is to provide services, reduce production costs and offer at the same time safety, adapted interior and technological materials for the complete satisfaction of its customers. The manufacturer feels concerned by the environment and orients progressively it development toward electric vehicles. (Website of Renault 2012)

Zero Emission range

Renault by the end of the year 2012 will offer a range of 100% electric cars with four new models: Renault Kangoo Z.E., Renault Fluence Z.E., Renault Twizy Z.E. and Renault ZOE.

Launch in 2011, Kangoo targets above all professionals and companies whereas Fluence Z.E. represents premium familial car seen as four-door saloon. In 2012, Twizy, a small urban car will be launched in the French market followed by ZOE. The Renault Z.E. range is characterized by a price similar to Diesel car. (Website of Renault. 2012)

ZOE car is ready to enter French market in summer 2012. ZOE has many functionalities. The systems integrated are able to ensure safety for pedestrians with particular warning sound due to the silence of the new motorization. The size remains small adapted for urban use and ZOE has the capacity to circulate during 210 km. Through the style and design, Renault wants to express the environmental friendly dimension. (Carole 2012) ZOE is considered as a compact, polyvalent and silent car compared to Twizy seen more as scooter due to the same performances and agility. (Andre 2009)

4.3.2 PSA models and technologies

The group plans to reduce Carbon dioxide emission thanks to an important technological discovery with the Hybrid4 technology. This technology has been prized at the Goldenness Lenkrad awards in 2011. The French manufacturer in 2012 will launch new models but also several models will be restyled. (Website of PSA Peugeot Citroën 2012)

Peugeot Electric vehicle range

Peugeot iOn is electric urban vehicle launched in 2011 by the French manufacturer. The car is more adapted for professionals and companies because of the recharging of the battery. Companies and professionals have required infrastructures to recharge battery compared to passenger automobile market. France is not well enough equipped and a lack of recharge station is noticed. However, the driver has three possibilities: the recharging at home, in public place on public terminal or in underground carpark. This car easy to handle offers a comfortable interior and autonomy of 150 km closer to 120 km in the reality. (Darbois 2011)

Peugeot Hybrid vehicles range

Peugeot 3008 HY4 is an electric and Diesel hybrid crossover premium equipped with innovative technologies. Four different ways of driving are possible from relax mode, electric mode and sport mode to four driving wheels mode. The design is very similar to the classic Peugeot 3008. HY icons have been added on the exterior of the car and in the interior, not significant modifications were done. (Scobeltzine 2011)

Peugeot offers in 2012 an all-road car with the new 508 RXH. The technology HYbrid4 classifies this car in Hybrid range. There is a Diesel and electric motor reducing carbon dioxide emission. The interior is characterized with leather seats, excellent finishing and large diversity of features. Peugeot 508 RXH represents an upmarket car. (Potée-Gallini 2011)

Citroën DS range

Citroën DS3 Racing is a sport car with premium price. This car has a particular esthetical design giving a tuning style. However, in the interior, the sporty design reduces the space for passengers at back seats. DS3 Racing has high mechanical performances and is positioned among the cars the most rapid. (Marcos 2011)

Concerning Citroën DS4 launched in 2011, this model has an excellent design compared to a woman with round forms. The esthetical exterior aspect is however more discrete than DS3 Racing. The quality perceived is positive in general and with a large motor range, the driving remains dynamic. DS4 model does not have significant new technologies. Citroën integrated already existing innovations. (Bartoli 2011)

Citroën DS5 is an upmarket crossover and the design changed completely from the classic DS design giving uniqueness to the model launch in 2011. The interior seems to be inspired from aeronautic. DS5 offers a large choice of technologies. The Hybrid4 version is available meaning that customers can appreciate the association of the Diesel motor and electric motor. (Marcos 2011)

4.4 Indian automobile market

4.4.1 Indian Automobile industry

Automobile industry is one of the most important sectors in this emerging country reaching 5% of Indian GPD. Exports were multiplied by four in the five last years: 13% of the local automobile production is exported. (Website of UBIFRANCE 2010)

Since 2006, Indian Government has launched "Automotive Mission Plan". Indian Government plans to reach 110 billion euro in 2016 representing 10% of GDP, to invest between 25-30 billon euro in automobile sector by 2016, to become the seventh world car producer and to increase its market shares abroad on small cars segment. *(*Website of SIAM 2012)

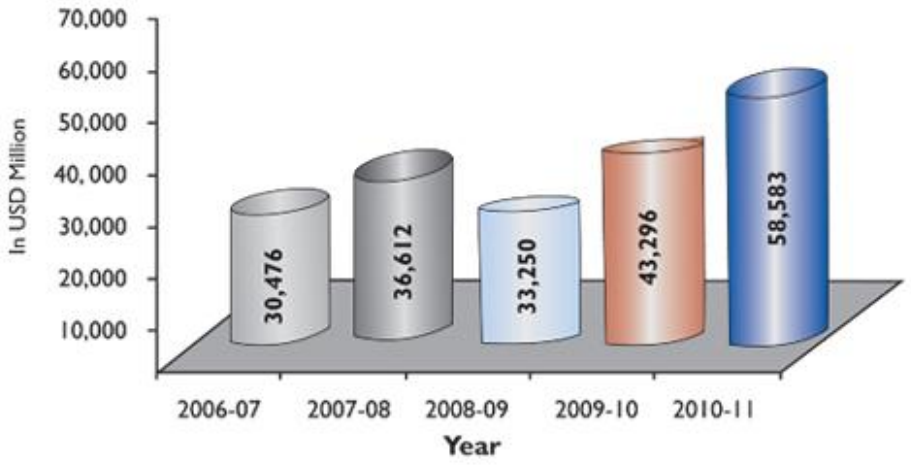


Figure 4: Gross Turnover of automobile industry in India (Website of SIAM 2012)

In the figure 4 shows clearly that since 2006 Indian gross turnover of automobile industry has strongly increased. In 2010-2011 year, gross turnover in this sector has represented 58,583 million USD in India.

4.4.2 Demand

India is a new attractive market for French manufacturers due to the high number of inhabitants who do not have yet vehicle and the creation of an Indian middle class.

Indian purchasing power is increasing progressively. (Website of Sherbrook University 2012) Less 10 of 1000 Indians have a car. (Website of UCCIFE 2012)

Whereas French and European markets saturated, Indian automobile market has a high demand to satisfy. Indian demand rises more and more each year. In 2010, Indian automobile demand increased by 30%. (Falize 2011)

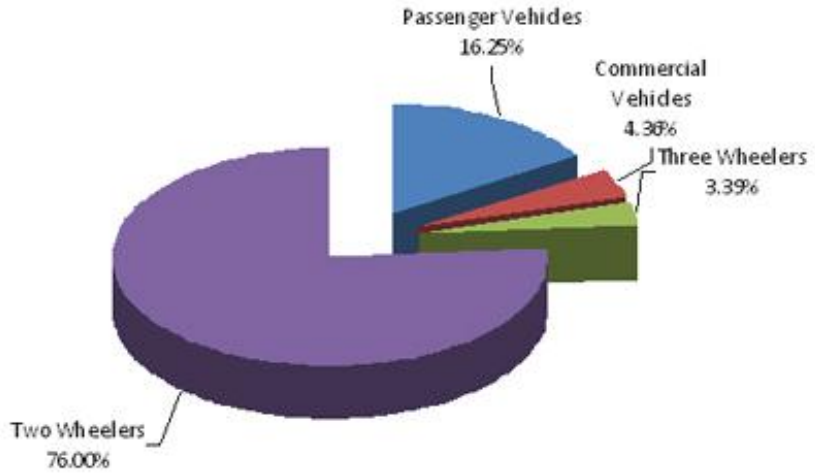


*Figure 5: Segment wise Market Share in 2010-*2011 *(Website of SIAM 2012)*

The Indian demand in the figure 5 is especially focused on two wheelers vehicles and passenger vehicles. 76% of Indians circulate with two wheelers and 16.25% with passenger cars. French manufacturers wants to enter and gain market shares in automobile market but the high number of two wheels shows the importance to develop small cars for Indian customers.

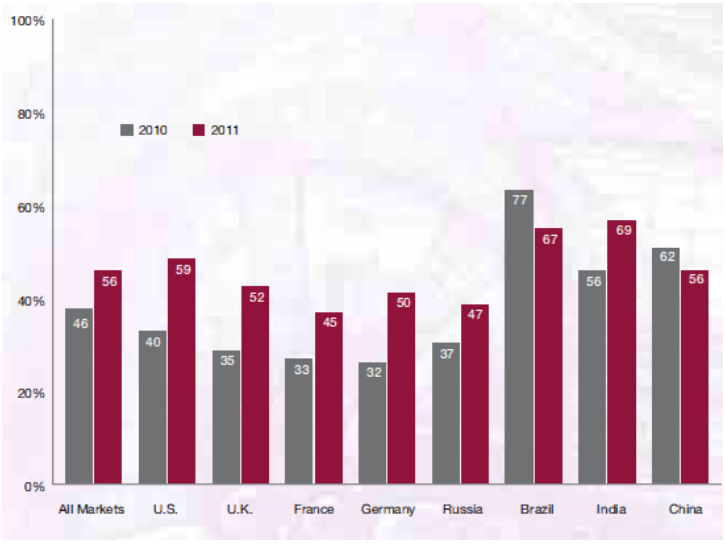


Figure 6: Likelihood to purchase smaller/lower-coster car (% saying likely/very likely) (Website of Capgemini 2012)

In 2001, 69% of the Indian respondents prefer buying small and low cost cars. This percentage is the highest presented in the figure 6. In India, small car means cars measuring less than four meters and half of the Indian cars considered as low cost are sold less than 6000 euro excepted if manufacturers want to offer luxury cars.

In addition, it is important to specify that Indian culture influences the way of using a car. Indian tends to use a car with numerous passengers. The demand would be more focused on cars with five doors and not two doors. The interior has to be spacious enough. (Gioria 2012)

Automobile Domestic Sales Trends (Number of Vehicles)

Category	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Passenger Vehicles	1,061,572	1,143,076	1,379,979	1,549,882	1,552,703	1,951,333	2,520,421
Commercial Vehicles	318,430	351,041	467,765	490,494	384,194	532,721	676,408
Three Wheelers	307,862	359,920	403,910	364,781	349,727	440,392	526,022
Two Wheelers	6,209,765	7,052,391	7,872,334	7,249,278	7,437,619	9,370,951	11,790,305
Grand Total	**7,897,629**	**8,906,428**	**10,123,988**	**9,654,435**	**9,724,243**	**12,295,397**	**15,513,156**

Figure 7: Automobile Domestic sales trends (Website of SIAM 2012)

According to the figure 7, on a total of 15,513,156 cars sold in India between 2010 and 2011, 11,790,305 two wheelers were sold and in second position, sales in passenger category has reached 2,520,421 vehicles. Since 2006, automobile domestic sales have been multiplied by two.

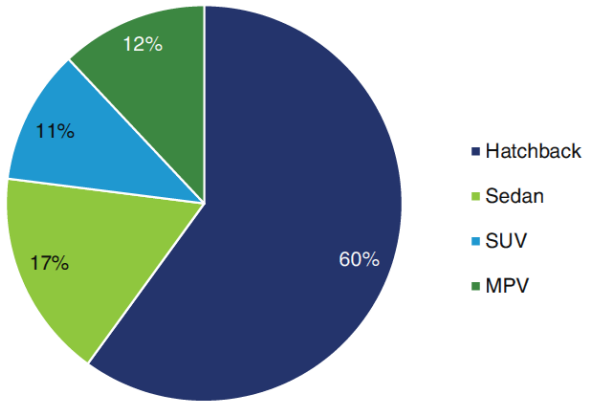


Figure 8: Preference of car type in India (Website of Deloitte 2012)

In this pie chart above, we notice that Indians prefers hatchback cars and saloon cars also named sedan. Hatchback car is a car with two parts that meaning that we can find at the front for the motor and a part including interior and trunk.

4.4.3 Competition

Indian Automobile market became very competitive and international car manufacturers are present.

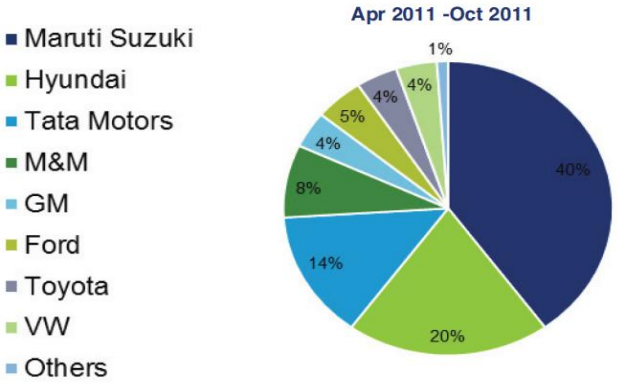


Figure 10: Market share of passenger Car sales by Manufacturers (Website of Deloitte 2012)

The Indian Automobile market for passenger vehicles consists especially of local manufacturers. According to the figure 10, in 2011 the main competitors have been Maruti Suzuki, Hyundai, Tata Motors and M&M (Mahindra group). However, the competition is becoming aggressive with the progressive presence of foreign manufacturers ready to gain market shares and use the high potential of this emerging country. French manufacturers are late in the Indian market.

Indian manufacturers represent 80% of the passenger car market. The Indian automobile market is concentrated (Website of Deloitte 2012) Besides, they are especially specialized in low cost and small cars. (Website of Sherbrook University 2012)

4.5 French automobile adaptation strategies

After Russia, China and Brazil, India is the new Eldorado for French manufacturers. Indian Customers needs are completely different from European needs and a specific strategy has to be implemented.

Indian customers are hard to please. For this main reason, French manufacturers perceived the Indian automobile market as a unique market. An adjustment of mix marketing elements is necessary to ensure the new vehicles success.

For this reason, they plan to build production units in India and to favour associations with automobile competitors. Indeed, Renault invested with Nissan in India in the construction of a production factory near Chennai. PSA has invested 650 million euro in production factory in order to offer by 2014 new models to Indian customers and reduce costs for the two manufacturers. (Website of UBIFRANCE 2012)

PSA group does not have a presence in the Indian market yet. After a failure in the 1990s for Peugeot, the group may chose to launch by 2014 first in the market the Citroën car C1. (Baggonkar 2011)

French manufacturers follow also competitors' strategy that is the manufacturing of low cost small cars explaining their choice of relocation to India in order to reduce production costs and be closer with Indian customers. Indian manpower is qualified, bilingual with low labour costs. (Website of Sherbrooke University 2012)

To gain market shares in the Indian market, Renault and PSA want in priority communicate a good image to Indian customers and target the upper class with premium cars. (Pluyette 2012)

Renault automobiles adaptations strategy

Renault after the failure in Indian market with the low cost small car named Logan launched in 2007, invested in Design studio in Mumbai but also in Technology and business centre and manufacturing centre in Chennai in collaboration with Nissan. (Website of Renault India 2012)

Renault Logan represented a car with a global strategy and not for the particular Indian customers' needs. The product was not adapted to the local market. The turn signal under the wheel was on the left instead of being on the right. The windscreen was not adapted to the left-drive and in addition, the design did not represent the made in France reflecting the reality of India. Indian wants a modern design with innovative technologies. (Pelletier 2010)

Renault will offer five new models by the end of 2012: restyled Sedan Koleos, an adapted Fluence with petrol or diesel option, the small premium Renault Pulse, the small SUV Duster and the small Hatchback Modus. Renault group is aware that the competition in low cost small cars in very high and is not ready to enter the low cost car segment. The positioning of their new models for Indian market is premium and especially focused on small and diesel models. From 2015, Renault plan to develop a new low cost car. (Pluyette 2012)

Renault Small SUV Koleos model launched in 2008 in France did not convince customers. The 4x4 has had a new style to meet foreign customers' expectations especially customers from emerging countries. (Dupre 2011)

Concerning the small hatchback Modus, Renault is offering Modus model and Grand Modus model. Grand Modus will be not offer in the Indian market due to the size exceeding four meters. In India, if the size of a car is longer than four meters, manufacturers have an excise duty increasing the price of the car. The interior is spacious and practical corresponding to way of Indian using. The design is more close to Renault design meaning French design particularities compared to the Fluence and Koleos more conventional. This French design will satisfy Indian customers. (Amit 2011)

Peugeot automobiles adaptations strategy

According to Frederic Fabre, Peugeot India's chief interviewed by an Indian automotive magazine, by 2014, Peugeot plan to launch the 508 model, the 3008 and RCZ. The three models are hatchback and will be considered as a premium car n the Indian market. The models will give the good image that Peugeot wants to transmit to Indian customers and will show its technologies. They have decided to focus on hatchback due to the governmental tax on four meters cars. The advantages with hatchback cars is that that kind of cars correspond to Indians' preferences, avoid tax four meters cars and easier to design with this fiscal governmental constraint. (Sorabjee & Barooah 2011)

Peugeot 508 and 3008 will reflect modernity with a qualitative strong Peugeot design adapted to Indian market. Peugeot will offer its newest eco-friendly technologies but also sophisticated equipments. Hybrid4 technology reduces Cardon Dioxide emissions. The elegant, comfortable and spacious interior will satisfy passengers. (Menon 2012)

Citroën automobiles adaptations strategy

Citroën is discussing for manufacturing cars in India but nothing concrete has been set up yet. However, for the Indian market, the French manufacturers may launch in the market, the C5 sedan and C1 compact car. According a market research conducted by Peugeot, these two cars seem to have a high potential for the Indian passenger automobile market. (Peugeot to re-enter India... 2011)

5 CONCLUSIONS AND RECOMMENDATIONS

French manufacturers are among the last entering the Indian market. Their failures for Peugeot in the 1990s and Renault in 2007 proved that Indian Automobile car market is difficult to penetrate. Indians customers want to have local car adapted to their particular needs and not only a global car without any adaptations. New French automobiles development is challenging to manage and besides, French manufactur-

ers have changed the management of this risky process in order to offer adapted automobiles and anticipate new trends in the automobile sectors.

Their new automobile development process is based on rugby method meaning that they favour cross-functional team and parallel activities. A large network of design and technical centres has been set up in the targeted foreign market to have a better understanding of the customers' needs. India represents a challenging market and it is essential that the two French automobile manufacturers focused on a process similar to the "Stage-Gate process" created by Robert G Cooper, by adding the close relationship with local Indian providers. Uncertainty is very high for this foreign market and any detail can be ignored that why the marketing activities has an important role and will determine the success or the failure of French automobiles in India. Market investigations and market research studies will measure the attractiveness of the market. The attractiveness of the market shows directly if the targeted market is ready to buy and accept the new French automobile. The customers' preferences are important but also a deep analysis of local competitors has to be carried out to insure the success and adapt the product as well as possible. The system Gate-Stage would avoid omissions or mistakes and would control during the process if the market launch plans are realistic. The flexible process allows the automobile manufacturers to accelerate the process if it is needed and remain competitive offering the right French automobiles to Indian customers.

However, in order to ensure the success of new French automobiles, certain recommendations concerning product adaptation are important to take into account for the Indian car market.

Automobile taxes

Before launching new cars in India, French manufacturers should be informed about the automobile taxes.

Adjusted Size

Because of fiscal tax on car exceeding four meters, French manufacturers should develop small cars for the Indian middle class. Cars longer than four meters will have quite high price and will be more adapted for the upper class.

Technical regulations

French manufacturers have to comply with specific technical regulations. To understand those technical regulations, it is advice to come close to SIAM Society of Indian Automobile Manufacturers.

Indian preferences

Most of the cars in India are Diesel. Diesel models must be favour by French manufacturers but also Hatchback and sedan models very appreciated by Indian customers.

Strong French Design

Indians associates French design with quality, refinement, power and modernity. Logan design was a complete failure in 2007 especially because this design reflected the reality in India, an emerging country. Cooperation with Indian designers in the fashion field not related to automobile sector would give a new vision of the future successful French car for Indian customers with appropriated design and colours.

Spacious interior

The interior of the car should be comfortable and spacious. Indians use their cars for collective and familial use. The use of the car is shared.

Wider front doors

The front door should be larger to be adapted to Indian women clothing. (Mustang.101 2011)

Technical particularities

French manufacturers have to respect technical specifications to meet Indian customers' expectations in terms of cars.

Left mirror uses to be convex to reduce danger avoiding blind spot and give more visibility to the driver when others cars or especially two wheelers overtake on the road. (Dhanushs 2011) The rear fog lights in India are seen at long distance because of the brightness of the light more visible than the European rear fog lights. (Sadnabrina 2011) The dashboard has a particular material due to the hot weather such as polypropylene. (Dot 2011) Sun-roof is not appreciated still because of the warm weather in India and on the contrary, the quality of air filters is important due to the

dusty outside air. Then, the sound of the horns is louder than in France. The rod circulation in India is heavy and drivers have to be heard. (ambivalent98 2011) In the Indian culture the left hand is not allowed to be used explaining the necessity for French manufacturers to include only components and features for right hand drivers. Suspension on French cars should be adapted to the low road infrastructures in the country. (Tatsago 2011)

6 FINAL WORDS

The topic of this thesis has represented a challenge. The main difficulties were the technical nature and novelty of the topic, the language barrier and the confidentiality of automobile sector.

Any previous studies related to new product development in theoretical viewpoint had been carried before. The theoretical books used seems at a first sight to be not enough recent. However, the awareness of automobile groups started in these years and they decided to follow flexible new product development process based on the rugby game methods. Mastering theoretical key concepts took time but also the technical nature of the topic due to my lack of technical knowledge in automobile field.

The thesis is focused on Indian market. My first choice was Finnish market but the language barrier concerning automobiles adaptation has oriented my choice toward India. Besides, India for French automobile groups is the new Eldorado and they have for objective to re-enter this stringent market after numerous failures in the past.

The automobile market is very competitive. Renault group communicates more than PSA group but still information concerning new product development, it management methods and the specific automobiles adaptation to Indian market remain highly protected in order to not give a competitive advantage to competitors.

After a change of supervisor and the topic hard to master in few months, this thesis based on research has been implemented and objectives reached.

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