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Green initiatives: a step towards sustainable development and firm's performance in the automobile industry

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ABSTRACT

The automobile sector is rapidly increasing its market share worldwide in recent years. It is because of various business strategies by automobile manufacturer such as more focus on small cars and fuel-efficient cars having a low market price that are targeted to capture the maximum market. But due to increasing market share of the automobile sector there are several environmental issues are also arising such as carbon emission, global warming, etc. In such a scenario, automobile manufacturers are facing dual pressure one, to save the environment and another is to maintain the performance of the firm in the long run. The performance of the firm can be judged on the basis of financial, operational and marketing capability of the firm. This paper develops an approach towards the adoption of the green initiatives at the firm, and also tries to build a relationship between the performance of the firm and sustainable development through the adoption of green initiatives. The paper would discuss various green initiatives such as green marketing, green supply chain management, green innovation, etc. which firms are adopting. The study would focus on the facts and opportunities of green initiatives for the success of the firm as well as sustainable development. The paper is based on the exploratory research, and extensive literature survey has been done to bring the findings of the study.

1. Introduction

In recent years, the automobile market is increasing rapidly not only in Europe and America but the rest of the world. Due to the rise in the market demand worldwide, automobile manufacturers are continuously involved in the production process, and reaping high sales. On the other hand, these manufacturers are facing dual pressure. The first one is to comply with the environmental norms of the country, for the sustainable development and secondly to maintain the performance of the firm in the long run. Controlling carbon emission is the biggest challenge for these automobile manufacturers. These firms are facing cost and complexity pressure created by the tightened environmental norms, and the firms are much more investing on R&D to develop products that can less or no harm to the natural environment (McKinsey and Company, 2013). In developing a country like China, it can be observed that it is one of the biggest automobile markets and is also facing these pressures (Zhu et al., 2007). In such a scenario, the global auto market is planning to escape from this situation so that the performance of the firm and the target of sustainable development can be achieved. Firms are moving on and thinking beyond conventional functions and adopting green initiatives such as green innovation, eco-production, green supply chain management, etc. to develop and implement such strategy, (Ar Ilker, 2012). Due to hike in the global fuel prices and increasing carbon emission, the automobile sector is a very significant concern both for customers and government (KPMG, 2010). The performance of the firm, especially in the automotive sector, is mainly based on the fuel prices, environmental issues, etc. . The customer does not buy those products that consume more energy in developing countries like India & China. On the other hand, if they emit carbon they have to pay more may be in the form of extra fee or penalty depending upon the regulation of a particular country. The US currently accounts for 18 percent of the total global carbon emissions and planning to decline at about 15 percent till 2035 (Congressional Budget Office, 2013). When firm bears the extra tax of the carbon emission, it directly goes on to the customer's pocket and later on the customer start avoiding such kind of purchase and also, let other well-wisher not to buy such things (Matsukawa, 2012). Here the

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market share of such a product starts declining, and the need arises of adoption of green initiatives that can contribute to the performance of the firm and sustainable development. Green product innovation is positively associated with the performance of the firm as people are much more focused on environmental issues and when they buy an eco-product they can take the advantage of both cost and environmental protection (Lin et al., 2013). The huge industrialization in many developed, and developing countries shows positive sign of economic growth. But it is an environmental threat also, and hence there is a need for environmental business strategies, which not only develop the company but also move towards sustainability (KPMG, 2010). In a recent survey it is found that ninety-two percent of the buyer think about fuel efficient vehicles and seventy-three percent of the customers consider about eco-friendly products, whereas around forty-seven percent of the customer want a car that is based on alternative fuel technologies (KPMG, 2014). There are many world's major automobile players who are investing huge amount in research and development, such as leading automobile manufacturers as Honda, Toyota, GM, Ford, Daimler-Chrysler, Suzuki, Hyundai, Tata, etc. In 2008, North American Environmental Report, Toyota, the car manufacturer, states that they spend an average of nearly $1 million an hour on research and development to develop the cars and technologies of the future (Brecard, 2011). Apart from R&D efforts these automobile firms also involve in other green initiatives such as Green Supply Chain Management (GSCM), so that they can reduce the cost and be a part of sustainability programs by keeping better firm performance. GSCM is the prominent feature of leading automobile manufacturer and it emphasis on life cycle costing, asset efficiency, and waste reduction and service innovation and recycling. GSCM stimulates product and service innovation, improves asset utilization, and deepens customer relationships and service levels through a shared focus on reducing waste and cost (Van den Broek and Van den Broek-Serlé, 2010). GSCM not only reduce the waste and efforts but also encourage the performance of the firm. As it also help in cost reduction through reverse logistics and maintains the efficiency of the firm especially in the field of supply chain management in a sustainable manner (Chan et al., 2012b). Some of the automobile firms are also focusing on green marketing. According to the American marketing association, from the environmental point of view, green marketing is, “The efforts by organizations to produce, promote, package, and reclaim products in a manner that is sensitive or responsive to ecological concerns”. Green marketing evolves from the developed countries in Europe and America, due to various strict environmental rules and regulation for the industries. In this scenario firms have started to develop a green marketing for the product which includes product planning, packaging, green advertising, green pricing, and eco-labeling in the greenest way (Lampe and Gazda, 1995). Green marketing is also known as ecological marketing or sustainable marketing etc. (Polonsky and Rosenberger, 2001). Many automobile firms started working on it and as the consumer behavior is also a concern for the environment and they often keeps the environment in top priority while purchasing any product. Adoption of green marketing is a favorable indicator for firm performance many times, and it also contributes to the sustainable development (Chan et al., 2012a). But it is also true that sustainability is not a short-term goal that can be measured easily, therefore, what factors contribute more to the sustainable development is very difficult to claim. On the other hand studies that have been taken place on this issue indicate that there is a definite relation between green marketing and sustainable development (Lin et al., 2011). But when we talk about, performance of the firm and its connection with these green initiatives, it's a matter of a systematic research as adoption of green initiatives also another investment for the firm and it can be treated as an extra burden and may be recovered by selling their products in costlier manner (Penna and Geels, 2012). Those customers who are price sensitive like customers those who reside in developing countries, like India and other neighboring countries, may ignore such product due to its higher price. In this case, it is paramount to understand that whether the consumer behavior is changing toward paying a higher price for the product, which is eco-friendly or safer for our environment (Chan et al., 2012a). In the context of the automobile sector, if we see the Indian consumer, they are sometimes ready to pay a bit higher price, if their vehicles are going to save some money in terms of fuel, or for the purchase of alternative fuel option such as LPG (Liquified Petroleum Gas), CNG (Compressed Natural Gas), and Battery powered etc. Therefore, if we see the recent trends in Indian automobile, we find that most of the firms much more focusing on the eco-friendly cars and attracting their customers successfully. Maruti Suzuki, Hyundai, Mahindra & Mahindra and many more companies in India are focusing on the production of greener cars (Shrikanth and Raju, 2012). But still there is no definite answer to the question, are these customers think about the environment or they simply think about their pockets. According to research, it is said that if the product is environmentally safe people are ready to pay higher prices (Essoussi and Linton, 2010). But it is also a matter of research to know that for which product category, people can pay a higher price. Because when we talk about automobile, people pay higher only if the product is going to give them back in terms of savings (Sierzchula et al., 2012). Now it is important to consider that, automobiles are the primary source of carbon emission, and hence there is more strict governmental pressure on automobile firms for controlling carbon emission. These firms are continuously involved in reducing it, but the cost is also an obstacle many times and firms are puzzled because they have to minimize the product cost due to cut throat competition. These firms are involved in controlling carbon emission through investment in R&D due to governmental, environmental and social pressure, and in the middle of that they also have to maintain the firm performance (KPMG, 2010). Here the purpose of this paper is to analyze the relationship between firm performance and green initiatives on the basis of extensive literature and also to know the impact of green initiatives on the sustainable development. There are various authors across the globe, who have critically worked on this issue, and given their best results. In the same way, we have compiled all these research papers and analyzed the problem, to bring some more meaningful findings.

2. Review of literature

Approximately hundred research papers have been reviewed and mostly were chosen after the year 2010 and onwards so as to bring the novel outcomes of the paper.

2.1. Firm performance

Firm performance is mainly based on various functions of the organization, such as production function, operational function, and marketing function, etc. Nowadays firms are facing different pressures that affect these organizational functions (Polonsky and Rosenberger, 2001). Market performance, financial performance, learning and reinvestment performance are some of the major performance outcomes of the firm (Morgan, 2012). Manufacturing in emerging industrial nations, such as India, Indonesia, Malaysia, Philippines, Thailand and Vietnam, has grown significantly in recent years. However, this has come at an environmental cost. Manufacturers in these nations are facing increasing pressures to produce products in an environmentally sustainable manner, particularly those who compete in the global market and have to

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comply with foreign environmental standards and regulations. Consumers are also becoming more critical of the manufacturer's environmental performance (Xu et al., 2013b). Greening occurs due to dual pressure in the business, i.e. external and internal. External pressure consists of satisfying consumer demands, reacting to competitor greening actions, channel/supplier requests to modify inputs whereas internal pressure are cost and philosophy (Polonsky and Rosenberger, 2001).

2.2. Sustainable development

On the other hand, sustainable development is also one of the primary concerns for these firms, especially for automobile firms, those who are mainly known for carbon emission and other pollution (Gan, 2003). McCann-Erickson,(2007) defined that: Sustainability is a collective term for everything to do with responsibility for the world in which we live. It is an economical, social and environmental issue. It is about consuming differently and consuming efficiently. It also means sharing between the rich and the poor and protecting the global environment while not jeopardizing the needs of future generations (Jones et al., 2008). The Brundtland Report defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their needs (Adam, 2006). According to David Pearson, Deloitte's Global Sustainability Leader, "Sustainability continues to assert itself on the business agenda. Customers and stakeholders are holding companies more and more accountable for sustainability performance, and businesses are working hard to ensure that their external perception reflects their internal efforts. Leading global brands are thus showing increased focus and innovation in the sustainability realm—leading to improved programs and reporting" (Inter-brand, 2013). The three principal pillars of the sustainable development are the economy, society and environment (Adam, 2006). As reported by UN global compact in 2010, sustainability has become the mantra for companies seeking to create a competitive advantage in the global marketplace. Recent interviews with over 750 CEOs from around the world revealed that, 93 percent feel that implementing sustainability programs that mesh with their core businesses would be critical to the future success of those businesses (Borin et al., 2013). Companies are seen as key players on the societal path towards sustainability. It requires operational implementation far beyond the mission statement. It is necessary to find practical approaches to sustainable development inside the companies themselves, as well as regarding their supply chains, this is what something has been done by Volkswagen (Koplin, 2007).

2.3. Green initiatives and automobile sector

Many automobile firms are now engaged in adopting green initiatives in order to reduce the pressures and for better image by keeping their business in a sustainable manner, such as green supply chain management, reverse logistics, green marketing, green advertising and use of eco-labeling (Smith, 2010). In the automobile segment there are various players who are involved in producing AFV's (Alternative fuel vehicles) continuously and other manufacturers are also planning to come in this segment as the market is expanding due to environmental concern and sustainability issues (Sierzchula et al., 2012). From 1980 to 1997, total CO_2 (Carbon dioxide) emissions in China increased 1.4 times from 1.5 to 3.6 billion tons. China contributes 15% to global CO_2 emissions. If the trend of CO_2 emissions continues at the current rate, China may become the world largest CO_2 emitter by the mid 21st century. And to reduce the carbon footprints China is adopting green technological innovation in its automobile sector, which will also enhance its performance in the eco market. (Gan, 2003). According to data from Automotive Component Manufacturer's Association (ACMA), the passenger vehicle production in India, touched 3.23 million units in 2012–13 and is expected to reach 10 million units by 2020–21. The industry is estimated to grow at a CAGR of 13 percent during 2012–2021. Also, the industry recorded exports worth US$ 9.3 billion in 2012–13 and is projected to touch US$ 30 billion by 2020–21, (Auto component industry in India, 2013). In India company like Indian Oil is focusing on CNG (compressed natural gas), Auto gas (LPG), ethanol blended petrol, biodiesel, and Hydrogen Energy (Mishra and Sharma, 2010). Many of the firms have been trying to promote a greener image, some of them are not able to live up to their claims so due to the consumer skepticism. Working with the Japanese Government, Toyota started a program whereby people purchase transportation without owning a car. Toyota is trying to build a green image in a very significant way like changing their engines in hybrid combustion electric (Polonsky and Rosenberger, 2001). Toyota is the on the first position in innovation towards sustainability. Toyota has also developed eco-division, in fact, Toyota is the best global green brand for the third consecutive year as it produces hybrid automobiles and implement various green strategies also. Another manufacturer as Ford, Honda, Nissan, and Volkswagen are also running their vehicles in the same direction of the eco-friendly way. The demand for green vehicles is also rising, which motivates these manufacturers to behave in a sustainable manner. They are contributing to providing a safeguard to the environment and on the other hand complying with regulations (Inter-brand, 2013). The first series of the all-electric Tesla Roadster a California-based company sold out immediately after its introduction in 2008. Tesla aims at market expansion by offering the car in Europe by introducing all-electric sedans (Eggers and Eggers, 2011). Companies are therefore advised to reinvent themselves in terms of strategic aims, product design, overall visible activities, and of course, marketing and marketing communication tactics, especially in the gasoline products (Singh et al., 2011). As reported by Nissan Motors, the Nissan Leaf is the first 100 percent electric, no gas, no tailpipe vehicle. It uses a technology called an inverter, which works similar to a fuel pump and pumps, electricity stored in a battery to power the vehicle. The customer response towards this car is overwhelming many customers have already booked their vehicle, and this high number of bookings has exceeded everyone's expectations (Xia and Tang, 2011).

2.4. Green supply chain management and reverse logistics

Green initiatives like Green Supply Chain Management (GSCM), mediates the effect of environmental orientation on corporate performance. The GSCM activities such as green purchase and investment recovery have the strongest impact on organizational performance (Chan et al., 2012a). There are even various barriers that affect the GSCM approach in the firm such as market competition, uncertainty, cost implications, etc. Whereas it has been found that the top level barrier is unawareness of customers and lack of government intervention is the bottom level barrier, therefore removal of these barriers will help in successful implementation of GSCM in Indian automobile industry (Luthra et al., 2011). It has been observed that GSCM has a positive relationship with the firm performance (Chan et al., 2012a). Green Supply Chain Management (GSCM) is also one of the critical issues that organizations are focusing today due to various external and internal pressures. The encouraging finding both green supply chain initiatives certification and direct investment, enhance manufacturing performance (Lin and Sheu, 2012). The influence of green initiatives is found to be beneficial in the supply chain management, such as ecological conservation and cost savings (Azevedo et al., 2011). The

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performance measures found in the automobile green supply chain management are very crucial and having its validity, hence GSCM in the automobile gives fruitful results to the firm (Olugu et al., 2011). Automobile firms in some developing countries such as China or Malaysia have implemented GSCM and started to learn experiences from international partners (Lin et al., 2011). The marketing efforts are also focusing on recycling by implementing their GSCM approach in Europe and US to maintain the sustainability through their firm sustainability programs (Sharma et al., 2010). Due to increase in the industrialization especially in the automobile sector creates environmental burden and thus there are excellent opportunities for GSCM in automobile industry in order to gain economic performance and sustainable development (Lin et al., 2011). Greening the supply chains is one important strategy for the Chinese automotive industry's sustainability, environmentally, economically and socially (Zhu et al., 2007). GSCM and firm performance have a significant relationship (Hervani et al., 2005). Firms that announce GSCM initiatives are likely to show the significant positive impact on their stock prices (Bose and Pal, 2012). German automotive suppliers are one of the strict environmental compilers, and they always focused on quality, cost, and environment-friendly process as well as time. German market is robust due to its environmental policies. If the OEMs (Original Equipment Manufacturers) will not adopt greening the business they can lose the market or have to face the shutdown of the enterprise, because the environmental concern is on the highest priority in most countries (Caniels, 2013). Auto component manufacturers play a significant role in a country's economy and should begin adopting GSCM as their strategy (Mathiyazhagan and Govindan, 2013). The evidence shows that government regulations and legislations and reverse logistics are the key drivers to achieve collaboration between two, product designers and suppliers, to reduce environmental impact which leads to the practical implementation of GSCM (Diabat and Govindan, 2011). Green reverse logistics is one of the crucial elements of GSCM, and adoption of green reverse logistics indicates firm's eco-friendliness, which helps in creating consumer concern for sustainable development (Hazen et al., 2012).

2.5. Green marketing and firm performance

Green marketing can be viewed as adherence to ethical and social responsibility requirements in marketing (Dheeraj and Vishal, 2012). Green marketing is strongly related to the building corporate image, which further enhances the capability of the firm in all aspects (Ko et al., 2013). Green marketing and use of sustainable technologies are imperative multiplier in the sustainable development and financial performance (Fisk, 2010). The eco-marketing campaign can positively change the behavior of new vehicle buyers, but that eco-information must be repeated to make sustainable changes in behavior. Findings also confirm that the positive effects of eco-information, also perform as a means to use it in increasing green consumer behavior (Siriwardena et al., 2012). Marketing strategy alignment positively affects supply chain performance that positively influences the marketing performance of the organization, and improved marketing performance positively affects the financial performance of the organization (Green et al., 2012). There are many words that most convey a green image include eco-friendly, recycled, and green and the package feature that most denotes environmental friendliness is the recycling symbol. Items that influence the millennial perception of environmental friendliness are company's reputation and the company's advertising (Smith, 2010). Researchers support that there is a definite link between proactive environmental strategies and organizational performance, and in the same way green marketing should be seen by managers as an excellent strategy, which will not only reduce cost and optimize results but also contributes to creation of differentiation advantages, which again will lead to higher returns (Fraj et al., 2011). The findings confirm that managers indirectly play a fundamental role in the design and development of green marketing strategies through the integration of environmental values into the organizational culture. They also reveal that, while market-oriented initiatives directly determine economic performance, internally oriented activities indirectly influence financial results through the improvement of the firm's environmental performance (Fraj et al., 2013). Implementation of green marketing is the requirement of the automotive industries, but many times companies adopt it due to making their positive image in the market and society, sometimes due to anti-environmental image ruins business poorly (KPMG, 2010). Green marketing gives a clear view of the sustainability (Peattie and Crane, 2005). At present firms are undertaking environmental improvements in their products for a number of reasons, including a desire to be more socially responsible or a desire to cater to the needs of socially responsible consumers who want to purchase less environmentally harmful products (Polonsky et al., 1998). Customers agree to that, in future more and more consumers will prefer green products (Saxena and Khandelwal, 2008).

General Motors invests $2.5 billion in making the business green (Gleim, 2013). The main types of green strategies gleaned from the literature are: (1) green innovation, (2) greening the organization, and (3) green alliances (Cronin et al., 2011). Study also confirms the general claim that inter-organizational collaborations can be fruitful for a firm's environmental performance, thus those companies who are seeking to improve their environmental performance they must join hands together in order to share their knowledge, capabilities and innovative efforts to bring something new (Albino et al., 2012). Not only in today's era but decades back, innovation is one of the important aspects of the performance of the firm. There is a positive relationship between cost leadership, administrative innovation and process innovation (Yamin et al., 1997). Businesses need to adopt “eco-advantage”, which takes the concept of sustainability in business further to include economic and stakeholder gain. The small medium enterprises (SMEs) are the key drivers in the backbone of an economy and therefore adoption of sustainable strategies, innovative initiatives, and green concepts are an important concern for them (Oxborrow and Brindley, 2013).

2.6. Green product innovation

Innovations and transformational leadership are also one of the paramount factors in the performance of the firm (Samad, 2012). Market demand is positively related to the firm performance and green product innovation process, if the market demand is sustainable towards the green product, it will definitely lead towards the success of the firm (Lin et al., 2013). Those firms who are involved in innovation and green design of the product are better in their firm performance as compared to those who are less or not focusing on this part (Camison and Lopez, 2012). The firm must pay attention to their products and economic performance in addition to environmental performance. Many motorcycle firms in Vietnam have already implemented actions to integrate product innovation to improve their organizational performance (Lin et al., 2013). The Green Product Innovation has the positive effect on firm performance and competitive capability (Ar Ilker, 2012). There is one more step towards sustainable development that is, Resource Constrained Product Development (RCPD); it is the process of developing new products that use minimal resources and are affordable to a broader market. RCPD helps in the development of a new product at the lowest possible cost. It gives intended benefits

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of lower prices and higher market penetration of new products, and it also provides unintended benefits include the economical use of resources and thereby conservation of scarce resources and which again leads to the sustainable development (Sharma and Iyer, 2012).

2.7. Green advertisement

Green advertisement or green communication also helps in attracting the consumer, but there must be no skepticism in the communication content (Grimmer and Wooley, 2014). Customers are often attracted towards the green product, because of green advertisement. Green advertisement many times compels the consumer for buying a green or eco-friendly product (Smith, 2012). WOM (word of mouth) is one of the important mean to promote the green products and awareness among consumers (Chen et al., 2013). Findings confirm the positive effects of eco-information, thus providing an opportunity to use it as an effective means to increase consumers green behavior (Siriwardena et al., 2012). Making relevant information available at the point of purchase can further help to educate consumers about the benefits of choosing a greener lifestyle (Borin and Cerf, 2011). Results of the study reflect that industries in India, in general, have a positive view of practicing green philosophy (Saxena and Khandelwal, 2012). The results suggest that green goodwill may have a positive effect on the firm's profits via output price (Kristrom and Lundgreen, 2003). The positive environmental performance creates a positive image of the company. Therefore, implementing green marketing strategy may be beneficial for the firms (Camino, 2007).

2.8. Eco-labels

Eco-labels have emerged as one of the dominant means of marketing communication for the green credentials of products, but a sustainable production and consumption system is still far away (Rex and Baumann, 2007). The eco-label or environmental label would prove itself a useful instrument based on cooperation and self-commitment on the part of the industry (Panda and Goswami, 2009). An eco-label is a tool for supporting decision-making concerning environmentally significant products (Thogersen et al., 2010). Therefore, there is a compelling urge for companies to promote green branding, eco-labeling and green packaging strategies to encourage a greener pattern of consumption among consumers (Juwaheer et al., 2012). Visual and verbal representation of eco-labels gives a positive impact on the consumer buying decisions (Tang et al., 2004).

2.9. Competitive advantage and firm performance

The importance of green market analysis and green market development handles competitive advantage and financial performance of the firm (Chan et al., 2012a). GSCM and other greening strategies help in building consumer loyalty, willingness to pay more for such products and competitive advantage (Hazen et al., 2012). The sustainable competitive advantage lies in the technological distinctiveness competencies and other capabilities of the firm, therefore a manager must focus on the organizational learning, organizational innovation as these skills and strategic capabilities leads to better performance of the firm (Bolívar-Ramos et al., 2012). Some past research also focused on the early adoption of green initiatives, which leads to the competitive advantage and can contribute to the firm performance (Zhu and Sarkis, 2004). They feel green will help them in gaining the competitive edge and will support them in sustainable growth. Industries that have a positive attitude towards greening have taken some measures and initiatives in this direction to establish a sustainable competitive advantage for succeeding in today's highly challenging and dynamic global markets (Saxena and Khandelwal, 2012).

2.10. Other facts and arguments related to green initiatives and firm performance

Recently more firms giving attention on the environmental issues and hence the word like green, eco, environmentally-friendly, sustainability and earth-friendly are very common in initiatives in organizations now days (Chen et al., 2013). The environmentally committed organization can be more reliably considered to have well developed systems and initiatives of environmental management, have higher levels of environmental performance and be more likely to respond to its customer's environmental performance requirements (Simpson et al., 2007). While environmental activists have long advocated the benefits to the natural environment of greening marketing initiatives, many managers have remained unconvinced that such investments make strategic and financial sense for their firms (Leonidou et al., 2012). Researchers also suggested that the development of environmentally based firms can be possible if the government will maintain and aware of the environmental laws (Mostafa, 2009). The Indian Government has also done its efforts in promoting green marketing and eco-friendliness by way of banning plastic bags from daily use, helping its automotive industry to develop greener vehicles by supporting hybrid and electric vehicles (EVs), by investing in greener cars (Shrikanth and Raju, 2012). Automobile firms are focusing mainly on the new consumer; new car consumer is more receptive to the social pressure (Dijk and Yarime, 2010). Due to the financial crisis the car makers moved to the small car manufacturing to reduce cost and increase sales (KPMG, 2008). Several car manufacturer argued against the environmental law that devices and technologies used to reduce the emission, costs high and due to that customer have to bear the additional cost, which further narrow down the market size of the automobile. The automobile manufacturer are facing the various pressures associated with environment, law, society and firm performance (Penna and Geels, 2012). Fuel efficiency and the environmental profile of products continue to be considered by companies the most significant consumer buying issues (KPMG, 2010). Ecological responsibility affects manufacturing firms both economic and environmental performance, and ecological responsiveness are critical due to respond ecological changes a sustainable firm's orientation. Environmental response and sustainable direction generate initiatives concerning internal and external activities of the firm (Koo et al., 2013). Environmental management projects performed by a California automobile assembler to investigate the major determinants and categories of its worker's contributions to the success of the company's projects and most environmental management projects were conducted by teams of environmental managers, engineering workers, suppliers, and operational workers (Jabbour et al., 2013). On the other hand the end-of-life (ELV) directive has been introduced by the European Union (EU) to make manufacturers reduce wastes from vehicles at the end-of-life stage and to protect the environment by promoting collection, reuse, and recycling of components of such vehicles. The ELV Directive may have heralded the start of a new era of waste management legislation for durable goods worldwide (Kuo, 2012). A product with reused or recycled content with little functional risk and a relatively high consumer willingness to pay (WTP) would be an attractive item to have associated with a corporation's identity. As the product will not only bring in a higher price, and presumably be more profitable, but will also enhance the sustainability and the external image of the corporation (Essoussi and Linton, 2010). Thinking about business that, is too small or too service-based to benefit from going green, or

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Table 1
Parameters and their descriptions.

Author	Parameter	Description
Ilker (2012); Chan et al. (2012a); Lin et al. (2013); McKinsey and Company (2013); Lin and Sheu (2012); Polonsky et al. (1998); Xu et al. (2013a)	Sustainable development	Sustainable development is the use of natural resources so as they can meet the present and future needs of the people, and the industries highly require it.
Van den Broek and Van den Broek-Serlé (2010); Chan et al. (2012a); Chan et al. (2012a); Luthra et al. (2011); Lin and Sheu (2012); Azevedo et al. (2011); Olugu et al. (2011); Lin et al. (2011); Sharma and Iyer (2012); Zhu et al. (2007); Hervani et al. (2005); Bose and Pal (2012); Mathiyazhagan et al. (2013); Diabat and Govindan (2011); Dheeraj and Vishal (2012); Hazen et al. (2012)	Green supply chain management	Procurement of raw material to the final delivery of product by the company, ensuring the environment must not be harmed. Such as green packaging etc.
Dheeraj and Vishal (2012); Hazen et al. (2012); Chan et al. (2012a); Smith (2010)	Reverse logistics	Reverse logistics is a step towards the end of life products, in recycling, reuse, etc. and maintaining sustainability.
Lampe and Gazda (1995); Polonsky and Rosenberger (2001); Chan et al. (2012a); Lin et al. (2011); Penna and Geels (2012); Smith (2010); Dheeraj and Vishal (2012); Ko et al. (2013); Fisk (2010); Sriwardena et al. (2012); KPMG (2010); Peattie and Crane (2005); Saxena and Khandelwal (2012); Shrikanth and Raju (2012); Kristrom and Lundgren (2003)	Green marketing	The efforts by organizations, to produce, promote and deliver the product in an ecological manner.
Ilker (2012); Lin et al. (2011); Lin et al. (2013); Van den Broek and Van den Broek-Serlé (2010); Inter-brand (2013); Gan (2003); Cronin et al. (2011)	Green product innovation	Innovation of product, which is suitable for the environment.
Smith (2012); Grimmer and Wooley (2012); Chen et al. (2013)	Green advertisement	Marketing communication, this focuses on the ecological features of the product.
Lampe and Gazda (1995); Smith (2012); Polonsky et al. (1998)	Eco-labeling	The logo or the symbol which depicts the ecological concern of the product.
Borin and Cerf (2011); Chan et al. (2012a); Hazen et al. (2012); Ilker (2012); Ramos-Bolivar et al. (2012); Zhu et al. (2007); Saxena and Khandelwal (2008)	Competitive advantage.	The uniqueness of the product or company's features, which can be enjoyed further over competitors.
Borin and Cerf (2011); Chan et al. (2012a); Hazen et al. (2012)	Firm Performances	The overall performance of the firm including, operational, financial, marketing etc.

waiting for the hype about green and sustainability to die down, then the business is missing an opportunity to chart an upward course for the company. The green movement has been transformed from a cause to save our environment into a fully fledged, vetted economy (Van den Broek and Van den Broek-Serlé, 2010).

On the basis of the above literature review, we have identified the specific parameters for the study and summarized in tabular format, in Table 1.

3. Research methodology

The paper is based on exploratory research techniques and is based on the systematic literature review. The exploratory method is used because there are less number of researchers available in this field of study, and here we tried to explore the facts and figures with the help of relevant research. We have utilized the tool of systematic research review with the help of various research papers, which are not only renowned but also helped us in exploring the required data and figures. Systematic research review plays a significant role in the initiatives that are evidence-based (Tranfield et al., 2003). Systematic research review is the process of identifying the appropriate tracking of decisions, procedures and conclusions made by the researchers (Cook et al., 1997). In order to bring the meaningful and most updated study, approximately more than hundred research paper has been reviewed from reputed international journals across the world from the year 2010 and onwards and also few papers selected randomly on the basis of the demand of the study. The paper has been classified on the basis of the theme and further the most suitable findings, which is useful for this study has been chosen. The classification has been also done on the basis of most focused variables in the studies.

3.1. Problem definition

The problem is much more based on the environment and strategic. The actual problem in this study is:

How green initiatives will affect the firm performance and sustainable development?

3.2. Objectives of the study

The study is focused on some major objectives, which will provide valuable information to provide a solution to the problem of the research. Following are some objectives:

(i) To establish the relationship between automobile firm's green initiatives and firm performance.
(ii) To establish the relationship and to know the impact of automobile firm's green initiatives on sustainable development.

4. Development of conceptual model

The conceptual model can be explained graphically, or in narrative form, the main things to be studied, the key factors, concepts or variables (Vaughan, 2008). The conceptual model or framework is developed with the help of existing knowledge. On the basis of an extensive literature review, there is a need for the development of the conceptual model to see the situation in graphical presentation and to look forward to solving the problem. It is also required to see the validity of the said model with the help of literature review. Here to develop this model, the systematic literature survey has been done related to the title of the study. It has been trying to connect the variables systematically so that the objective of the problem can be better understood and solved. In this model the green initiatives are directly affecting the sustainability and firm performance in the automobile industry, according to the study the model has been propounded in the paper, which provides ease in bringing the outcomes of this research in a systematic way. This model would be beneficial for the research. The model is given in the Fig. 1.

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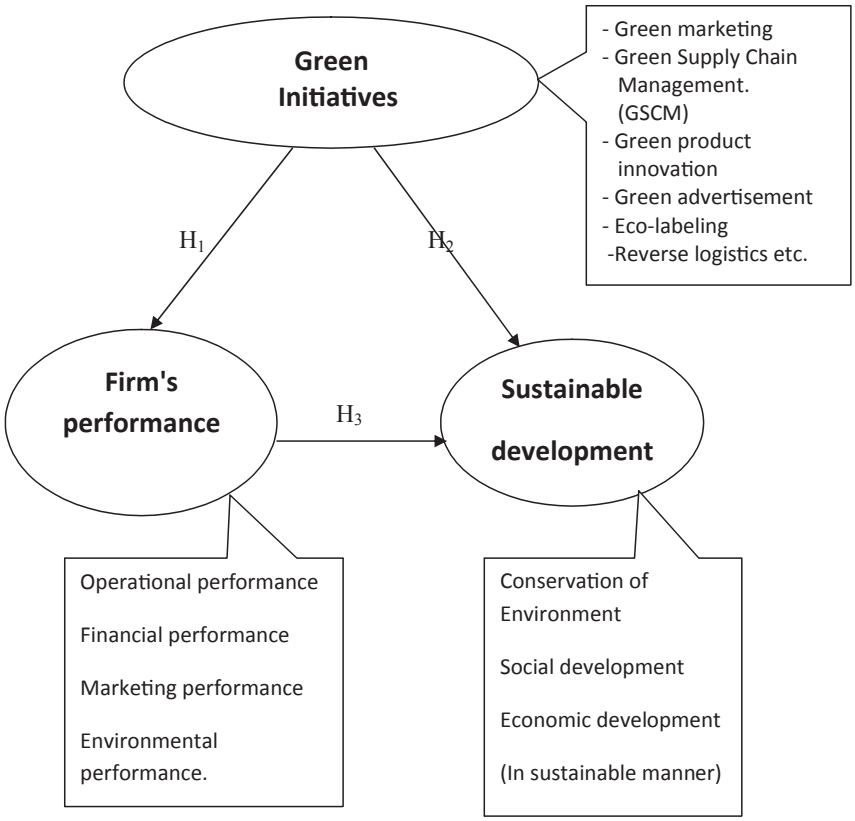

Fig. 1. Sustainable development and firm performance through green initiatives.

5. Hypotheses development

On the basis of the above model, various hypotheses has been formed so that it can be tested further to focus on the study. Following are the hypotheses of the study.

H1.1: Green initiatives have the positive relationship with the firm's performance.
H2.1: Green initiatives have the positive relationship with the sustainable development.
H3.1: Firm performance, which is the outcome of green initiatives have the direct relationship with the sustainable development.
H3.2: Firm performance, which is not the outcome of green initiatives have the positive relationship with the sustainable development.

5.1. Hypotheses are testing

Before testing the hypotheses there is a need to have a look towards the depth analysis of the literature that has been reviewed. These literature are also the base for this research paper. There is a need for the structuring the literature review in a systematic way on the basis of various variables which has been taken in this study. It is a kind of filtration exercise of the articles that are found relevant to the study and pointing out the things that will strengthen in proving the facts and also helps in testing the hypotheses more carefully. The Table 2 which is given below shows a summary of the literature review, on the basis of some important variables.

The Table 2 shows the brief summary of the review and their significant findings, which strengthen the research paper by providing valuable information, also gives appropriate evidence to test the hypotheses. Most of the authors have discussed the particular issue and also given their findings on the basis of the research. All the relevant variables which is necessary for this study has been chosen from various research papers and mostly have discussed about them in a uniform way towards sustainability and performance by adopting the green initiatives in the automobile industry.

On the basis of the Table 2 one more separate table (Table 3) has been drawn, which shows how authors have identified and focused on all the variables related to the green initiatives in their papers and also given importance to the firm's performance, sustainability, competitive advantage, etc. It also shows that the prime concern towards automobile industries and number of authors who have discussed its linkage to the green initiatives and performance of the firm with the help of their rigorous research. To test these hypotheses, this table plays a critical role as it shows the number of authors who are concerned with the selected variables of the study. To make this table more meaningful and useful, it has been drawn by bifurcating each research paper and identifying the selected variables for the study.

H1.1: **Green initiatives have the direct relationship with the firm's performance**.

The hypothesis one regards the direct relationship with the firm's performance, to check this hypothesis, there has been several research evidence found after the structured literature review in this context. Hundred papers has been reviewed, and approx thirty papers were selected from the automobile sector itself, which we can see in the graphical representation in Fig. 2. On the other hand by analyzing various selected variables of green initiatives with the help of the findings of the literature review, green initiatives such as GSCM & reverse logistics, green marketing, green product

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Table 2
Variables and significant findings in research papers.

Authors	Variables	Major findings
Mckinsey and Company (2013), Zhu et al. (2007), Ar Ilker (2012), KPMG (2010), KPMG (2014), Brecard (2011), Van den Broek and Van den Broek-Serlé (2010), Lampe and Gazda (1995), Chan, et al. (2012a), Shrikanth and Raju (2012), Sierzchula et al. (2012), Gan (2003), Smith (2012), Auto component industry in India (2013), Mishra and Sharma (2010), Inter-brand, (2013), Luthra et al. (2011), Olugu et al. (2011), Lin et al. (2013), Zhu, et al. (2007), Shrikanth and Raju (2012), Penna and Geels (2012), Jabbour, et al. (2013)	Studies on automobiles	Automobile sector is the largest industry in the world, in all manners such as manufacturing, market share, demand etc. and has the biggest claims towards carbon emission and other environmental issues across the world.
Ar Ilker (2012), Chan et al. (2012a), Lin, et al. (2013), Mckinsey and Company (2013), Polonsky and Rosenberger (2001), Xu et al. (2013a)	Sustainable development	Authors those who worked on in this regard, they found that the steps towards greening the industry by the management would not only reduce the carbon emission but also move on for the sustainable development.
Van den Broek and Van den Broek-Serlé (2010), Chan et al. (2012a), Chan et al. (2013), Luthra et al. (2011), Lin and Sheu (2012), Azevedo et al. (2011), Olugu et al. (2011), Lin et al. (2011), Sharma and Iyer (2012), Zhu et al. (2007), Hervani et al. (2005), Bose and Pal (2012), Mathiyazhagan et al. (2013), Diabat and Govindan (2011), Dheeraj and Vishal (2012), Hazen et al. (2012), Chan, et al. (2012a), Smith (2010)	Green supply chain management & reverse logistics	GSCM is one of the very popular green initiatives which is used by the several industries across the country and specifically automobile sector. Reverse Logistics is one of the key elements of the GSCM and is highly used by automobile firms such as Toyota, Honda, and Ford etc. These initiatives are cost effective and helpful in waste management.
Lampe and Gazda (1995), Polonsky and Rosenberger (2001), Chan et al. (2012a), Lin et al. (2012), Penna and Geels (2012), Lin et al. (2011), Smith (2010), Dheeraj and Vishal (2012), Ko et al. (2013), Fisk (2010), Sriwardena et al. (2012), KPMG (2010), Peattie and Crane (2005), Saxena and Khandelwal (2008), Shrikanth and Raju (2012), Kristrom and Lundgren (2003)	Green marketing	Green marketing started from European and American countries in way back 1970's, due to the increasing pollution by the industries and stricter environmental norms, the pressure arises and industries started to adapt green marketing initiatives. The green marketing initiatives are found profitable with some limitations.
Ar Ilker (2012), Van den Broek and Van den Broek-Serlé (2010), Inter-brand (2013), Gan (2003), Cronin et al. (2011)	Green product innovation	Innovation is the key to success in today's business scenario, and green innovation is something which not only helps in differentiation but also helps in greening the industry, which further helps in improving environmental performance of the firm.
Smith (2012), Grimmer and Wooley (2012), Chen et al. (2013)	Green advertisement	Green advertisement is one of the important part of green marketing initiatives, which is for the awareness to the user or customers about the green product in various ways. This is an important exercise as the people are less aware about the eco-product and suffering from consumer skepticism.
Lampe and Gazda (1995), Smith (2010), Polonsky et al. (1998)	Eco-labeling	Eco-labels helps customers in buying decisions related to the products and also help in conveying the information to mass.
Borin and Cerf (2011), Chan et al. (2012a), Hazen, et al. (2012), Ar Ilker (2012), Bolívar-Ramos et al.(2012), Zhu et al. (2007), Saxena and Khandelwal (2008)	Competitive advantage	Creation of competitive advantage is one of the challenging task for every industry, because it helps in building the image and maximize profit share of the company, the studies have found that adoption of green initiatives helps industries in enjoying competitive advantage.
Borin and Cerf (2011), Chan et al. (2012a), Hazen et al. (2012)	Firm Performances	The performance of the firm lies in various activities of the firm, such as operation, marketing, finance etc. This green initiative helps in achieving all these activities successfully.

innovations has been discussed and contribution is 44.82%, 24.17% and 34.48% respectively in all those papers that are based on the study of automobile industry and green initiatives. These green initiatives are used in papers and in order to check the relationship between firm performance it is found that 75.86% authors are fully agreed that, these green initiatives has the positive relationship with the firm performance. If we see in Table 2 it has been clearly summarized from the various relevant studies that all the variables that are known as green initiatives are fruitful for the company in terms of profitability and competitive advantage and both the things are crucial for the performance of the firm. Finally in the light of the above discussion, it can be easily said that there is a direct relationship between the green initiatives and the firm performance and therefore hypothesis: 1.1 is accepted.

H2.1: **Green initiatives have the positive relationship with the sustainable development**.

To check the hypothesis number 2.1, there has been a various analysis of papers by reputed authors who have done their research on this issue. There is some more important point to be noticed that majority of the blames for pollutions, non-involvement or adverse functioning towards the natural environment, goes to the industries. In the same way here in this study, it can be seen in Fig. 3 that in hundred papers majority of the authors that is 78% have talked and found that the green initiatives can make the changes in the ecological performance of the firm as well as these steps may be the strong reason towards the sustainable development, talking specifically about the automobile industry it is seen in 29% of the papers that were collected and reviewed because of the theme of the study, approx 86% authors have worked and found the result satisfactory, adoption of the green initiatives for longer duration leads towards the sustainable development, as green initiatives not only bring profit in the organization but it also utilizes the optimal or minimal resources in a greener way, which conserves lots of natural resources in form of forest, energy, land, water and fuel, etc. If we see the table number 2, here it is clearly summarized that there are various numbers of authors those who have found that there is a positive relationship in between green initiatives. In this way, it can be said that the hypothesis:2.1 is also accepted. In this way, it can be said that green initiatives have the positive relationship with sustainable development.

H3.1: **Firm performance, which is the outcome of green initiatives have the direct relationship with the sustainable development**.

The performance of the firm which is the outcome of the green initiatives, as discussed in this paper, there are 77% authors who have examined and found positive results towards the green initiative based firm performance and sustainable development in the total research papers reviewed and 75% authors have agreed

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Table 3
Showing various authors who worked on selected variables.

Authors	Automobile sector	Variables							
		GSCM & reverse logistics	Green marketing	Green advertisement	Eco-labels	Green product innovation	Firm performance	Sustainable development	Competitive advantage
Adams (2006)	–	–	–	–	–	–	–	✓	–
Hervani et al. (2005)	–	✓	–	–	–	–	✓	✓	✓
Albino et al. (2012)	–	–		–	–	✓	✓	✓	–
Ar Ilker (2012)	–	✓	–	–	–	✓	✓	✓	–
Azevedo et al. (2011)	✓	✓	–	–	–	–	✓	✓	–
Brecard (2011)	✓	✓	✓	–	–	✓	✓	✓	✓
Borin and Cerf (2011)	–	–	✓	✓	✓	✓	✓	✓	–
Borin et al. (2013)	–	–	–	–	–	✓	✓	✓	✓
Bose and Pal (2012)	–	✓	–	–	–	✓	✓	✓	✓
Van den Broek and Van den Broek-Serlé (2010)	–	✓	–	–	–	–	✓	✓	✓
Camison and Lopez (2012)		✓				✓	✓	–	✓
Camino (2007)	–	–	✓	✓	–	–	✓	✓	✓
Caniels (2013)	✓	✓	–	–	–	–	✓	–	✓
Chan et al. (2012a)	–	✓	–	–	–	–	✓	✓	✓
Chen et al. (2013)	–	–	✓	–	–	–	✓	✓	✓
Chan et al. (2012a)	–	✓	✓	–	–	–	✓	✓	–
Chan (2013)	–	–	✓	✓	–	–	–	✓	–
Chang and Chen (2013)	–	–	✓	–	–	–	✓	–	–
Cronin et al. (2011)	–	–	✓	–	–	✓	✓	–	–
Dheeraj and Vishal (2012)	–	–	✓	–	–	–	–	✓	–
Diabat and Govindan (2011)	–	✓	✓	–	–	✓	✓	✓	–
Dijk and Yarime (2010)	✓	–	–	–	–	✓	✓	✓	–
Eggers and Eggers (2011)	✓	–	–	–	–	✓	✓	✓	✓
Fisk (2010)	–	–	✓	–	–	✓	–	✓	–
Fraj et al. (2011)	–	–	✓	✓	–	✓	✓	–	–
Fraj et al. (2013)	–	–	✓	–	–	✓	✓	–	–
Ferraro et al. (2005)	–	–	–	–	–	–	✓	✓	–
Gan (2003)	✓	–	–	–	–	–	–	✓	–
Getzner (2004)	–	–	✓	–	–	–	–	–	–
Gleim (2013)	✓	–	–	–	–	–	–	✓	–
Grimmer and Wooley (2012)	–	–	–	✓	–	–	✓	✓	–
Hazen et al. (2012)	–	✓	–	–	–	–	✓	✓	✓
Essoussi and Linton (2010)	–	–	✓	–	–	–	✓	✓	–
IBEF (2013)	✓	–	–	–	–	–	–	✓	–
Jabbour et al. (2013)	✓	–	–	–	–	–	✓	–	–
Green et al. (2012)	–	–	✓	–	–	–	✓	–	–
Junquera et al. (2012)	–	–	–	–	–	–	✓	–	–
Juwaheer et al. (2012)	–	–	✓	–	✓	–	✓	✓	–
Jones et al. (2008)	–	✓	–	–	–	–	–	✓	–
Kirchoff et al. (2011)	–	–	✓	–	–	–	✓	–	–
Kuo (2012)	✓	✓	–	–	–	–	✓	✓	–
Koo et al. (2013)	–	–	–	–	–	–	✓	✓	–
Ko et al. (2013)	–	–	✓	–	–	–	✓	–	✓
Koplin (2007)	✓	✓	–	–	–	–	–	✓	✓
Kristrom and Lundgreen (2003)	–	–	✓	–	–	–	–	✓	✓
KPMG (2010)	✓	–	–	–	–	–	✓	✓	✓
KPMG (2008)	✓	✓	–	–	–	✓	✓	✓	–
KPMG (2014)	✓	–	–	–	–	✓	✓	✓	✓
Lampe and Gazda (1995)	✓	–	✓	–	✓	✓	✓	✓	✓
Luthra et al. (2011)	–	✓	–	–	–	✓	✓	–	–
Lin et al. (2013)	–	–	–	–	–	✓	✓	✓	–
Lin and Sheu (2012).	–	✓	–	–	–	–	✓	✓	–
Lin et al. (2013)	✓	✓	–	–	–	✓	✓	✓	–
Lin et al. (2011)	✓	✓	✓	–	–	–	✓	✓	✓
Leonidou et al. (2012)	–	–	✓	–	–	–	✓	✓	–
Lee et al. (2013)	–	–	–	–	–	✓	✓	✓	–
Lirn et al. (2014)	–	✓	✓	–	–	–	✓	✓	–
Matsukawa (2012)	–	–	–	–	–	✓	✓	✓	✓
Mathiyazhagan et al. (2013)	✓	✓	–	–	–	✓	✓	✓	–
Mostafa (2009)	–	–	–	–	–	✓	✓	✓	–
Mishra and Sharma (2010)	✓	–	–	–	–	✓	–	✓	–
Morgan (2012)	–	–	–	–	–	✓	✓	✓	–
Mourad and Ahmed (2012)	–	–	✓	✓	–	–	✓	✓	✓
Olugu et al. (2011)	✓	✓	–	–	–	–	✓	✓	–
Oliver and Lee (2010)	✓	–	–	–	–	–	✓	–	–
Oxborrow and Brindley (2013)	–	–	✓	–	–	–	–	–	✓
Panda and Goswami (2009)	–	–	–	–	✓	–	✓	✓	✓
Penna and Geels (2012)	✓	✓	–	–	–	–	✓	✓	–
Peattie and Crane (2005)	–	✓	✓	–	✓	✓	✓	✓	–
Polonsky et al. (1998)	–	–	✓	✓	✓	–	✓	✓	✓
Polonsky and Rosenberger (2001)	–	–	✓	✓	–	–	✓	✓	✓

(*continued on next page*)

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Table 3 (*continued*)

Authors	Automobile sector	Variables							
		GSCM & reverse logistics	Green marketing	Green advertisement	Eco-labels	Green product innovation	Firm performance	Sustainable development	Competitive advantage
Bolívar-Ramos et al. (2012)	–	–	–	–	–	✓	✓	✓	✓
Inter-brand (2013)	–	–	–	–	–	✓	✓	✓	–
Walker and Hanson (1998)	–	–	✓	–	–	✓	✓	–	–
Rex and Baumann. (2007)	–	–	✓	–	✓	–	✓	✓	–
Rettie et al. (2012)	–	–	✓	–	–	–	–	✓	–
Samad (2012)	–	–	–	–	–	✓	✓	✓	–
Saxena and Khandelwal (2012)	–	–	✓	–	–	–	–	✓	–
Saxena and Khandelwal (2008)	–	–	✓	–	–	✓	✓	✓	✓
Sharma and Iyer (2012)	–	✓	✓	–	–	✓	✓	✓	–
Sharma et al. (2010)	–	✓	–	–	–	✓	✓	✓	–
Shrikanth and Raju (2012)	✓	–	✓	–	–	–	–	✓	–
Singh et al. (2011)	–	–	✓	✓	–	✓	✓	✓	✓
Singh (2013)	–	–	✓	–	–	–	–	✓	–
Singh et al. (2011)	✓	–	✓	–	–	–	–	✓	–
Simpson et al. (2007)	✓	–	✓	–	–	–	✓	✓	–
Sierzchula et al. (2012)	✓	–	–	–	–	✓	–	✓	–
Smith (2010)	–	–	✓	✓	✓	–	–	✓	–
Smith (2012)	–	–	✓	✓	✓	–	✓	–	–
Siriwardena et al. (2012)	✓	–	✓	–	–	–	✓	–	–
Tang et al. (2004)	–	–	–	–	✓	–	✓	–	–
Thogersen et al. (2010)	–	–	✓	–	✓	–	–	✓	–
Tranfield et al. (2003)	–	–	–	–	–	–	–	–	–
Vaughan (2008)	–	–	–	–	–	–	–	–	–
Wolf (2011)	–	✓	–	–	–	✓	–	✓	–
Xia and Tang (2011)	✓	✓	–	–	–	–	✓	✓	✓
Xu et al. (2013a)	–	–	–	–	–	✓	✓	✓	–
Yamin et al. (1997)	–	–	–	–	–	✓	✓	✓	✓
Zhu and Sarkis (2004)	–	✓	–	–	–	✓	✓	✓	✓
Zhu et al. (2007)	✓	✓	–	–	–	–	✓	✓	–

that green oriented firm performance have the direct relationship to the sustainable development. Research articles that are in totality and exclusively in automobile industries can be seen in Figs. 3 and 4 respectively. Hence from the discussion, it can be said that yes there is a direct relationship between firm performance, which is the outcome of green initiatives with the sustainable development. In this way hypothesis 3.1 that is firm performance, which is the result of green initiatives have the direct relationship with the sustainable development is accepted. Although this discussion leads to another sub-hypothesis (H3.2) on the basis of same.

H3.2: Firm performance, which is not the outcome of green initiatives have the positive relationship with the sustainable development.

Firm performance is not only based on the green initiatives, still in many industries management is the least concern for the environment, but they also implement the green policies only to comply the environmental norms of the country. There are two approaches towards adopting the green initiatives by industries that are assertive approach and defensive approach. The firm can take the assertive approach by their will or on the basis of the demand of the consumer whereas in defensive approach industries use to choose it due to legal and political pressures (Chan, 2013). So we can see from the Tables 2 and 3 that none of the authors have showed that there is a positive relationship between firm performance, which is not the result of green initiatives and the sustainable development. In this way, it can be found that merely talking and working just to make the performance of the firm better cannot assure the sustainable development. Hence, it cannot be concluded that the firm performance, which is not the outcome of green initiatives have the positive relationship with the sustainable development. In this way, hypotheses H3.2 that is, firm performance, which is not the result of green initiatives have the positive relationship with the sustainable development is rejected.

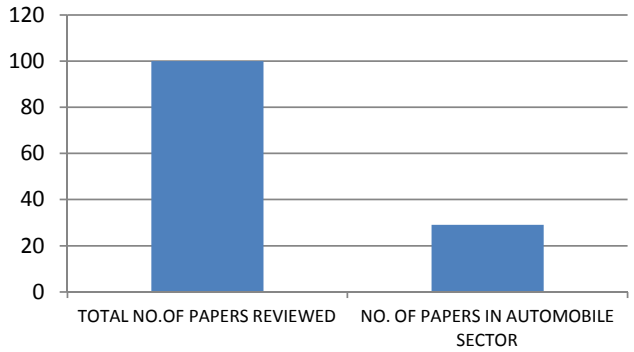

Fig. 2. Showing partitions of research papers in two parts which has been reviewed.

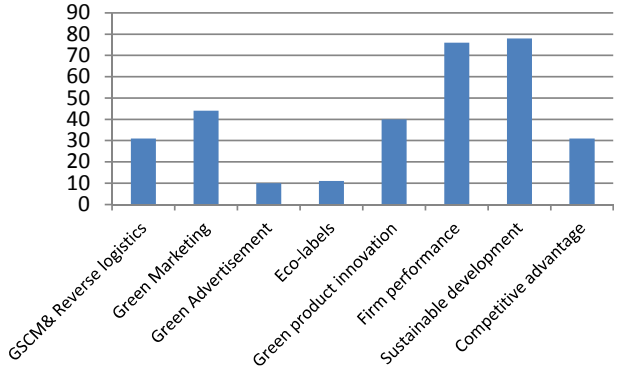

Fig. 3. Distribution of variables used in all the reviewed research papers.

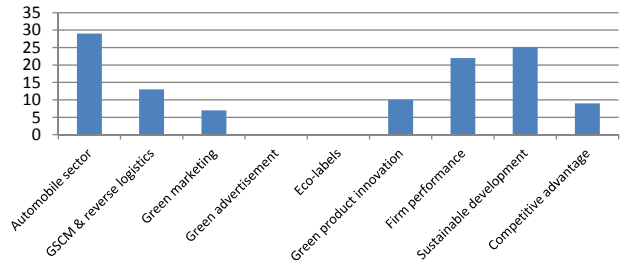

Fig. 4. Distribution of the variables used in various papers based on automobiles.

6. Findings and discussion

After testing the hypotheses we find that green initiatives have the direct relationship with the firm performance and green initiatives have the positive relationship with the sustainable development, whereas firm performance, which is the outcome of green initiatives have the direct relationship with sustainable development, but the performance of the firm that is not the result of green initiatives have not a positive relationship hence we can say there is a negative relationship. The firm that does not focus or less concentrate on green initiatives have no contribution or very less contribution to the sustainable development.

On the basis of various research papers and its analysis, there are various other relevant findings, which are imperative. Here in this papers we have taken approx 100 research papers/articles in order to bring the result, and these papers are very significant from the study point of view, and all the papers are selected from the reputed journals or source. Approx 29 journals were found which were much more focused towards the automobile industry. After the analyses of the papers, it is concluded that there are about 31% researchers who have done their research work on GSCM and reverse logistics and found positive results towards the green initiatives. 44% authors focused on green marketing, 10% authors worked on green advertisement, 11% authors on ecolabels,40% authors on green product innovation, and the crucial point to notice 76% authors found all these green initiatives are positive towards performance of the firm. On the other hand if we see the authors who have worked in the automobile sector that is about 29 papers, it is found that GSCM and reverse logistics which has been researched by 44% authors. 24% researchers, in green marketing and 34% in green product innovation. Here 75% & 86% authors who are satisfied and commented on the firm performance and sustainable development respectively. There is one more remarkable thing in the study is that none of the authors who worked on automobile and green initiatives found any concrete work on green advertisement and eco-labels. But if we see in totality of the research papers we can found that 10% of the authors found a positive relationship with Green advertisement and 11% authors towards eco-labels. All these facts and figures can be seen in Figs. 3 and 4. It can be also seen that to maintain the authenticity of this research paper, the research papers which has been chosen are from various reputed journals and articles. The research papers properly distributed in Fig. 5.

These findings show that the green initiatives are one of the important factors not for the sustainable development but also for the firm's performance. Here an equation can be drawn to make the study clearer, that is:

$$\mathbf{FP} = \mathbf{GI} \times \mathbf{SD}$$

Where, FP is for firm performance, GI is for green initiatives (GSCM & reverse logistics, green marketing, green advertisement, eco-labels and green product innovation), and SD stands for sustainable development.

This equation is proven from this research paper, based on the certain facts and findings.

6.1. Conclusion & recommendations

The study is based on the various facts and findings that are analyzed by different reputed researchers and shows a significant result towards the automobile industry as this industry has the highest blames for ruining the environment. The control of emission of carbon is the major challenge in front of these automakers. That is why they face dual pressure one from the government towards carbon emission and other from the cost controlling and firm performance. Goodwill and company image are also one of the important concern for these auto manufacturers; green initiatives help in making goodwill as well as the creation of competitive advantage. It has been observed that greening the supply chain and adapting other green or ecological way of performing the business has a positive relationship with the firm performance (Chan et al., 2012a). It is also found that GSCM and firm performance has a significant association (Hervani et al., 2005). The performance of the firm is many times based on innovations and transformational leadership (Samad, 2012). If there would be much more focus on the creation of green product demand which should be sustainable in nature and green product innovation, this will lead to the firm performance (Lin et al., 2013). Comparing those firms who are not involved in green initiatives such as innovation and green design of the products are poor in their firms those who are involved in innovation and green design of the product are better in their firm performance as compared to those who are involved in it (Camison and Lopez, 2012). Controlling the carbon emission can be fruitful in protecting the environment. There are some more ways in controlling carbon emission such as emission tax, it leads to a decrease in pollution, through an improvement in green initiatives (Brecard, 2011). Emission tax is always welfare dominant over a subsidy on consumer purchases of the clean product because of its contribution to a reduction in environmental damage (Matsukawa, 2012). If we look into the countries like India, generally people do not aware about the green marketing concept (Singh, 2013). But consumers are somewhat aware of what is green and what is not (Rettie et al., 2012), and choosing green brand preferences often influenced by age, income level, gender and education (Mourad and Ahmed, 2012). Socially responsible investment (SRI) has gained importance in The US. Investment in green shares is also increasing among US investors (Getzner, 2004).

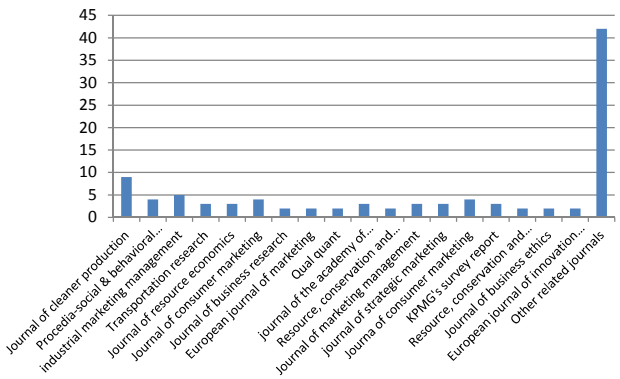

Fig. 5. Distribution of the research papers on the basis of name of journals which has been reviewed.

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The research has constructively ascertained the manner in and the extent to which consumer's environmental attitudes affect their purchasing behavior (Singh et al., 2011). The data suggests that firms believe in a positive impact but have difficulties in its quantification and firms also felt that the engagement in sustainability is cost intensive and requires a large sum of investment in human resources, time, and technology (Wolf, 2011). There is an imperative role of stakeholders to protect and conserve the natural resource through the implementation of green technologies and thinking (Walker and Hanson, 1998). Many firms improved their performance by adopting an environmental strategy in their business process such as supply chain etc. and there is a positive role of stakeholders (Kirchoff et al., 2011). In recent studies, it has been also observed that green shipping have the positive impact on the financial performance. Therefore, the adoption of green strategies is highly recommended (Lirn et al., 2014). Not only corporations but also individual consumers are willing to take part in the global movement toward ecological sustainability (Lee et al., 2013). Despite some the controversial findings of the literature survey, recent research supports the existence of a positive link between proactive environmental strategies and organizational performance (Fraj et al., 2011). In this way, automobile firm's can adopt green initiatives and enjoy the better firm performance and contribute to the sustainable development.

The firm must pay attention to their products and economic performance in addition to environmental performance. Many motorcycle firms in Vietnam have already implemented actions to integrate product innovation to improve their organizational performance (Lin et al., 2013). Automobile industries have to work rigorously, so that consumer can be aware globally and while every purchase, consumer can think about environment before price, and automobile industries have to work more on cost reduction of the green products by which the product can reach to most of the segment. These industries also need to train and motivate their employees, which can further help in greening the business and will give a green profit to the firm as well. There is also need for more government intervention and support to those industries who are aggressively involved in green initiatives instead of making only strict rules and regulations.

6.2. Green initiatives and social inclusion

Sustainable development is the mixture of environmental development, social development, and economic development. In this paper, it has been focused on green initiatives to achieve firm performance and sustainable development. It is one of the important facts green initiatives cannot be successful until and unless there is an involvement of the society in the business strategies, there must be priorities given to the social values also. Talking to the success of the firm we often forget the society over the economy. The firm should also focus on the community development program and health issues. Without social inclusion, sustainable development cannot be achieved.

6.3. Managerial implications

The study is relevant for the betterment of the performance of the firm as well as for the sustainable development. The manager can use the results and findings to make some important strategies that not only enhance the performance of the firm, but it will also work for the environmental development. The managers can make a team that will only focus on this issue and continuously monitor the task of green practices in the organization and also provide training if required. Proper promotion and development of a green product with the help of innovation is also necessary. Cost controlling is very necessary for the green production as it leads to the better performance. The manager must be assertive while adopting green initiatives.

6.4. Limitations and scope of the study

It is very difficult to say that, a study can be completed without any limitations, in the same way, various limitations faced by the authors in bringing this study. The research is based on the secondary data and there is lack of empirical data due to time constraint and another issue is that there was a lack of research papers that are based on the automobile firm, although the endeavors have been done to review papers based on the topic.

This research paper can be helpful for various communities such as academicians, research scholars, and industries. The findings of the study can also help in further research on this issue and can also add more elements like sustainable index can be constructed by using multi-dimensional scaling technique which consider economic, environmental and social aspect and making useful green marketing strategies, which would undoubtedly beneficial to the industry as well as for our planet.

References

Adams, W.M., 2006. The future of sustainability: re-thinking environment and development in the twenty-first century. In: Report of the IUCN Renowned Thinkers Meeting, pp. 29–31.

Albino, V., Dangelico, R., Pontrandolfo, P., 2012. Do inter-organizational collaborations enhance a firm's environmental performance: a study of the largest US companies? J. Clean. Prod. 37, 304–315.

Ar Ilker, M., 2012. The impact of green product innovation on firm performance and competitive capability: the moderating role of managerial environmental concern. Procedia Soc. Behav. Sci. 854–864.

Auto components industry in India, (2013). Retrieved from: http://www.ibef.org/pages/33363.

Azevedo, S., Carwalho, H., Machado, V., 2011. The influence of green initiatives on supply chain performance: a case study approach. Transport. Res. Part (E) 47, 850–871.

Bolívar-Ramos, M.T., García-Morales, V.J., García-Sánchez, E., 2012. Technological distinctive competencies and organizational leanings: effects on organizational innovation to improve firm performance. J. Eng. Technol. Manag. 29 (3), 331–357.

Borin, N., Cerf, C., 2011. Consumer effects of environmental impact on product labeling. J. Consum. Mark. 28 (1), 76–86.

Borin, N., Mullikin, J., Krishanan, R., 2013. .An analysis of consumer reaction to green strategies. J. Prod. Brand Manag. 22 (2), 118–128.

Bose, L., Pal, R., 2012. Do green supply chain management impact stock prices of the firm. Decis. Support Syst. 52, 624–634.

Brecard, D., 2011. Environmental tax in a green market. Environ. Resour. Econ. 387–403.

Congressional Budget Office (CBO), 2013, May. Effects of a Carbon Tax on the Economy and the Environment, pp. 1–23. Retrieved from. www.cbo.gov.

Camino, J.R., 2007. Re-evaluating green marketing strategy: a stakeholder perception. Eur. J. Mark. 41 (11/12), 1328–1358.

Camison, C., Lopez, A., 2012. .Organization innovation as an enabler of technology, innovation capabilities and firm performance. J. Bus. Res. 67 (1), 2891–2902.

Caniels, M., 2013. Participation of suppliers in the greening supply chain: an empirical analysis of German automotive suppliers. J. Purch. Supply Manag. 19, 134–143.

Chan, W., 2013. Managing green marketing: Hong Kong hotel managers' perspective. Int. J. Hosp. Manag. 442–461.

Chan, R.Y., He, H., Chan, H.K., Wang, W.Y., 2012a. Environment orientation and corporate performance: the mediation mechanism of green supply chain management and the moderating effect of competitive intensity. Ind. Mark. Manag. 41 (4), 621–630.

Chan, H.K., He, H., Wang, W., 2012b. .Green marketing and its impact on supply chain in industrial markets. Ind. Mark. Manag. 41, 557–562.

Chang, C.H., Chen, Y.S., 2013. Managerial green brand equity: the perspective of perceived risk theory. Qual. Quant. 1–16.

Chen, Y.S., Lin, C.L., Chang, C.H., 2013. .The influence of green wash on green word-of-mouth(green WOM): the mediation effects of green perceived quality and green satisfaction. Qual. Quant. 1–15.

Cook, D.J., Murlow, C.D., Haynes, R.B., 1997. Systematic reviews: synthesis of best evidence for clinical decisions. Ann. Intern. Med 126 (5), 376–380.

Cronin Jr., J.J., Smith, J.S., Gleim, M.R., Ramirez, E., Martinez, J.D., 2011. Green marketing strategies: an examination of stakeholders and the opportunities they present. J. Acad. Mark. Sci. 39 (1), 158–174.

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Dheeraj, N., Vishal, N., 2012. An overview of green supply chain management in India. Res. J. Recent Sci. 1 (6), 77–82.
Diabat, A., Govindan, K., 2011. An analysis of the drivers affecting the implementation of green supply chain management. Resour. Conserv. Recycl. 55 (6), 659–667.
Dijk, M., Yarime, M., 2010. .The emergence of hybrid-electric cars: innovation path creation through co-evolution of supply and demand. Technol. Forecast. Soc. Change 77 (8), 1371–1390.
Eggers, F., Eggers, F., 2011. Where have all the flowers gone? Forecasting green trends in the automobile industry with a choice based conjoint adoption model. Technol. Forecast. Soc. Change 78, 51–62.
Essoussi, L.H., Linton, J.D., 2010. New or recycled products: how much are consumers willing to pay? J. Consum. Mark. 27 (5), 458–468.
Ferraro, P.J., Uchida, T., Conrad, J.M., 2005. Price premiums for eco-friendly commodities: are 'Green' markets the best way to protect endangered ecosystems? Environ. Resour. Econ. 419–438.
Fisk, G., 2010. Green marketing: a multiplier for appropriate technology transfer. J. Mark. Manag. 17 (6), 657–676.
Fraj, E., Martinez, E., Matute, J., 2011. Green marketing strategy and the firm's performance: the moderating role of environmental culture. J. Strat. Mark. 19 (4), 339–355.
Fraj, E., Martinez, E., Matute, J., 2013. Green marketing in B2B organizations: an empirical analysis from the natural resources-based view of the firm. J. Bus. Ind. Mark. 28 (5), 396–410.
Gan, L., 2003. .Globalization of the automobile industry in China: dynamics and barriers in greening of the road transportation. Energy Policy 31, 537–551.
Getzner, S., 2004. .Consumer preferences and marketing strategies for "green shares" specifies of the Austrian market. Int. J. Bank Mark. 22 (4), 260–278.
Gleim, M.R., 2013. Against the green: a multimethod examination of the barriers to green consumption. J. Retail. 44–61.
Green Jr., K.W., Whitten, D., Inman, R.A., 2012. Aligning marketing strategies throughout the supply chain to enhance performance. Ind. Mark. Manag. 1008–1018.
Grimmer, M., Wooley, M., 2014. Green marketing messages and consumers' purchase intention: promoting personal versus environmental benefits. J. Mark. Commun. 20 (4), 231–250.
Hazen, B.T., Wu, Y., Cegielski, C.G., Jones-Farmer, L.A., Hall, D.J., 2012. .Consumer reaction to the adoption of green reverse logistics, the international review of retail. Distrib. Consum. Res. 22 (4), 417–434.
Hervani, A., Helms, M., Sarkis, J., 2005. .Performance measurement for green supply chain management. Benchmark. Int. J. 12 (4), 330–353.
Inter-brand: Creating and managing brand value, 2013. Third Annual Best Global Green Brands.
Jabbour, C.J., Santos, F.C., Fonseca, S.A., Nagano, M.S., 2013. Green teams: understanding their roles in the environmental management of companies located in Brazil. J. Clean. Prod. 46, 58–66.
Jones, P., Clarke-Hill, C., Comfort, D., Hillier, D., 2008. .Viewpoint, marketing and sustainability. Mark. Intell. Plan. 2, 123–130.
Junquera, B., Brio, J.A., Fernandez, E., 2012. Clients involvement in environmental issues and organization performance in businesses: an empirical analysis. J. Clean. Prod. 288–298.
Juwaheer, T.D., Pudaruth, S., Noyaux, M.E., 2012. Analyzing the impact of green marketing strategies on consumer purchasing patterns in Mauritius. World J. Entrepreneursh. Manag. Sustain. Dev. 8 (1), 36–59.
Kirchoff, J.F., Koch, C., Nichols, B.S., 2011. .Stakeholder perception of green marketing: the effect of demand and supply integration. Int. J. Phys. Distrib. Logist. Manag. 41 (7).
Ko, E., Hwang, Y.K., Kim, E.Y., 2013. Green marketing functions in building a corporate image in the retail setting. J. Bus. Res. 66 (10), 1709–1715.
Koo, C., Chung, L., Ryoo, S.Y., 2013. .How does ecological responsibility affect manufacturing firm's environmental, economic performance ? Total Qual. Manag. Bus. Excell. 1–21.
Koplin, J., 2007. .Incorporating sustainability into supply chain management in the automobile industry the case of Volkswagen AG. J. Clean. Prod. 15, 1053–1062.
KPMG International, 2008. A Rough Road-financial Crisis and Automotive Industry.
KPMG International, 2010. Global Auto Executive Survey 2010 Industry Concerns and Expectations to 2014.
KPMG International, 2014. Global Automotive Executive Survey.
Kristrom, B., Lundgreen, T., 2003. Abatement investments and green goodwill. Appl. Econ. 35 (18), 1915–1921.
Kuo, T.C., 2012. A collaboration model for controlling the green supply network in the motorcycle industry. Adv. Eng. Inf. 26, 941–950.
Lampe, M., Gazda, G.M., 1995. Green marketing in Europe and the United States: an evolving business and society interface. Int. Bus. Rev. 4 (3), 295–312.
Lee, E.J., Kwon, G., Shin, H.J., Yang, S., Lee, S., Suh, M., 2013. The spell of green: can frontal EEG activations identify green consumers ? J. Bus. Ethics 122 (3), 511–521.
Leonidou, C.N., Katsikeas, C.S., Morgan, N.A., 2012. .Greening the marketing mix: do firms do it and do it pay off ? J. Acad. Mark. Sci. 151–170.
Lin, R.J., Sheu, C., 2012. Why do firm adopt/implement green initiatives? – an institutional theory perspective. Procedia Soc. Behav. Sci. 533–540.
Lin, R.J., Chen, R.H., Nguyen, T.H., 2011. Green supply chain management performance in automobile manufacturing industry under uncertainty. Procedia Soc. Behav. Sci. 233–245.
Lin, R.J., Tan, K.H., Geng, Y., 2013. Market demand, green product innovation, and firm performance: evidence from Vietnam motorcycle industry. J. Clean. Prod. 40, 101–107.
Lirn, T.C., Lin, H.W., Shang, K.C., 2014. .Green shipping management capability and firm performance in the container shipping industry, maritime policy & management: the flagship. J. Int. Shipp. Port Res. 41 (2), 159–175.
Luthra, S., Kumar, V., Kumar, S., Haleem, A., 2011. Barriers to implementing green supply chain management in automobile industry using interpretative structured modeling techniques: an Indian perspective. J. Ind. Eng. Manag. 4 (2), 231–257.
Mathiyazhagan, K., Govindan, K., NoorulHaq, A., Geng, Y., 2013. .An ISM approach for the barrier analysis in implementing green supply chain management. J. Clean. Prod. 47, 283–297.
Matsukawa, I., 2012. .The welfare effects of environmental taxation on a green market where consumers emit a pollutant. Environ. Resour. Econ. 87–107.
McCann-Erickson, 2007. Can Sustainability Sell? Available at. www.unep.fr/pc/sustain/reports/advertising/can-sustainability-Sell%20.pdf.
McKinsey & Company, 2013. The Road to 2020 and Beyond: What's Driving the Global Automotive Industry?, pp. 1–24. Retrieved from. www.mckinsey.com.
Mishra, P., Sharma, P., 2010. Green marketing in India, emerging opportunities and challenges. J. Eng. Sci. Manag. Educ. 3 (1), 9–14.
Morgan, N.A., 2012. .Marketing and business performance. J. Acad. Mark. Sci. 102–119.
Mostafa, M.M., 2009. Shades of green: a psychographic segmentation of the green communication in Kuwait using self-organizing map. Expert Syst. Appl. 36, 11030–11038.
Mourad, M., Ahmed, Y.S.E., 2012. Perception of the green brand in an emerging innovative market. Eur. J. Innov. Manag. 15 (4), 514–537.
Oliver, F.D., Lee, S.H., 2010. .Hybrid car purchase intention: a cross-cultural analysis. J. Consum. Mark. 27 (7), 96–103.
Olugu, E.U., Wong, K.Y., Shaharoun, A.M., 2011. Development of key performance measures for the automobile green supply chain. Resour. Conserv. Recycl. 55, 567–579.
Oxborrow, L., Brindley, C.,, 2013. Adoption of eco-advantage by SME's emerging opportunities and constraints. Eur. J. Innov. Manag. 16 (3), 355–375.
Panda, L.K., Goswami, S., 2009. Eco-labels and its environmental countenance. Orissa Rev. 1–8.
Peattie, K., Crane, A., 2005. Green marketing: legend, myth, farce, prophesy ? Qual. Mark. Res. Int. J. 8 (4), 357–370.
Penna, C.C., Geels, F.W., 2012. Multidimensional struggles in the greening of the industry: a dialectic issue life cycle model and case study. Technol. Forecast. Soc. Change 79 (6), 999–1020.
Polonsky, M.J., Rosenberger, P.J., 2001. Reevaluating green marketing: a strategic approach. Bus. Horiz. 44 (5), 21–30.
Polonsky, M.J., Bailey, J., Baker, H., Basche, C., Jepson, C., Neath, L., 1998. Communicating environmental information: are marketing claims on packaging misleading? J. Bus. Ethics 281–294.
Rettie, R., Burchell, K., Riley, D., 2012. Normalizing green behavior: a new approach to sustainability marketing. J. Mark. Manag. 28 (3), 420–444.
Rex, E., Baumann, H., 2007. Beyond eco-labels: what green marketing can learn from conventional marketing. J. Clean. Prod. 567–576.
Samad, S., 2012. .The influence of innovation & transformational leadership on organization performance. Procedia Soc. Behav. Sci. 57, 486–493.
Saxena, R.P., Khandelwal, P.K., 2008. .Consumer Attitudes towards Green Marketing on an Exploratory Study. University of Wollongong Research Online, pp. 1–31.
Saxena, R.P., Khandelwal, P.K., 2012. .Greening of industries for sustainable growth, an exploratory study on durable, non-durable & services industries. Int. J. Soc. Econ. 39 (8), 551–586.
Sharma, A., Iyer, G.R., 2012. Resource-constrained product development, the implication for green marketing and green supply chains. Ind. Mark. Manag. 41, 599–608.
Sharma, A., Iyer, G.R., Mehrotra, A., Krishnan, R., 2010. Sustainability and business-to-business marketing: a framework and implication. Ind. Mark. Manag. 39 (2), 330–341.
Shrikanth, R., Raju, D.S.N., 2012. .Contemporary green marketing-brief reference to Indian scenario. Int. J. Soc. Sci. Interdiscip. Res. 1 (1), 26–39.
Sierzchula, W., Bakker, S., Maat, K., Wee, B.V., 2012. The technological diversity of emerging eco-innovations: a case study of the automobile industry. J. Clean. Prod. 37, 211–220.
Simpson, D., Power, D., Samson, D., 2007. Greening the automotive supply chain: a relationship perspective. Int. J. Operat. Prod. Manag. 27 (1), 28–48.
Singh, H.G., 2013. A study of evolution and initiatives of green marketing by various companies in India. Int. J. Manag. Soc. Sci. Res. 49–56.
Singh, S., Vrontis, D., Thrassou, A., 2011. Green marketing and consumer behavior: the case of gasoline products. J. Transnatl. Manag. 16 (2), 84–106.
Siriwardena, S., Hunt, G., Teisl, M.F., Noblet, C.L., 2012. Effective environmental marketing of green cars: a nested logit approach. Transp. Res. Part D 237–242.
Smith, K.T., 2010. An examination of marketing techniques that influence millennia's perception of whether a product is environment-friendly. J. Strat. Mark. 18 (6), 437–450.
Smith, K.T., 2012. A longitudinal study of green marketing strategies that influence millennial. J. Strat. Mark. 20 (6), 535–551.
Tang, E., Fryxell, G.E., Chow, C.F., 2004. .Visual & verbal communication in the design of eco-labels for green consumer products. Int. J. Consum. Mark. 16 (4).
Thogersen, J., Haugaard, P., Olesen, A., 2010. .Consumer responses to eco-labels. Eur. J. Mark. 44 (11/12), 1787–1810.

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Tranfield, D., Denyer, D., Smart, P., 2003. Towards a methodology for developing evidence-informed management knowledge using systematic review. Br. J. Manag. 14, 207–222.

Van den Broek, F., Van den Broek-Serlé, N., 2010. Green Supply Chain Management, Marketing Tool or Revolution? Breda/Zoetermeer, The Netherlands (accessed 02.02.14.). http://www.logistiek.nl/PageFiles/12981/008_logistiek-download-LOGNWS109613D01.pdf.

Vaughan, R., 2008. Conceptual Framework. ppt available at. : www.bournemouth.ac.uk.

Walker, R.H., Hanson, D.J., 1998. Green marketing and green places: a taxonomy for the destination marketer. J. Mark. Manag. 14 (6), 623–639.

Wolf, J., 2011. Sustainable supply chain management integration: a qualitative analysis of the German manufacturing industry. J. Bus. Ethics 102 (2), 221–235.

Xia, Y., Tang, T.P., 2011. Sustainability in supply chain management: suggestions for the auto industry. Manag. Decis. 49 (4), 495–512.

Xu, L., Mathiyazhagan, K., Govindan, K., et al., 2013a. Pressures for Indian Manufacturer to Green Their Supply Chain Identified, Science for Environmental Policy. European Commission, DG, Environment News Alert Service, SCU, The University of the West of England, Bristol.

Xu, L., Mathiyazhagan, K., Govindan, K., Haq, A.N., Ramachandran, N.V., Ashokkumar, A., 2013b. Multiple comparative studies of green supply chain management: pressures analysis. Resour. Conserv. Recycl 78, 26–35.

Yamin, S., Macondo, F., Gunasekaran, A., Sarros, J.C., 1997. A study of competitive strategy, organizational innovation and organizational performance among Australian manufacturing companies. Int. J. Prod. Econ. 52 (1/2), 161–172.

Zhu, Q., Sarkis, J., 2004. Relationship between the operational initiatives and performance among early of green supply chain management initiatives in China manufacturing enterprises. J. Operat. Manag. 22, 265–289.

Zhu, Q., Sarkis, J., Lai, K., 2007. Green supply chain management: pressures, initiatives and performance within the Chinese automobile industry. J. Clean. Prod. 15 (11), 1041–1052.

Please cite this article in press as: Kushwaha, G.S., Sharma, N.K., Green initiatives: a step towards sustainable development and firm's performance in the automobile industry, Journal of Cleaner Production (2015), http://dx.doi.org/10.1016/j.jclepro.2015.07.072