

## The Role of Green Marketing in Toyota's Costs Reduction

دور التسويق الأخضر في تخفيض تكاليف تويوتا

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**Abstract:** In order to clarify to the ambiguity surrounding the concept of green marketing and its ability to create economic gains, especially with regard to the potential costs of the transformation process, which may increase the burden of the organization and reduce its competitive advantages. Considering that most business organizations still worried about the economic feasibility of green marketing. This paper aims is to examine the role of green marketing adoption in reducing overall costs in the business organization.

The study concluded that Toyota's adoption of green marketing in the context of reducing the total costs , through a three environmental entrances , allowed the organization a significant number of profits.

**Keywords:** Green Marketing, Operational Costs, Energy Consumption, Green Product  
**(JEL) Classification :** Q52, Q53, Q55, Q57

### ملخص:

يهدف إعطاء مزيد من الوضوح إتجاه الغموض المحيط بمفهوم التسويق الأخضر وقدرته على خلق مكاسب اقتصادية لمنظمة الأعمال، وخاصة فيما يتعلق بالتكاليف المحتملة في عملية التحول والتي قد تزيد من أعباء المنظمة وتقلل من ميزات التنافسية. باعتبار أن أغلب منظمات الأعمال مازالت تتنابها اليوم تعقيدات ومخاوف اتجاه التسويق الأخضر والجدوى الاقتصادية منه. فقد هدفت هذه الورقة البحثية إلى دراسة دور تبني التسويق الأخضر في تقليل التكاليف الإجمالية في منظمة الأعمال.

وقد توصلت الدراسة إلى أن تبني منظمة "تويوتا" للتسويق الأخضر يساهم في تقليل التكاليف الإجمالية لديها من خلال المداخل المتمثلة في تقليل نسب النفايات والهدر، تخفيض نسبة استهلاك الطاقة، وأخيرا تقليل تكلفة إنتاج المنتج الأخضر، والتي حققت فيها المنظمة أرقاما هامة.  
**الكلمات المفتاحية:** التسويق الأخضر، التكاليف التشغيلية، استهلاك الطاقة، المنتج الأخضر.

رموز JEL: Q52, Q53, Q55, Q57

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## **1. Introduction:**

The success of any system in business organizations is due to their degree of adaptation to modern practices. In light of the increasing and complex environmental stakes imposed on business organizations, we have witnessed many profound transformations in these organizations' attitudes and business philosophy in general. The term green marketing is one of the most important new trends and the most famous in the field of marketing management, in light of the recent international mobility on the so-called environmental concerns. With more than 52 international agreements on pollution prevention under traditional international law from 1950 to 1990, some of them reaching more than 300 multilateral international agreements addressing the various elements of environmental pollution at the level of the international community. (*Mifteh, (n.d.), p. 258*) The concept of green marketing has emerged as a legitimate response and a subject that has a direct connection to the problems of the environment and its implications. Today, this concept has aroused a wide interest which is reflected in the many studies that address it and analyze its dimensions and what it can offer to business organizations that adopt this approach, and the top contributors to this type of research are India and the UK. (*Pavan, 2010, p. 12*) However, most business organizations today are still raised by many concerns about the fact that if there is a real economic and trade benefits from the adaptation of green marketing, especially with regard to the potential costs of the transformation process, which may increase the burden of the organization and reduce its competitive advantages. The debate in this field needs to shift from the general themes to the questions "Can businesses offset the costs of environmental investments in green marketing?" How could this be done?" (*Orsato., 2006, p. 127*). In this subject a consultant at Al-Baluchi Law Firm and an environmental expert, Tahani Al-Balushi, said that the world is "giving birth to a new perspective, where the environment and the economy are two sides of a single coin". (*O'Shea, (n.d.)*) Thus, what started as a small attempt to save the Earth and the environment from the negative effects of the business world, it could become, 20 years later, a full green industry by creating important economic advantages such as reducing the operational costs of the business organization, and that's what the Japanese organisation Toyota is trying to achieve by shifting the cost of its environmental liability and green marketing commitments into a mechanism and input to reduce costs.

### **1.1. Research Problematic:**

Based on the above, we can formulate the problematic of this research in the following question:

#### **What is the green marketing role in reducing Toyota's costs?**

And for answering this problematic we chose to build this paper on four main axes as follows:

- 1 Green Marketing' Entrances for Costs Reduction;
- 2 Toyota's implementation of Reducing costs by reducing, waste;
- 3 Toyota's implementation of Reducing costs through energy and resource efficiency;
- 4 Toyota's implementation of Reducing costs by reducing the green cars production costs.

### **1.2. Research Aims and Methodology:**

The importance of the study is that it deals with one of the most important topics in the arena, which is Green Marketing .We seek to show one of the most crucial features of the approach which is cost reduction. So the purpose of the present paper was to show how the Toyota organization used green marketing to achieve that.

To conduct this paper we used the descriptive analytical approach, Data has been collected from multiple sources: books, articals, journals, websites and Toyota documents, which helped us to analyze the ideas, and connect them logically and scientifically.

## **2. The Role of Green Marketing in Toyota's Costs Reduction:**

### **2.1 Introduction to Toyota:**

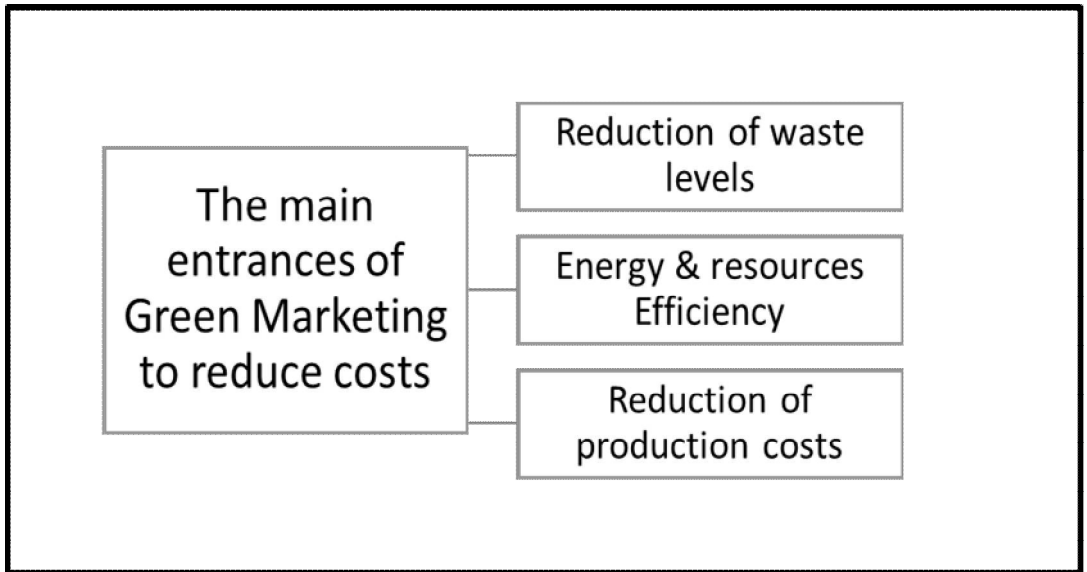
Toyota, a Japanese car giant with 46 factories in 26 countries, has an estimated 265,000 employees and has customers in more than 140 countries. Is one of the leading international organizations that have adopted the concept of green product. As the pioneer in the technology of the automotive industry, the company has been keen to use it in many of its cars to make them environment-friendly. The most popular hybrids are the Toyota Prius which were established in 1997 in Japan, where this model caused a stir in the world of hybrid cars and marked a turning point in the development of such technology, which will be a

substitute for traditional energy sources soon, becoming the first car to work with a hybrid system, Where conventional fuel is used, along with the use of an electric motor running at a lower speed and in crowded areas. Another effort by Toyota to help drive the engine industry is to increase its efficiency, and reduce its impact on the environment, It has revisited the entire structure of the internal combustion engine to identify specific methods that can burn less fuel and generate more efficiently, reduce CO2 emissions to mitigate damage to the environment, as well as reduce other undesirable gases. This has resulted in the generation of integrated intelligent technologies that use advanced in-motor solutions to improve fuel management and leadership. In addition, Toyota has a broad sustainability program that combines the principles of environmental conservation and commercial activities. The corporation has a policy that seeks to reach zero Zironize waste and Maximize its profits, Which includes a vision to reduce the negative aspects of vehicles such as environmental impact, traffic congestion and traffic accidents, as well as maximizing positive elements such as comfort and pleasure. (*Conley, (n.d.), pp. 52-53*)

## **2.2 The Green Marketing' Entrances for Costs Reduction in Toyota:**

All automotive organizations around the world are trying to offset sales volatility and the risks of intense competition by cutting costs. However, most business cost-cutting initiatives remain unsustainable, especially if they are based on technological standards that can be replicated. In this case, all of these reductions of costs are merely a temporary financial aid to the organization, and the overall result here is to postpone determinism and make the process continue with the least competitive capacity and sustainability. In this regard, green marketing plays an important role in reducing the costs and total costs incurred by business organizations through three main entrances illustrated by the following figure:

Fig.(01): The Green Process in Reducing Costs



Source: Authors treatment.

To better illustrate the entrances of this process, we have Toyota as an example to the real implementation of this strategy and that's what will the rest of the paper focus on but before that we must introduce the company.

### 2.2.1 Toyota's implementation of Reducing costs by reducing waste:

The green marketing strategy is an effective and sustainable way for Toyota to reduce costs by minimizing waste. The organization achieves amazing numbers in this area. The success of waste minimization can be attributed to efficiency in Toyota's production processes. Which works within the goals set by the green marketing strategy to reduce the levels of waste that affect the environment. What is important here is not what Toyota does with waste, but how it produces and works without waste. In this framework, the Japanese organization identifies eight types of waste and works to minimize or dispose them completely, and these types are as follows: (*Farhat, 2008*)

- **Overproduction Wastes :** By producing non-orderable items, which would require an increase in the number of workers and an increase in the cost of warehousing and transportation. Toyota considers this type as an essential waste that causes most other types of waste.
- **Waiting/ Time on hand Wastes :** This occurs when the task of the worker is simply to observe a self-powered machine, or to stand aside while waiting for parts, or when the worker has nothing to do.
- **Unnecessary Transport Conveyance Wastes :** This takes place at long distance workplaces or in the long distance transport of materials, parts or goods manufactured from or to storage areas.
- **Over processing or Incorrect Processing Wastes :** This is manifested in unnecessary steps in product manufacturing, in inefficient treatments resulting from the use of bad equipment, and in the unsuccessful design of the product, which causes unnecessary movement and production inefficiencies.
- **Excess Inventory Wastes :** The increase in raw materials or manufactured goods may lead to the length of their stay in the factory and then the invalidity of their use or damage, as well as the costs of their transport and storage.
- **Unnecessary Movement Wastes :** It is every wasted movement that workers have to perform during their work, such as searching for spare parts, equipment, etc.
- **Defects Wastes :** The production of damaged parts, or repair after inspection, and the large number of waste caused by defects, means wasting a lot of time, effort and money.
- **Unused Employee Creativity Wastes :** Failure to listen to employees is a factor that may miss Toyota the opportunity to introduce distinctive ideas, skills or learning about new opportunities.

In order to minimize all these types of waste in a sustainable manner that ensures continuous cost reduction, Toyota operates under clear and practical policies that are part of the main dimensions of a green marketing strategy. This is done through a sophisticated set of programs that reduce the various types of waste in the operations of «Toyota» which reduces the total cost, and to achieve this goal the company uses:

**A. The Three Mechanisms to reduce the cost structure:** these three mechanisms allow Toyota to make a quantum leap in reducing waste levels and they are as follows:

- Reducing the product cost;
- Reducing working capital;
- Increasing the use of the assets of the organization "Asset Utilization".

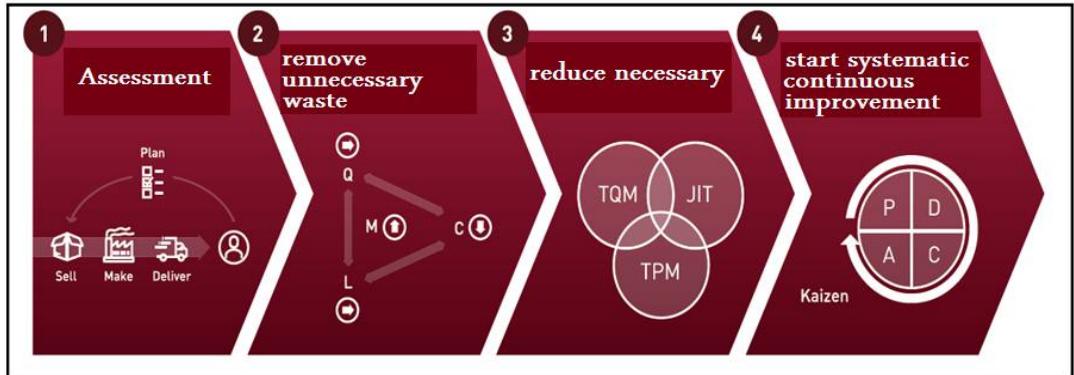
**B. The production system "TPS":** Toyota has an advanced and unique production system that helps reduce waste from its largest cost drivers, thus enhancing its efficiency and ability to control production and operational processes and steer them towards the right path of green marketing objectives.

**C. The Kaizen philosophy:** Toyota's famous Kaizen philosophy plays a major role in the process. The philosophy is mainly to eliminate waste or activities that add extra cost without adding value. This means that any process will be dismantled and better re-positioned to provide improved functionality. It is expected that all the line staff will stop their mobile production if there is a defect and immediately work with their supervisor to propose improvements to resolve the problem, a process that reduces waste of all kinds.

### **The "SCR" approach:**

Although the previous various processes may seem logical and simple in theory, things on the ground are quite different and more complicated at the operational level. Toyota therefore relies on the so-called "**SCR**" approach, setting out four basic steps to address the key challenges facing implementation: where do I start? How can the implementation program be maintained? . It is a multi-stage approach that begins with identifying and measuring potential quickly, while building a sustainable plan that results in continuous improvement and waste reduction.

Fig.(02): Toyota's " Four principles approach" to waste and costs reduction



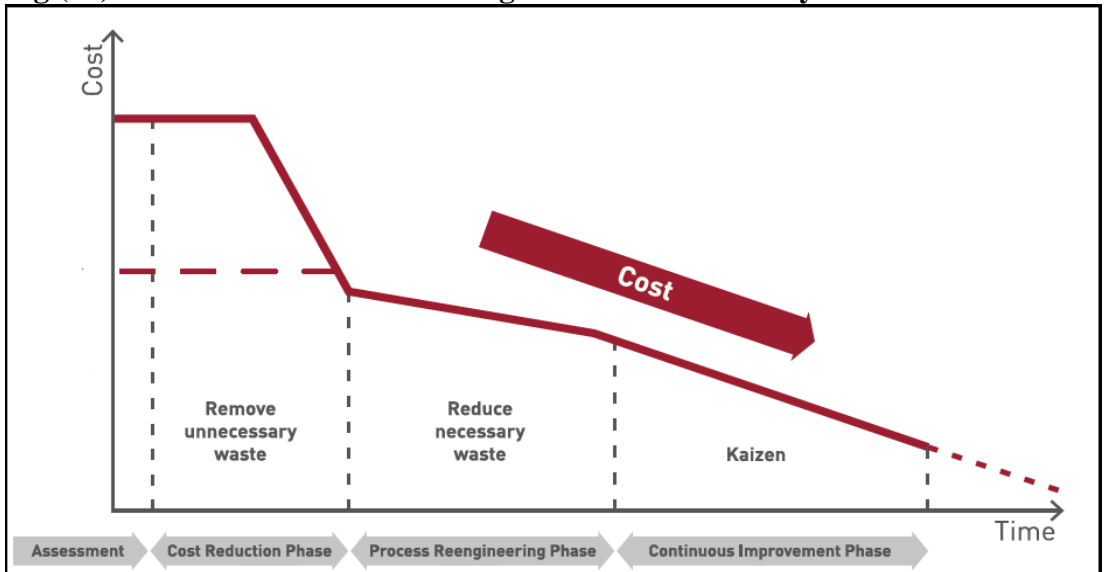
Source : Documents of the TOYOTA Organization.

- **The Evaluation phase:** By analyzing Toyota's value chain, the actual value of the consumer is quantified. As a result, all wastes can be quantified. The focus is on identifying wastes in three key areas: cost, operations, and individuals. The organization's capacity and willingness to change is assessed, and a logical and sustainable transformation plan is developed.
- **The Waste Reduction phase :** The Organization had already identified the three areas in the previous phase for immediate improvement. Which are the key areas where shifts can be rapidly implemented through targeted workshops who focus on eliminating unnecessary waste at Toyota.
- **The Re-engineering phase :** Processes are re-engineered in sequence to reduce the necessary waste in the organization, making value added activities more efficient, and this approach is implemented in Toyota through practical down-to-top improvements.
- **The Continuous improvement phase:** Although it is the final stage, it is considered the beginning of continuous regular improvement in Toyota. The focus of this phase is to enable staff, especially frontline staff, to continue improvements without assistance and on a regular basis, with periodic audits, training and leadership training as necessary.



All of these operations, training and tools are put into operation so that the process of waste removal and continuous development is a practiced approach. The following figure shows how to reduce costs through waste reduction in the organization.

**Fig.(03): Cost reduction curve through the reduction of Toyota's waste levels**



**Source:** Documents of the TOYOTA Organization.

For business organizations that adopt a green marketing strategy such as Toyota, the challenge of finding, reducing or eliminating waste is greater than other organizations. The organization strives to reduce the volume of waste from production activities by developing and deploying new production technologies, Continuous daily improvement measures in terms of sources of waste, quantity of waste generated, loss of resources, cost reduction . In 2016 Toyota continued to take waste reduction measures such as waste and resource reduction and was able to reduce the volume of waste annually in each of its production units. As a result, the total volume of waste was 33.8 thousand tons, with waste production per unit decreasing by 7.2% year-on-year. (See table below)

Table (01): Toyota's waste production volume in the period (2012 to 2016).

Financial year	2012	2013	2014	2015	2016
Waste volume per unit produced in Toyota (thousands of tons)	12.1	12.4	12.5	12.5	11.6

**Source:** Documents of the TOYOTA Organization.

Today, Toyota is one of the most famous business organizations that have achieved impressive levels of waste reduction. In the United States and Canada, for example, the Organization has reduced the volume of waste from its facilities and production units by 96 % in 2015, by supporting the maximization of its recycling and reuse policies, making it save a total cost of 900 million pounds (*Mazzoni, 2017*). Where the organization is now approaching zero waste level, Which is what it aims at in its near-term plans. Toyota has been recognized by the Environmental Protection Agency (EPA) as the " the Waste Wise partner" of the year 2015, for the good levels achieved by the organization to eliminate waste (*Brucker, 2017*).

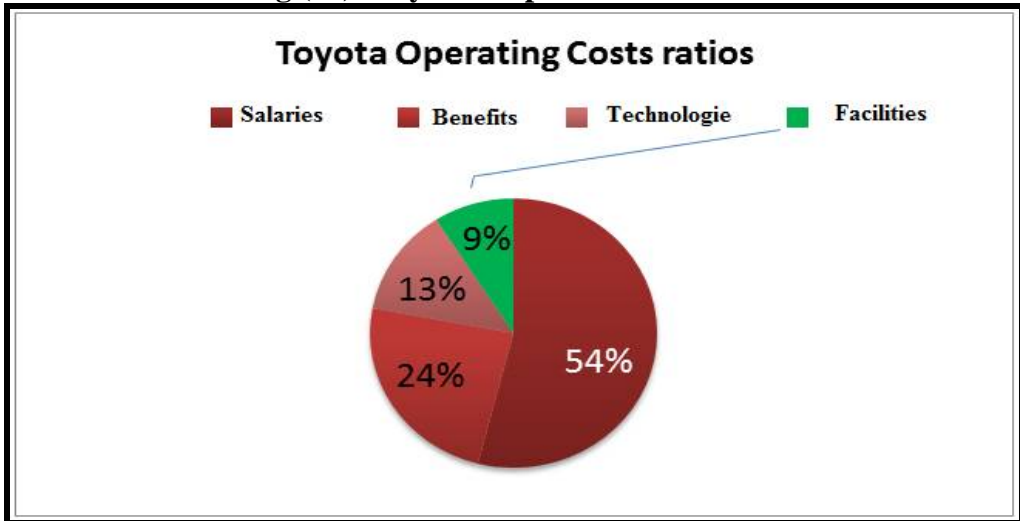
All this contributes to the overall reduction of costs for the Organization. The end result of Toyota's green marketing is not just a matter of profitability, but a business organization capable of continuous improvement and response to changes and external conditions, establishing the principle of citizenship and living in a clean and healthy environment.

### **2.2.2 Toyota's implementation of Reducing costs through energy and resource efficiency:**

As part of its green marketing strategy, Toyota aims to "reduce its energy and resource consumption", by reducing its operating costs. This is done in the Organization through various programs and mechanisms that help to minimize energy consumption. Operating costs in Toyota are divided into the following: 54% for salaries, 24% for benefits, 13% for technology, and 9% for facilities

(Carbasha, 2007). (See Fig 04). Although 9% of the organization's energy consumption may not be significant compared to other operating ratios, However, a 1% reduction may result in substantial financial savings due to the large volume of Toyota's business.

Fig.(04): Toyota's Operational cost ratios.



Source: Authors treatment.

### **The Facilities Integrated Resource Management (FIRM) Steps:**

In order to rationalize its energy and resource consumption, Toyota has developed a set of policies and programs to achieve its objectives. The most important of which is Facilities Integrated Resource Management (FIRM), and the process is carried out under this program through a number of steps as follows: (Carbasha, 2007)

- A. Conduct a site survey to identify opportunities for energy conservation and sustainability;
- B. Provide recommendations on appropriate operating strategies, lighting technology, control strategies, HVAC strategies, packaging procedures, and alternative energy sources.

These suggestions may include basic problems such as short-term operation of the air conditioner, more efficient lighting, and the creation of software and hardware to properly control building systems;

**C.** Evaluation of baseline database, project tracking database and energy efficiency standards, where the Organization's uses of resources are assessed in all facilities in order to determine the desired objectives and determine the best way to achieve these objectives;

**D.** Determine project cost;

**E.** Implement and monitor the most appropriate recommendations to verify its performance and determine whether there is a better way to achieve the desired result through the philosophy of "Kaizen" or so-called continuous improvement.

As part of Toyota's investment in such programs, Toyota's cost and energy reduction records show that the organization invested about \$ 6.5 million between April 2001 and November 2006 to enhance energy efficiency at all its locations in the United States, This investment has already led to savings in energy costs of 10.9 million \$ , more than 41 million kilowatt per hour (k / Wh) and 2.5 million natural gas thermal units (*Carbasha, 2007*). Toyota also got a 12.9% reduction in CO2 emissions as a result of reducing energy consumption, achieving by that its environmental and economic objectives at the same time (*Carbasha, 2007*).

It also shows the organization's efforts and investments in this field by the fact that (98%) of Toyota's energy is from renewable sources, while American factories, for example, still get (98%) of their energy from non-renewable sources, That is why Toyota (21 plants in the United States) won the Energy and Sustainable Excellence Award in 2007 , Which is issued by the US Environmental Protection Agency (EPA) for organizations that achieve energy efficiency (Toyota Official Website, (n.d.)). Toyota led the way in 2008 to rely on renewable sources first at the Tsutsumi plant during the production of the Prius environmental vehicle, with the deployment of a solar generating system that enabled the generation of power estimated at 2000 kilowatts, which is equivalent to the energy consumed by 500 families And then the process extended to the rest of the factories. Since 2016, Toyota has produced an estimated 1,981 MWh of electricity (*Toyota Official Website, (n.d.)*).

And therefore provides significant costs in energy production because the renewable energy production sources do not require the use of expensive costs like other traditional sources .

Among the most important efforts to reduce energy consumption and access to the so-called "smart consumption" Toyota is also working to promote green building practices that contribute effectively to reduce energy consumption costs and reduce the negative impact on the environment, and both residential and commercial buildings in Toyota are environmentally sound and have a great green footprint (Toyota Official Website, 2012). In a study on the extent to which green building can reduce energy consumption and be sustainable , it has been shown that such green buildings can reduce energy use and associated water use by 30 to 95%, and reduce solid waste by 50%to 95% (*Toyota Official Website, 2012*). For that, Toyota has developed a special program called Toyota New Global Architecture (TNGA) to make its factories, buildings and car platforms uniform and adaptable to green and intelligent building requirements. This program can also invest these buildings in developing more sophisticated and flexible manufacturing techniques at the level of manufacturing, production and marketing operations (*Toyota vacaville website, 2017*). Thus improving both environmental and economic performance.

In a Toyota report in 2018, Toyota said it planned to cut costs by 1.22 billion\$ the year 2018 , and in the latter half of 2017 the company had saved 875 million\$ by reducing manufacturing costs and energy consumption (Gibbs, 2018). Where Toyota expects through its application of the new manufacturing system, "Toyota's New Global Architecture", (TNGA), to reduce manufacturing costs by 20% (Gibbs, 2018) which is a very huge cost ratio. Through its green marketing strategy, Toyota has made serious strides in developing sophisticated environmental programs to achieve the goal of "effective use of low price and sustainable energy" to create an "intelligent society" that works to help build an alternative energy and recycling community. And the promotion of "energy saving," while at the same time achieving significant profitability savings by reducing costs.

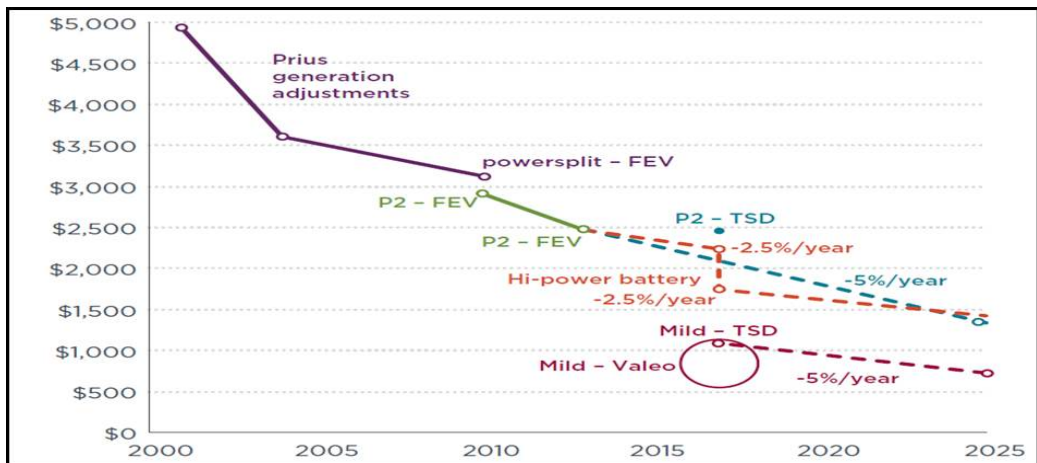
**2.2.2 Toyota's implementation of Reducing costs by reducing the green cars production costs :**

Since the eco-friendly automotive market segment, with its various technologies, whether its hybrids, electric or hydrogen technologies, is still relatively early in terms of consumption , making the cost equation relatively high compared to conventional car markets. and this is due to:

**First:** The high costs of research and development 'R & D' operations that still characterize this emerging sector and increase its costs.

**Second:** The difficulty of getting accepted in the market , The green car market is witnessing a modest and volatile demand in which manufacturers need to push their products aggressively and with intensive promotional efforts as an initial stage regardless of the initial acceptance of consumers. The introduction of new models of environmental vehicles plays an important role in reviving this market and making these vehicles more popular over time. Enabling strong sales to be achieved in the near future and trying to reach greater productivity that leads to the benefits of size and cost to business organizations Which operates under the green marketing market in the automotive industry.

**Fig.(05): The evolution of "Prius" production price in the period (2001 to 2025)**



Source: Green car congress website, (2015), ICCT: ongoing cost reductions in full- and mild-hybrid systems could bring them into consumer mainstream by 2025, Retrieved from <http://www.greencarcongress.com/2015/07/20150724-icct.html>

As for Toyota, Yoshikazu Tanaka, a Toyota engineer, said in an interview with Reuters "The organization will move from the limited production of this type of green cars and hybrids to mass production, thereby reducing the amount of raw materials, especially expensive ones, such as platinum, titanium and carbon fiber used in storage systems" (**Naomi Tajitsu, 2018**).

Currently, manufacturers, including Toyota, are recovering some of the costs by charging incremental and long-term consumer costs, which is part of the price-hack strategy. In addition to trying to lower the cost of producing this type of vehicle, Toyota also needs to significantly improve the fuel economy in order to entice customers to pay more than the price of a conventional car. However, despite all these challenges and obstacles facing green business organizations, current figures and the immediate future promise a significant reduction in the costs of such vehicles for several reasons, most important of which is that Modified hybrid systems will be able to compete directly against conventional technology on a cost / benefit basis (*Green car congress website, 2015*), because according to a recent information paper on hybrid systems technology by John Jerman. of the International Council for Clean Transportation (ICCT), full hybrid systems costs are likely to fall to half of 2010 production cost before 2025. (*Green car congress website, 2015*)

Indeed, Toyota has achieved a significant development with a significant reduction in the cost of producing its environmental vehicles, after being working hard for many years to find a variety of solutions to the problem of high cost of technology for this type of cars. Fig (05) shows how Toyota, through its intensive efforts under the Green Marketing Strategy, has been able to reduce significant percentages of its monthly Prius car costs in less than two decades and will continue to reduce costs in the near future. To reach two-thirds as compared to 2001 by 2025. the direct and historical manufacturing cost curve of hybrid cars "Prius" has evolved after experiencing significant costs reductions over time thanks to experience and learning factors in the field, as well as Toyota's research and development efforts to develop and reduce the cost of sustainable and renewable technologies. The figure also shows that these reductions are expected to continue in the near term, which will allow the reduction of the cost per unit of

the Prius to nearly three times. Where the purple line offers the estimated reductions for each new generation of "Prius". While the Green Line reflects a 15% reduction in the cost of FEV for power transmission systems (separator and engine) from 2010 to 2013, assuming that the same reductions have been achieved in all parts of the hybrid system of the vehicle. As for the intermittent blue line it represents a reduction in the costs of the future P2 hybrid system, assuming that the annual cost reduction will continue by 5% in the future. Intermittent red lines show an alternative path to similar cost reductions, with an annual cost reduction of 2.5% and the impact of the development of high-energy lithium-ion batteries that will reduce future battery costs by at least 500\$. The impressive thing is In addition to the fact that each new generation of hybrid Prius has achieved a 10 % improvement in both efficiency and performance, each new generation has also contributed to lower costs, resulting in an increased vehicle size and Electrostatic engine power.

If Toyota continues to achieve the same rate of improvement in successive Prius generations, or if the new types that are in the early stages of engineering development can replicate the same rate of improvement, the full hybrid system costs will be reduced by about half by 2025 (German, 2015, p. 2). So Toyota is seeking solutions to further reductions in green product costs to support coordinated efforts between automotive organizations, energy suppliers, governments and public authorities to help develop national and international energy infrastructure adapted to hydrogen and electric vehicles (Bhasin, 2018). which is an important pre-emptive step that will undoubtedly contribute to moving this type of vehicle forward and achieving significant reductions in costs incurred by green business organizations.

Finally, And Through Toyota's achievement of all three entrances related to the process of reducing operational costs shown in Fig (01) by adopting green marketing, we can confirm the hypothesis that Toyota's green marketing strategy actually reduces costs.



### **3. Conclusion :**

At the moment, the strategic approach based on environmental dimensions is the right tool for the organization's positioning, growth, stability and effective performance in the long and short term. Based on the study, we can confirm that the world's largest institutions, headed by Toyota, are seeking to develop urgent strategic plans to adopt the environmental approach and to work as a positive partner in contributing to the preservation of the environment and improving its external image. In addition to exploiting this approach to achieve significant reductions in their operational and overall costs, which support both their profitability and price targets.

Today, institutions can bet on green marketing to achieve this important economic gain and take proactive steps compared to other non-green institutions, and these reductions are usually achieved in the medium and long term. While Green marketing requires sacrifices and additional financial costs in its early stages, costs are gradually decreasing for several considerations, the most important of which elements of experience and learning.

We can say that Toyota has enough knowledge, experience and marketing awareness to understand the importance of green marketing and the dimension of the environment and what it represents to customers and the community as a whole. The Foundation has already been able to be a successful model in the process of achieving significant reductions in the total costs through three green marketing entrances: the entry of the reduction of waste; the entry of reducing the consumption of energy; and finally the entry of reducing the production cost of green products, which has achieved significant numbers. These assurances help to eliminate the confusion and ambiguity of institutions that are very nervous about the potential cost of this transformation and doubt the potential for actual success under green marketing.

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