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TOYOTA MOTOR CO GLOBAL POSITION: VISION, PRUDENCE AND CONTINUOUS INNOVATION

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Abstract
Toyota Motor Corporation was and remains the most successful integration group compared to other keiretsu groups. This is because she took over the position of reformist, innovative and revolutionary leader in the organization of production and customer relations since the 1960s and has managed to maintain this position until now. The various strategies applied by Toyota Motor Corporation over its seven decades of existence present it as not only a car company, it is the car company to which all Japanese manufacturers refer, but also the American and European ones. Toyota tops the list of both Japanese carmakers and the entire automotive industry in the world in terms of sales and profits.

Key words: *innovative; integration; revolutionary; successful; strategies*

JEL Classification: *M16 - International Business Administration*

I. INTRODUCTION

Toyota Motor Company, founded in 1937, has become one of the leaders in the automotive market in terms of both production and sales of vehicles. Since 2020, it has been the world's largest carmaker, based on global sales, and is one of the most successful developments in the automotive industry, making it an excellent benchmark for any company. The company has recorded record annual earnings for almost a decade and has become the world's most profitable carmaker. As competitors cut thousands of jobs and shut down factories, Toyota builds a new factory every year. The success of Toyota cars and trucks lies in their quality and durability, ease of operation and performance, but also in the intuitive and easy-to-operate controls. Because demand is high and stocks are usually low, Toyota sells cars with little marketing incentives (Taylor, 2003).

After a series of unwanted events and suspicions of manufacturing failures, in 1950 Toyota was on the verge of bankruptcy. A company whose quality was legendary suddenly needed to withdraw cars from the market, apparently unable to find the defects of its cars. The company's excellent reputation for quality and safety standards has been severely damaged, with the risk of losing market leadership and spending considerable sums on recalling service cars and providing incentives to attract customers.

Faced with the threat of Toyota's bankruptcy, after the company's executives repeatedly apologized publicly, the Japanese government forced the company to reorganize into two separate companies, Toyota Motor Sales and Toyota Motor Corporation, each run by a non-family member. Later, in 1982, Toyota Motor Sales was finally reabsorbed by Toyota Motor Corporation.

This unpleasant episode in the history of Toyota, in which things have evolved in an undesirable direction very quickly, was a hard lesson learned for the company. Things have changed for the better, so Toyota has raised the bar to quality standards as well as the speed of response to fix problems so that customers' lives are no longer in danger.

In 2020, according to UNCTAD (United Nations Conference on Trade and Development), Toyota Motor Corporation is the top 100 non-financial multinational companies in the world.

II. TCM'S ROLE IN CREATING THE FIRST KEIRETSU IN THE JAPANESE ECONOMY

Although the Japanese are usually portrayed as the parents of keiretsu, the concept of management in which the suppliers of a company are in relation to the parent company is much older. Around 1910, General Motors founder William C. Durant, who first noticed the potential of the automobile to become a major industry, bought several small

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but successful automobile companies that merged them into one only large car company. He later brought the main suppliers into his corporation. General Motors had come to own 70% of the parts and components companies that went into its cars and had become, at the time, the most integrated business in the world. This keiretsu prototype gave General Motors a decisive advantage in terms of costs but also in terms of production speed, which made it, in a few years, both the largest and most profitable production company in the world, as well as and the undisputed leader in the American carmaking market, which was extremely competitive at the time (Drucker, 2001).

Toyota took this keiretsu model, developed it and adapted it to its needs for design, product development, but also the specifics of the Japanese market and implemented it, with spectacular results.

Toyota has followed *Toyota's Guidelines*, a set of seven values and guidelines that encompass all of the company's decisions. According to its 2019 Corporate Governance Report, the company has decided to focus on promoting innovation, especially in the fields of robotics and artificial intelligence (AI), as well as developing its business.

In its 2021 Corporate Governance Report, the company further emphasized the promotion of innovation as an initiative *that we must take in order to survive in a time of profound transformation that could happen only once in a hundred years and to achieve a new mobility society*. The company is also focused on sustainability and the environment: Toyota has also set a goal of reducing new vehicle emissions by 90% by 2050.

III. TOYOTA'S TQM REVOLUTION (1950-1970)

Total Quality Management (TQM) - according to the Quality Glossary Definition, can be defined as a *management approach to long-term success through customer satisfaction. Such an approach involves the participation of all members of an organization in improving the processes, products, services in the organization*. TQM is based on the ideas of quality leaders: W.E. Deming, J.M. Juran, P.B. Crosby, A.V. Feigenbaum, Kaouru Ishikawa. An important complement to this definition can be found in the Business Dictionary, in the sense of orienting the organization on a long-term approach to quality management at any level of it, from management to execution. TQM includes three key components: *a management philosophy, an improvement process or model, and a set of mechanisms that includes the seven quality control tools* (Tague, 2011).

An effective Total Quality Management (TQM) approach requires the involvement of all employees in an organization. He considers quality to be everyone's responsibility and is not limited to a manager or a particular department. In the last decades, companies have radically transformed their performance into business. Many companies have found that restructuring, upgrading and downsizing have helped them survive, but have not strengthened their quality advantage. The fundamental concepts of quality management (continuous improvement of production, customer orientation and enhancement of each member of the organization) will transform the way it manages the entire organization (Juran & Godfrey, 1998).

Recently, there has been a growing global emphasis on quality management. In global competitive markets, quality has become the most important factor of success and quality management has become the competitive issue for many organizations. Joseph Juran states that just as the twentieth century was the century of productivity, the twenty-first century will be the century of quality (Juran & Godfrey, 1998).

The objectives of total quality management are lower costs, higher revenues, satisfied customers and employees involved. Quality management not only means meeting production specifications and requirements, but also meeting or even exceeding customer needs and expectations, optimal product features, rigorous documentation and correct invoices. TQM can also include the correct conduct of business processes - timely delivery, specialized and error-free technical support, but also the reduction of the percentage of non-compliant products (Zairi, 2005).

The word *quality* has taken on a new dimension in the automotive industry in recent decades. Quality is no longer just a statistical point of view on the absence of defects, it has acquired a much broader meaning, which involves a customer's feelings about a product and the company that produces it. The new approach to quality involves elements of performance, comfort, environmental protection and accessibility.

In the direction of raising the quality level, significant changes have taken place in the automotive industry in anticipating customer requirements. Many carmakers have conducted sophisticated demographic surveys to find out more about the potential consumer. On the other hand, the relationship between car manufacturers and their suppliers has shifted to another level of involvement. Both the car manufacturer and the supplier are involved in the development of quality improvement projects, plans and mechanisms, leading to increased mutual trust and improved quality in the automotive industry (Juran & Godfrey, 1998).

As consumer awareness has refined and competition between car manufacturers has increased, production systems have improved and major adjustments have been needed in the time needed to design, produce and launch new models to stay competitive. Thus, the normal deadline of 36 months for the design and launch of a new car model is no longer acceptable, and Toyota has managed to reduce it to 23-28 months. The new target that Toyota has set is 18 months, half the technically set time (Juran & Godfrey, 1998).

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An important aspect of the production process is the relationship with component suppliers, which provides 85% of the parts that make up a vehicle. Ensuring good quality parts, delivered on time, is one of the key aspects for both reliability and efficiency. The absence of an important component can stop the assembly line. Toyota was the pioneer of the Just-In-Time manufacturing system, in which suppliers send parts daily or several times a day and are notified electronically when stocks run out.

According to Gary Fane, Toyota's network of suppliers, along with rigorous planning and coordination, has made it possible for the company to always respond promptly to short notice orders. The network of suppliers at the heart of the Toyota Production System (TPS) is the key to this success, which is why Toyota is doing its best to improve and protect this relationship (Fane, 2008).

Component companies can be a great help to the car manufacturer in providing design expertise, but in order to implement this activity, the manufacturer must allow the supplier to participate in the early stages of vehicle development, which is a big step in the philosophy of partnership. This activity is not short-term and requires the development of mutual trust between supplier and producer. This type of partnership has long been a strong point of the Toyota system, the company being confident that, through a close relationship, a supplier can become stronger and more efficient and many companies within the Toyota group have acquired the expertise of the production system. (TPS) in relation to their suppliers (Juran & Defeo, 2010).

IV. LEAN PRODUCTION OR TPS: IMPLICATIONS FOR THE GLOBAL AUTOMOTIVE INDUSTRY

Toyota first ventured outside of Japan when it formed a joint venture with GM in the 1980s. Toyota took over a trucking plant in Fremont, California, which had been closed by GM. The Japanese manufacturer was the pioneer of the internationally recognized production system, known as TPS - Toyota Production System. Toyota's production system is based on its own concepts of efficient production and has the following two main elements: Just-In-Time (JIT) and Jidoka. Just-In-Time is a production method by which the necessary parts and components are manufactured and delivered in the right quantity in a timely manner. This allows Toyota to maintain low inventory levels while maintaining operational efficiency. When the factory reopened, it exceeded all US GM standards in quality and productivity. It is noteworthy that Toyota did this with almost the same workforce that GM had hired. Toyota has been able to build trust with its employees. Even when the factory was operating far below capacity, no workers were laid off (Fujimoto, 1999).

Toyota believes that this production system allows it to achieve efficient production, even for small production volumes. This system offers the flexibility to respond to ever-changing consumer demand without significantly increasing production costs. While TPS remains the basis of automobile production, it has been expanded to be used in parts production, logistics and service activities.

TPS seeks to increase manufacturing efficiency and internal product quality by identifying and analyzing issues, improving transparency throughout the production process, and resolving source issues. As a means of achieving these goals, Toyota has introduced the use of sophisticated information technology to improve every stage of the vehicle development process, from design to mass production.

These technologies are designed to increase flexibility, simplicity, quality, cost competitiveness and speed. Specifically, the detailed computer simulation of the assembly and testing of a new vehicle or new vehicle equipment or production system shall be performed before a prototype is made. A real prototype is made only after the defects and related problems have been identified and solved by computer simulation, thus reducing the time required to rebuild the prototypes and significantly shortening the time required for production. Moreover, this system is used to prepare virtual factories and other means of assistance, in order to facilitate training and communication with factories around the world and to allow the efficient transfer of the necessary technology and skills.

Toyota has developed a corporate culture in which employees are trained and trained better and faster than their competitors. It is an organization that places special emphasis on learning, which continuously improves not only its production processes, but also its management processes (George & Wilson, 2004).

Toyota's production system has created what is known as lean production, a concept that is highly valued by American automakers. Lean production involves the elimination of waste at every stage of the production chain, based on the inventory control method that Toyota's Taiichi Ohno designed in the 1950s, now known as Just-In-Time. By applying this concept, there have been significant cost reductions by both manufacturers and suppliers, while ordering, building and shipping materials and vehicles on a traction system or at the request of customers. With stock depletion, hidden quality issues are quickly highlighted and need to be addressed immediately. This is often called lowering the water level, which will expose previously unknown or hidden rocks (or problems). In this way, poor production brings important quality assurance benefits.

V. THE KAIZEN PRINCIPLE AND THE TOYOTA WAY

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Toyota Way is more than just a Japanese way, it is a culture that requires constant and continuous improvement of activities and quality, closely related to respect for people (employees, customers and suppliers), which is another important element. This is the fundamental way in which Toyota looks at the world and develops its business. Toyota Way, together with the Toyota Production System (TPS), forms the DNA of Toyota, born with the company's founders and which continues to be developed and fueled by current and future leaders (Liker, Jeffrey K., 2004). The company puts consumer wishes first, which are constantly changing, but also builds strong relationships with suppliers.

With a view to reducing costs, Toyota continues to focus on shortening production times and improving efficiency through various measures, such as reducing the number of platforms used in vehicle production. By using a common platform to produce more models, Toyota is able to reduce the substantial costs required to design and develop multiple platforms, considering that it will be able to reap the benefits of producing more volumes on one platform, thereby reducing manufacturing costs on the vehicle.

Toyota is trying to increase the efficiency of sourcing from external suppliers using a common global database to enable factories in different parts of the world to purchase parts and materials from the most competitive sources. In addition, Toyota is involved in *Value Innovation* (VI), which focuses on systems-based cost innovation, going one step further than item-based innovation. By adopting a new design approach, Toyota aims to achieve cost reductions by treating associated parts as integrated systems.

In terms of innovation, Toyota was ranked 41st among the 50 most innovative companies in the world by Boston Consulting Group in 2020, with a surprising talent for innovation.

Toyota plans to spend $ 100 million over the next four years on advanced research in North America and will use the existing space in the facilities on the Toyota Arth Center campus to pursue the development of sustainable mobility issues, which address four key priorities: advanced technology, urban environment, alternative energy and partnerships with government and academia. Based on these priorities, Toyota will accelerate advanced research on energy and the environment, safety and mobility infrastructure.

The Toyota model can be briefly summarized by the two pillars that support it: *Continuous Improvement* and *Respect for People*. Continuous improvement, often called kaizen, defines Toyota's core approach to running a business. The real value of Toyota's continuous improvement is to create an atmosphere of lifelong learning and an environment that not only accepts but also embraces change. Such an environment can only be created where there is respect for people - where the second pillar of the Toyota Way originated. Toyota demonstrates respect for employees by providing job stability and seeking to engage team members on an ongoing basis by actively participating in improving the company's operations (Liker, 2004).

The consistency of Toyota's performance is a direct result of operational excellence, which is based in part on tools and methods for improving quality in production, such as just-in-time, kaizen, jidoka and heijunka. These techniques contributed to the start of the *lean manufacturing* revolution. Toyota's continued success in implementing these tools stems from a deeper business philosophy based on understanding people and human motivation. Its success is ultimately based on its ability to cultivate leadership, teams and culture, to develop a strategy, to build relationships with suppliers and to maintain a permanent state of training.

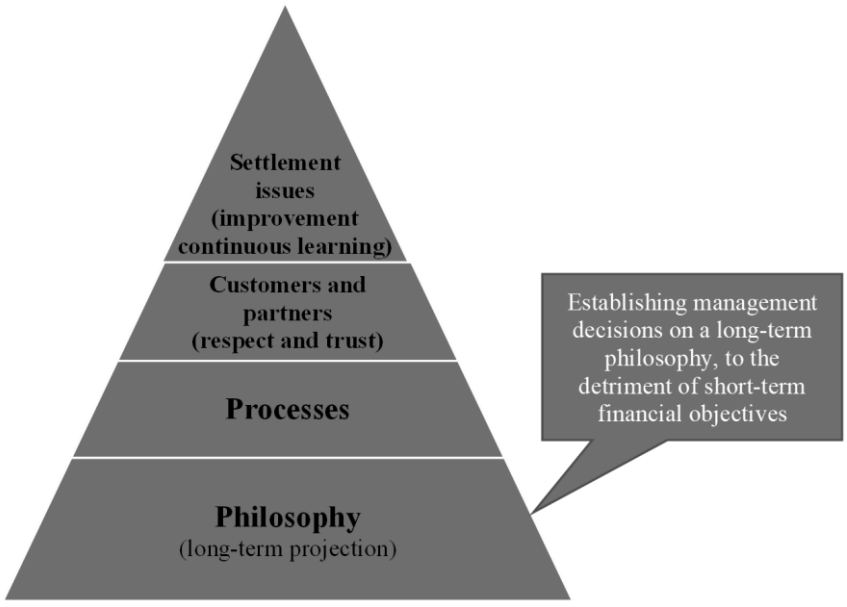

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Figure 1: Toyota Way's business principles
Source: prepared by the author, based on Liker, Jeffrey K., *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer*, McGraw-Hill, 2004, p. 90

Kaizen is the Japanese term for continuous improvement and is the process of making continuous improvements, however small, in order to achieve the set goal. Kaizen educates individuals to work effectively in small groups, to solve problems, to document and improve processes, to collect and analyze data, and to self-manage in a working group. This mechanism makes it up to the workers to make decisions (or draft proposals) and requires open discussion and group consensus before implementing any decision. Kaizen is a total philosophy that strives for perfection and supports TPS.

Toyota Way's business principles are: developing a long-term business philosophy and establishing management decisions based on it, to the detriment of short-term financial goals; a correct production process will result in quality products; avoiding overproduction and establishing workload.

Toyota production systems are more efficient and cost-effective than their competitors, with most innovations being made in the production system, leading to very good results and maximum profits. The Toyota Production System (TPS) and Toyota Way have become a landmark for organizations even outside the automotive industry, but also a source of inspiration for many books and research. Toyota employees are portrayed as sculptors who take pride and personal responsibility in their work, which is completely lacking in the factories of the competition (Liker, 2004).

VI. TMC'S POSITION IN THE CONTEXT OF THE GLOBAL CRISIS OF 2008-2010

At the end of 2007, Toyota was the world's leading car company. More profitable than its main competitors for 50 years, with extraordinary records of quality and customer satisfaction, it has dominated the annual quality charts and the quality-price rankings. Toyota vehicles retained their value much better than competitors' products and customer loyalty was top notch. The company has been profitable in every vehicle segment, from small cars to massive SUVs, managing to make even the Prius - the first mass production hybrid - profitable, a performance that, when the vehicle was launched, automotive analysts said it could never happen.

2008 seemed to be Toyota's year in the United States. Toyota cars, SUVs and trucks were selling in record numbers. The United States was Toyota's most profitable market, and new factories were about to start operating, increasing production capacity.

But in the spring of 2008, oil prices began to rise dramatically and the United States was particularly hard hit. By the summer of 2008, gasoline prices in the United States had almost doubled, surpassing prices during the worst oil crisis in the 1970s.

Americans' appetite for big cars has waned and production and sales of these vehicles have almost stopped. It was a shock to the US auto industry, which opened up the US market especially for small Toyota cars. Unlike other manufacturers, which relied almost entirely on large for-profit vehicles, Toyota had an important buffer: its small, fuel-efficient vehicles, which became profitable in the context of changing demand from market. The company ensured not only that it could produce small cars profitably, but also that, by continuously improving production, profitability was stable or increasing. As competitors collapsed in the summer of 2008, Toyota sought and found solutions to balance the types of vehicles produced, based on supply and demand, and continued to implement the production of small, low-consumption vehicles.

In the fall of 2008, there was no doubt that a major economic downturn was under way, which Toyota did not anticipate. Credit markets were blocked, loans were no longer available, which was a real crisis for the car industry, as most vehicles were financed. If consumers could not get car loans, they would not be able to buy cars. Consumers who still had access to credit or who could finance a car by other means stopped buying, under the rule of uncertainty. An unprecedented collapse in car sales has set in, not just in the United States but around the world, and not just for large vehicles, but for all types of vehicles.

Toyota sales in North America fell, and by May 2009 they were 40 percent lower than the previous year. The US dollar depreciated by 15 percent against the Japanese yen between July and December 2008. The combined impact of declining sales and currency adjustment led to a loss of more than $ 4 billion for fiscal year 2009, the first major loss since 1950.

In these times of crisis, Toyota has not changed the company's leadership, made no massive layoffs and closed factories. Instead, he followed Toyota Way to find ways to put the company on a solid footing, continuing to invest in the future. The company's 10-year plan, Global Vision 2010, has been revised and replaced with Global Vision 2020.

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This new vision presents Toyota as a company that integrates the cycles of nature and industry. Toyota's goal was to strike a harmonious balance with nature in order to sustain the environment. Global Vision 2020's long-term goals have provided directions for responding to the crisis, setting the agenda for research and development with a focus on fuel-efficient and environmentally friendly vehicles, as well as increasing investment in hybrid technologies, including battery systems. , electric motors and other technologies, as well as in alternative fuels such as hydrogen. Toyota will seek to develop partnerships with other leaders in the automotive market, with a view to investments and partnerships for the production of all-electric vehicles.

To cope with the crisis, Toyota has had to cut back on funding for research and development, as well as new product launches. Toyota has dropped from number one globally in 2008 to number four in 2009, according to Booz Allen Hamilton's annual review - The Global Innovation 1000 on global R&D spending. However, Toyota spent $ 1.8 billion more on research and development than its nearest competitor in 2009.

VII. CONCLUSION

Toyota was ranked third among the 50 most innovative companies in the world by BusinessWeek in 2020. This conservative company has a surprising talent for innovation.

The U.S. Patent and Trademark Office granted Toyota more patents than any other automaker in 2020, according to an annual ranking by the Association of Intellectual Property Owners (IPO). Toyota engineers and scientists received a total of 2,819 patents in 2020, up 4% from 2019 and far surpassing any other carmaker in the United States. Every hour, Toyota invests more than $ 1 million in emerging technology globally and, since 2017, has invested more than $ 1 billion in research and development in the field of vehicles and robotics.

Toyota announced in 2019 that it will grant copyright-free licenses for electric vehicle technologies, but will also provide technical support, for a fee, to other manufacturers who will develop and sell electrified vehicles when using Toyota engines, batteries and Toyota electronic control as part of their propulsion systems.

Toyota will offer approximately 23,740 patents for the development of electrified vehicle technology over a period that will last until the end of 2030. As of January 2015, the company has already granted 5,680 patents related to its electric cell vehicles combustion (FCEV). Added to this are approximately 2590 patents related to electric motors, 2020 patents related to PCU, 7550 patents related to system controllers, 1320 patents for gearboxes, 2200 patents for electric chargers and 2380 patents for fuel cells.

By granting these patents without copyright and providing technical assistance for its vehicle electrification systems, Toyota aims to help further promote the widespread use of electrified vehicles and thereby assist governments, automakers and society generally achieve environmental protection objectives.

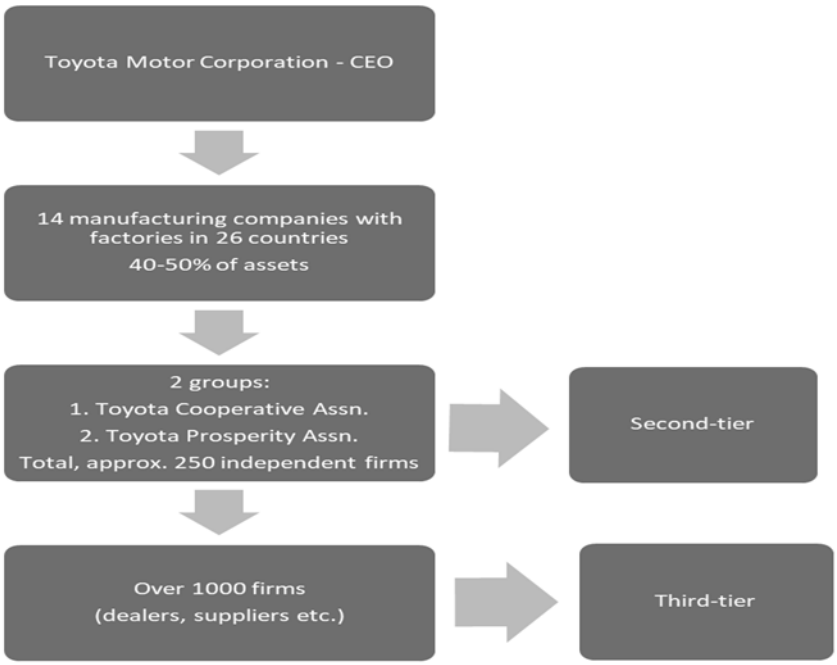

Figure 2: Elements of the Toyota Motor Corporation organization chart
Source: prepared by the author, based on Kenichi, Miyashita, Russell, David, *Keiretsu: Inside the Hidden Japanese Conglomerates*, McGraw-Hill, 1996, pp. 134-137

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Toyota has also established a collaborative relationship with Volkswagen in areas such as recycling and navigation technologies. In addition, Toyota has entered into an alliance with PSA Peugeot Citroën for the development and production of cheap, fuel-efficient and environmentally friendly vehicles.

Toyota's production systems are more efficient and cost-effective than their competitors. Most of Toyota's innovations have been made in the production system and have been better managed to achieve the best results and maximum profits. Examples such as Toyota Production System (TPS), Total Quality Management (TQM), JIT (Just-In-Time) and better long-term relationships with their suppliers have given Toyota this undeniable competitive advantage, which its competitors strive to achieve reply. These processes and continuous improvement are an integral part of Toyota's work culture. The Toyota Production System (TPS) and Toyota Way have become a landmark for organizations even outside of this industry, but also an inspiration for the topics of books, studies and research.

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