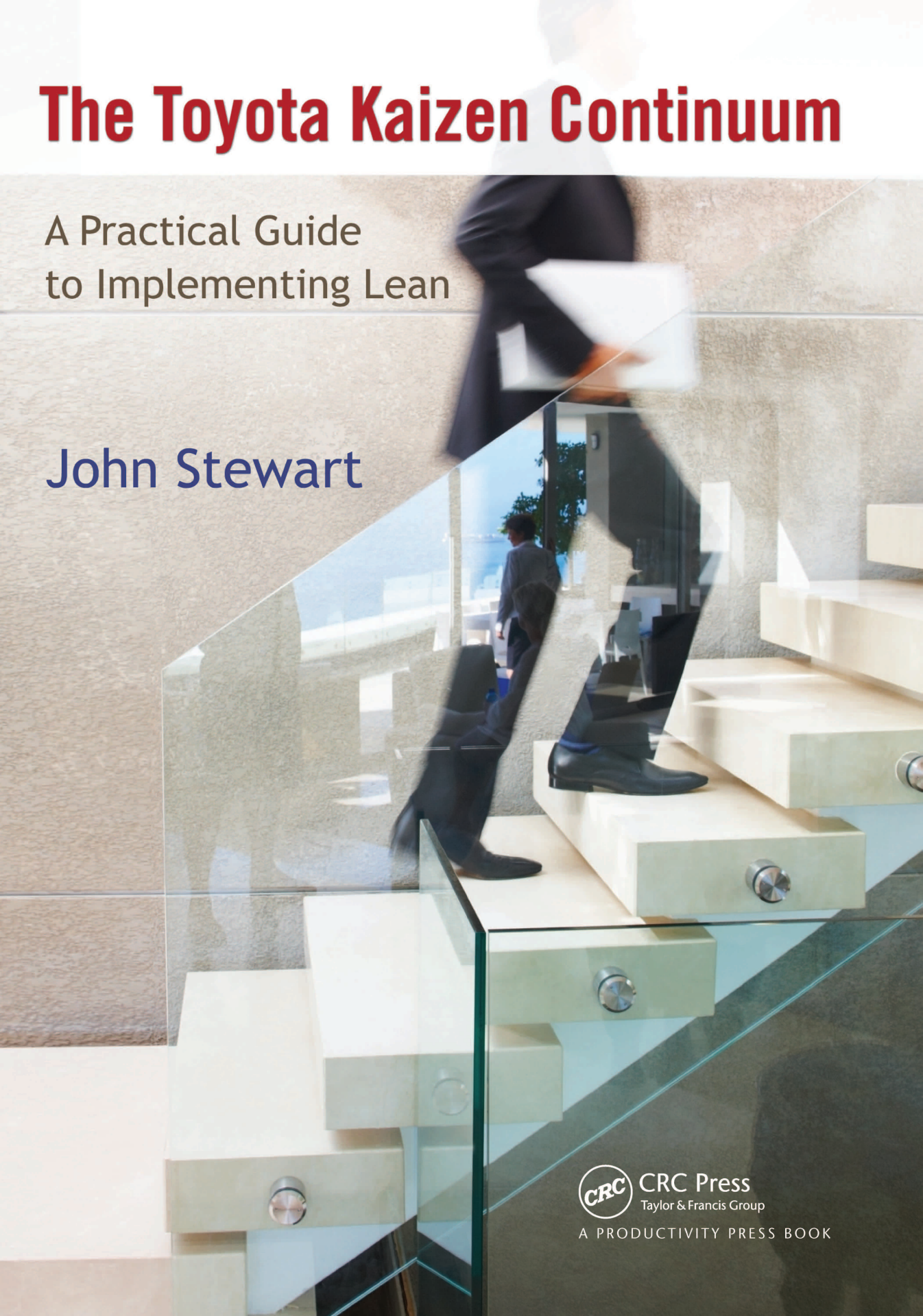


The Toyota Kaizen Continuum



A Practical Guide
to Implementing Lean

John Stewart



CRC Press

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A PRODUCTIVITY PRESS BOOK

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Preface

When I began my career with Toyota in 1989, I had no idea of the path that I had undertaken. I started as one of the first production line employees. Toyota called us *team members*. When I left Toyota in March 2007, I was responsible for Toyota's largest European division. Over the course of my eighteen years with Toyota, I had the opportunity to learn many things that have defined me as an operator of companies today.

Today I work with a private equity firm where I am responsible for managing the operations of a diverse portfolio of businesses. As an investor, our job is to work with the management team of the companies to create value. The value we create is how we create a return for our investors. In both environments, I have learned many things and have successfully applied them to create value. However, during this transition, I have identified some of the barriers that companies that lack the resources and the structure of a company like Toyota face when trying to follow the principles of the Toyota Production System (TPS).

There are too many books that are purely academic exercises that have no real substance and no real merit for the majority of businesses trying to create value in these difficult times. I find it humorous that some have successfully regurgitated Toyota philosophies by defining a system based on a utopian operational environment and slapping a badge of authenticity on the cover. Some of the more recent publications seem to be more of a publicity stunt for a Japanese company that wants to control the image of how it is perceived. Even if this is the case, that is really of no concern to me. My concern is that there are a lot of business leaders who are looking to drive real operational value through their organization. I have written this book to provide real insight into how to use the TPS to drive operational value in any organization.

I don't fault the authors of the above books for their failure to provide real insight into the system. The majority of misconceptions concerning

the TPS originate from the sheer number of tools Toyota has developed for implementation. Many organizations are successful at implementing some of the tools of TPS; however, without an adequate roadmap, they often find themselves wandering without a real vision of what needs to be accomplished.

When I was with Toyota I spent over eighty-eight weeks in Japan at the Toyota factories learning from the modern day TPS masters. These are people who will never write a book, because they are too busy actually implementing the system. I have written this book in order to provide the reader with the insight from these masters.

I not only had the opportunity to learn from the masters, I was also responsible for training others on a global basis on the TPS. During the course of my career of training people about its various aspects, I have come to find that there are three types of people who are teaching the TPS:

1. Self-Proclaimed Master—Those who can teach but have never done it themselves
2. Master—Those who can master the skills but cannot teach others
3. Master Creator—Those who have mastered the skills by doing and can teach others

Even inside of Toyota, there were those who would teach but could not do it for themselves. This was one of the reasons that I had such a loyal following in Toyota. I was able to successfully teach others because of the many successes that I had by implementing these principles.

During my career, I have talked with a wide cross-section of people, manufacturers and non-manufacturers alike, who take the Toyota tour with the hope of gaining a more complete understanding of the TPS. Most people recognized the terms *just in time* and *jidoka* as principles of TPS, yet they would look at tools such as kanban, andon, and others as TPS principles as well. Almost without fail, they came in with the preconceived notion that TPS is a fixed system, that there is standardized work from start to finish on what to do, the equipment to do it with, and the manner in which it is implemented. Actually this is far from the case. Even inside Toyota!

In truth, the only inflexible aspects of TPS are the principles of just in time and built-in quality. Everything else is simply a tool for helping your organization to do whatever it is that you do the best way possible.

Just in time and *jidoka* are the driving principles behind *everything* that Toyota does. All the tools mentioned before are valid, but they exist solely

to facilitate flow and quality. If you strive to understand the core principles, you will gain a better understanding of the outlying principles as well. If the tools are used without the core principles behind them, TPS ceases to be a system and becomes a short-term fad.

The real questions we must consider are what is the best way to ensure just-in-time delivery, and what is the best method to build quality into the process. Not every solution is the right solution based on the current condition, so by asking ourselves what is the best way to achieve the ideal condition, we challenge ourselves to get better. To think that TPS is an inflexible system and once it is in place the money will flow and problems will disappear will only cause giant economic headaches. Across the organization, Toyota makes *thousands* of changes a day based on the feedback it receives from its operators and workers.

TPS is a system that searches for the best method to get those thousands of changes, the small ideas and innovations that, across the board, are expected of everyone, from the top floor to the shop floor.

The goal of this book is to give you practical examples of how to utilize the principles of the TPS to drive value in your organization. This book is meant for people who leave work every day with their hands dirty and with a sense of pride in what has been accomplished by their efforts. Enjoy.



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The Author

John Stewart is the operating partner for Monomoy Capital Partners, a New York-based private equity fund. At Monomoy, John is responsible for portfolio management. He has worked with numerous businesses of various sizes to increase their bottom line results. Prior to joining Monomoy, John worked for Toyota Motor Corporation for eighteen years. He started with Toyota on the shop floor and worked his way through each level of the organization until he found himself responsible for Toyota's largest European manufacturing division. John was selected by *Automotive News* as one of the top young professionals in the automotive industry in 2007.

John is married to his wonderful wife, Leslie, and they have four children: John II, Sarah, Andrew, and Matthew.



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Chapter 1

Introduction

1.1 Don't Believe Everything That You Read in a Book

Today there are more sources of information than ever before that revolve around Toyota and its legendary production system. No matter how it is labeled, the Toyota Production System (TPS) is simply a logical, common-sense approach to manufacturing. Unfortunately, most of the available information only concerns the theory of application and offers no valuable insight into the practical implementation of TPS. This leads the general public to the dangerous assumption that Toyota's manufacturing operations are a utopian environment. The people who work in Toyota would be the first to say that this is far from reality.

Having worked for Toyota for eighteen years, I can truly say that I have nothing but admiration for all of the people who I worked with through those years. The opportunity to work for a company that started as a small import car manufacturer with little-known models (who knew what a Camry was in 1987?) and grew to become the largest manufacturer of automobiles in the world has given me unique insights into the application of the TPS in various environments.

The truly fascinating aspect about all of the things that have been written about Toyota is that Toyota would never say these things about itself; this goes against the true culture of modesty at Toyota. I remember one occasion, when I was working at the Toyota facility in Georgetown, Kentucky, and we had been invited to visit one of our suppliers to review their improvement activities. I was traveling with one of Toyota's renowned experts on the TPS who had the well-deserved reputation as a knowledgeable and stern sensei when it came to adhering to the principles of TPS. He had reprimanded me



Figure 1.1 Disorganized Plant.

on many occasions for what many would consider trivial issues at our facility in Georgetown. Given his proven reputation as a hardass, I was curious to see his response to one of our supplier's facilities where they were still in a stage of infancy when it came to implementation of the TPS.

As we arrived at the plant, the first thing I saw were old pallets stacked haphazardly against the side of the factory, followed by a graveyard of obsolete equipment quietly rusting in an adjacent field. As I turned into the parking lot of the facility, I thought to myself, "The management team of this facility had no idea what they were in for." For some reason all I could think of was a time when my sensei had been touring my facility and had noticed the label on the back of a parts rack, known in Toyota as a flowrack label, that had a trivial discrepancy with the standard.

My sensei had lectured for what seemed like hours on the process and methodology of the kanban and how the flowrack was only to hold no more than two hours worth of stock and why two hours and not two hours and one minute, etc. For a facility in such a state of disarray, I was expecting the reprimand for the plant manager of the supplier's facility to be of epic proportions.

We were greeted by the president of the company and the plant manager in a conference room. As we exchanged pleasantries, they shared with us their understanding of the TPS and what they considered to be their

operating philosophy. We were scheduled to go on a plant tour after lunch, but my curiosity got the best of me, and I asked if we could go to the shop floor first; the plant manager gladly agreed to my suggestion.

The degraded exterior of the plant was, unfortunately, an accurate indicator of the interior. I was beginning to feel bad about the criticism that I knew was coming. I just hoped that I could somehow elude the onslaught. After years of experience at Toyota, I had thickened my skin to the point where criticism was taken professionally instead of personally. At Toyota, everything was viewed from the standpoint that there was always an opportunity to improve. Even when we reached a target, we would be criticized that the target had been too low, etc.

After visiting the shop floor, it was obvious to me that this facility and the management team did not have this same frame of reference. While the plant manager was busying himself showing us the operations and the plan for improving the operations, I studied my trainer's body language, looking for signs of the reproach to come.

To my amazement, we finished the plant tour without incident! Not one criticism from my sensei. We returned to the board room and had lunch with the president, plant manager, and the rest of the management team. The president asked my sensei what he thought about the facility and its current operational initiatives, and where he thought improvement was needed. I was wearing my best poker face and thought to myself, "Hold on, here it comes." I watched as my sensei stood up and politely thanked them for having us in their facility. He then spent the next thirty minutes telling them all of the *good* things he had seen on the shop floor. Hoping that my face did not reveal the shock that I felt on the inside, I listened intently to his praise for what he termed best practices. When he had finished his praise, he told them that they may realize additional opportunities by emphasizing standardization and workplace organization. I sat in my chair momentarily stunned and thought, "That's it? You have got to be kidding me, this place sucks!" We exchanged our goodbyes and set a date to return in three months time.

As we made our way back to the plant, at first we rode together in silence. After finally trying to come up with the right words, I asked my sensei why he did not take the opportunity to point out all the areas in the operation where there were serious concerns. I reminded him of how he would always find the smallest errors at the plant in Kentucky and deliver a browbeating lecture to me and my team. It was then that he revealed something to me that to this day I have found very valuable; he reminded me that Toyota had been working for over fifty years to implement TPS, and although we did

many things correctly, we still had a long way to go. Since we still had so much opportunity and room for improvement ourselves, we should always be *humble* when working with people trying to implement the TPS. In regard to the company we had just visited, the condition of the facility was obvious. Had our goal simply been to measure them based on the condition of our facility, then we could have spent hours pointing out all of the concepts that had been misunderstood and the obvious areas of concern. However, the goal of our visit was to encourage them to continue looking at their operation with a critical eye, looking for opportunities of improvement; therefore, it was much more beneficial for us to develop a relationship of trust and make it our duty to *teach* them to see the things that we had observed and were obvious to our trained eyes. The only real way that they were to improve their factory would be for them to see what we saw and take action based on their own understanding.

My sensei explained that since the president and the plant manager had visited our facility earlier, they understood what a finely tuned operation looked like. He even believed that they were ready for us to tell them a lot of negative things about their operation. Therefore, what benefit would that have had for the plant management and in the long term for our supplier? By taking the opportunity to point out everything that was seen as positive about their efforts, my sensei had disarmed them and therefore the management team was more open to our suggestions. By utilizing this method, my sensei had been able to focus their efforts on the aspects that would benefit them the most. He explained to me that had he chosen to be stern and point out everything that was wrong, it was very possible that they would not have asked us to return, and this could have possibly discouraged their improvement process. This not only would have been bad for them and their employees, it would not have benefited us at our facility in Georgetown either.

As I listened to the words of my sensei, I was reminded of a lesson that I was taught as a child; always show respect while in another person's home, as you are not only representing yourself, but your family as well. This story of the supplier's efforts to implement TPS illustrates the true essence of Toyota culture; it is built upon modesty, not arrogance. Once arrogance enters the system, complacency is not far behind. Many of the books concerning Toyota on the market today have not done justice to the philosophy of modesty that is so important to the culture of Toyota. This is something that Toyota themselves have recently been learning the hard way. With all of the growth that Toyota has seen over the last ten years, there was a

big push to bring in executives from other auto manufacturers, mainly the U.S. three (GM, Ford, and Chrysler). Such an influx of senior leaders in the Toyota organization in North America has not allowed the basic principles of Toyota to be thoroughly understood; as a result, modesty has given way to arrogance.

Another fallacy found in many current books is that Toyota is the picture of perfection. Most of the material does a wonderful job of telling the story of how things should operate inside a facility that embraces the essential philosophy of the TPS. There is little reference to the problems caused by implementing the TPS. Problems exist for every organization that has ever tried to implement lean manufacturing concepts, even inside Toyota facilities.

During the years of Toyota's growth, there were numerous occasions when things did not go as planned. Implementing TPS cannot only be costly, but it can also cause significant problems and pose a severe risk to the stability of the operation if not managed correctly. Some authors insinuate that the TPS is the perfect way to manufacture products; this is just not the case. The *search* for the perfect way to manufacture products is the TPS.

Take a mountain climber, for instance. Mountain climbers have to prepare themselves for months and sometimes even years before setting out to climb a mountain. They study all facets of the mountain, the terrain, the geology, the weather, and they even spend time acclimating their bodies to the conditions of the mountain. If the only purpose of a mountain climber is to get to the top of the mountain, there are many more efficient ways to get to the top of a mountain than to just climb up the mountain. However, the accomplishment for the climber does not come from the sole act of reaching the top of the mountain itself; it comes from the complete journey to get there. Climbers often climb the same mountain multiple times. When, at the end of their climbing career, they are telling stories to their friends about the climbing experiences, they may focus not only on the climbs that were successful, but on the failures as well. For a mountain climber the ultimate success may come from reaching the elusive peak of the mountain. Often, however, the most rewarding part of the journey is a point on the mountain where it did not look as though they would be successful. It was at this moment that a decision had to be made based on the progress that had been made, their physical condition, and the resources remaining. This same analogy is true for those who have had the experience of implementing the TPS. Some refer to this process as their lean journey.

A true student of TPS is only happy when he or she is placed in a nearly impossible situation with little or no resources and has to find the way. This is the indispensable attitude that is lacking in those managers and executives who only stand on the sidelines and cheer versus those who actually prepare themselves and participate. This is one of the challenges facing Toyota today. Newly hired executives in the United States who do not have the benefit of having grown up through Toyota's system lack insight into the basic foundational principles of the TPS. Toyota's ability to properly train senior managers going forward will define whether Toyota will be able to work through the current problems being experienced in the Toyota of today in order for the Toyota of the future to be more representative of the Toyota of yesterday.

Just googling "Toyota books" will return over one million hits in a fraction of a second. I actually enjoy reading some of the various books and articles that abound on Toyota and the TPS. I find it amazing that someone can tour a Toyota facility for a few days and author a book that restates everything that is already known, without providing any real insight into the actual process of implementing the TPS. Based on the fact that Toyota's system is a process-driven system, this is counterintuitive. These materials are disappointing from a content standpoint, as they tend to leave the reader with a void. Unfortunately, most often the void is the lack of any real substance that will lead the reader toward a further understanding of how to put any of the concepts into action.

How can you learn to drive a car from someone who has never driven a car? Although this sounds ridiculous, this is exactly what is happening at many universities, manufacturing facilities, health care providers, and offices across the country today. People who have spent time writing books glorifying Toyota in every way possible leave a path of dissatisfied executives who have tried to follow the principles laid out as "Toyota principles" only to end up with a very un-Toyota result. My goal for writing this book is to provide readers with an understanding of the topics that can be readily utilized to take immediate action in their respective organizations.

1.2 ABC's of TPS

During my tenure at Toyota, many people would request to visit one of our facilities. Whenever we had guests at Georgetown, I would be part of the group that met with the visitors to try to explain what they had seen during

their visit. Generally, people would visit the Georgetown facility to gain a better understanding of the company and see how the production system was applied for *everyday use*. Many times the visitors would actually be competitors who would come for the plant tour looking for the “secret” of Toyota. While showing them the facility, I would explain the philosophy and purpose of the TPS, and there would be an expectant look in their eyes, as if I were about to produce some magic that they could take back and immediately implement into their own manufacturing process. That look would gradually fade, only to be replaced with an impassive face and suspicious eyes; they always thought I was holding out. The problem for them was that the solution they were searching for was too simple for them to realize that it was a solution at all.

Without fail, when the opportunity to ask questions arrived, they would start to ask very specific questions about *this* specific process or *that* specific piece of equipment. They were searching for something, even though they did not know what they were searching for. They believed that they would know it when they had seen it or when they had heard the correct answer. One time I actually had someone say, “Now that you’ve shown us everything on the tour, why not let us wander around on our own?” I was a little bit taken aback by the request, given the fact that the facility in Georgetown is over seven million square feet of manufacturing and offices with over seven thousand employees. I tried not to be rude and asked the visitor if it was common practice at his facility to allow visitors to wander around freely inside his facility. Of course, he said no. I explained to him that I was trying to be completely open with him about everything that we did and I was not hiding anything. I asked him what he was really seeking from the visit that he had not been able to ascertain from what I had already presented. He said that he *knew* that we *had* to be hiding something from him. He said that all we had shown were basic manufacturing principles and processes. He said that there had to be some piece of equipment that gave Toyota a competitive edge, and all he could see was very simple equipment that could be found at almost any auto manufacturer. I told our visitor that I had attempted to be completely open and that I would be happy to show him anything that he would like to see and to answer any questions. However, if he wanted to understand the secret of Toyota, then I would explain that to him as well. I explained that the secret to the TPS is not a piece of equipment or a specific method, and if he really wanted to understand the secret to Toyota, all he had to learn was his ABC’s. He gave me a confused look and asked me to explain. This is what I explained to him: