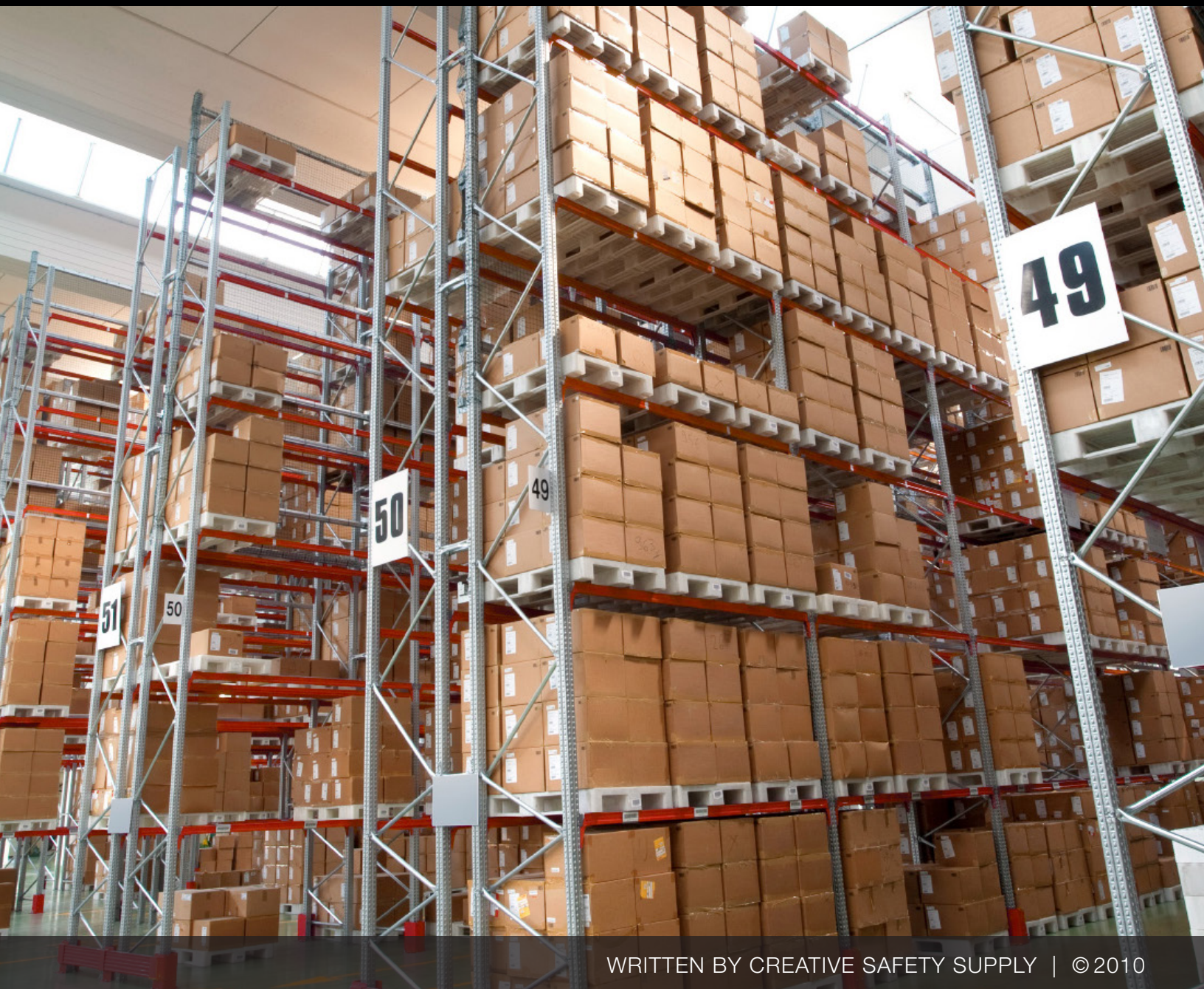


# the art of **KANBAN**



WRITTEN BY CREATIVE SAFETY SUPPLY | ©2010

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## WHAT IS KANBAN?



You might not be familiar with the word [Kanban](#) but you are probably familiar with the process. Many businesses and homes already use an organization system that is loosely based on Kanban without even knowing it. Simply put, Kanban is an organizational system. The point of this, and really any organizing system, is to keep products running in an even manner. Kanban is a way of providing signals so that the process of maintaining inventory is simplified.

The word Kanban comes from the Japanese and means billboard or signboard. This word is used because Kanban relies heavily on cards that are used as markers for moving and replacing inventory. The whole system centers around these visual cues that help you maintain inventory at the proper levels so that you never keep too much or too little of your products or

## The Art of **Kanban**

materials in stock. In order to use Kanban effectively it is important to understand a few other concepts related to it.

### **Kaizen And The Five S's**



[Kanban is an inventory system](#) that is normally integrated with Kaizen and 5S. Kaizen, is also a Japanese creation, the word means continuous improvement. Companies that use the Kaizen system are constantly on the lookout for ways to improve their operational functions. In some companies there are teams of people whose job is to find ways to cut costs and improve working conditions. In a Kaizen system this is a job for every employee. Successful Japanese businesses like Canon and Toyota use this system. They ask that every employee suggest ways to improve the company on a regular basis. They mean every employee too, whether it is the janitor or members of upper management, all suggestions are taken under consideration.

## The Art of Kanban

When these companies ask for suggestions they expect, and get them on every aspect of their business. Someone working on the production line may have a marketing idea or someone in marketing a production idea. The ideas are not limited to big changes; they can be little improvements that help how the business runs overall. In America we tend to run our lives in a mentality of “do not fix what isn’t broken” whereas the Kaizen system is based on the idea of “doing things better, improving even if it is not broken so that we can compete with those who do.”

The Japanese apply this concept to all aspects of their lives, even in social situations. This is in part why they have been so successful in manufacturing and other business ventures. If you set high standards and allow every employee to help improve those standards the odds of success are in your favor.

Another concept borrowed from the Japanese and integrated in Kaizen is the Five S program. The Five S’s are simple and common sense principles to running a business. By using them you can provide your employees with an effective system that maintains cleanliness, visual order, organization, and standardization to the business production lines. This will improve your business while also empower your employees to be more efficient and to pay close attention to service and safety. Those things combined will lead to an overall better work environment and increase in profits.



## What Are The Five S's?

**1. Sort** - Sorting is the process of going through each work area and getting rid of any equipment, tools, or other materials that are not often used. These excess things will be moved to a storage area or discarded. The result is to have a much cleaner work area that is not just aesthetically pleasing, but easier to maintain. It improves employee safety, and lessens the chance of confusion and wasted time.

**2. Set In Order** - This second step is all about organization. Examine your work area and see to it that everything has a place. Set out to label spots for materials so that they are easy to identify and locate. If your work area is in production, paint or clean as necessary and mark out lanes for work areas, storage, and finished products.

**3. Sweep** - This step is an ongoing cleaning of your work area. Since you have taken the time to organize everything neatly you will want to ensure that it remains that way. Set up a schedule for regular and daily cleaning so that you leave each day with your work area in the same condition as when you started. You should also inspect equipment and tools for damage or leaks, this way you can fix the problems while they are still minor.

**4. Standardize** - One of the ways to make sure you and your employees do not fall back into old habits is to standardize the way things are done. You might consider making posters that direct employees to the new standard of maintaining their work areas so they are less likely to revert to old habits.

**5. Sustain** - This might be the most difficult step in the program, sustainment. The best way to maintain the previous steps is to have a formal way to monitor the results of your effort. You must continually educate employees on keeping up with the standards and adjusting to any changes.



## The Art of Kanban

If your workers employ the Five S's to their work area and feel empowered through the Kaizen system of improvement it will be easy for them to then also use Kanban. Most Kanban systems rely on the previously mentioned cards and bins. The system is a simple act of placing bins on the floor of your factory, one in the store, and one with the supplier.

When these bins are empty there is a card that has all of the details about the product on it, the Kanban card. When the factory bin is empty, it can be easily sent to the store for more of the product, along with its Kanban card. The same process then happens at the store as their bins are emptied they go to the supplier to be refilled.



One other concept is the JIT or 'Just in Time' production method. The two former ideas combined with Kanban organization allow you to get the materials you need in time for use. The system will prevent you from having a lot of excess materials lying around, instead you will have them when you

## The Art of Kanban

need them. As a fact, you should have them “just in time” to meet your production needs.

By using these methods there will be enough time to refill one bin before the previous bin is completely empty so there is never a lag in materials. It becomes a cycle of refilling stock just in time without too much extra inventory, or a lack thereof. Some factories keep an extra bin for fluctuations in supply, however with properly managed calculations there is little need for the extra bin.



## ORIGINS OF KANBAN



As previously mentioned Kanban began in Japan. The world renowned carmaker Toyota began studying supermarkets in the 1940s. Supermarkets have a unique in store system that use in store stocking techniques. Their system always provides for adequate amounts of products on the shelves without having to store excess amounts because customers know they can always return to the store for more. Toyota believed that this same process could be applied to the factory floor. The demand for the product guided the ordering of products and their placement on the shelves. In 1953 Toyota began using this system of Kanban in the machine shop of their main plant.

At Toyota they applied a number of rules to Kanban and to their plant which helped tie the whole system together. Some of the rules included to never sending defective products down the line, and withdrawing only what is needed in the process. These rules may seem obvious, but in writing them down and actually implementing them in the running of a plant they were not

## The Art of Kanban

forgotten. Toyota eliminated a lot of human error, and therefore improved productivity and profits.

At Toyota they knew that the demand for materials would need to be pulled by employees so they needed a system to help them do that efficiently. By using Kanban cards they were able to implement this system, along with a few other rules, in order to make their company run effectively.

Although there were other manufacturing giants, like Ford Motor Company, who used a manufacturing strategy, Toyota took it all one step further. Under the direction of Taichii Ohno they also recognized the knowledge and importance of listening to ideas from all employees. In addition they worked on ways to use their systems for a variety of products or for multiple products at the same time.

Soon the successes of Toyota lead to the Kanban process being used all over Japan. Once the quality of the system was apparent it began to be used all over the world. There were, of course some failures because many companies were resistant to implementing all of the aspects of the Kanban system. The sum of all parts of Kanban including the Five S's and Kaizen are necessary to its success.

By the 1980s popular American companies like General Electric were using the Toyota system, although calling it by many different names, with much success.

## **BENEFITS OF KANBAN**



There are major benefits to implementing a Kanban system in your company. These improvements can reduce costs and increase employee morale. It is important to note that employees who feel valued and who are treated with respect will work harder and therefore improve production. Because Kanban enlists the use of Kaizen your employees will become inherently more involved in the company.

Employee loyalty does not have to be something that you only dream of having. By asking for and taking seriously your employees ideas and opinions you will not only get loyalty, but surely some excellent suggestions too.

## Reduction In Waste And Inventory



[The Kanban system](#) is one that supplies your company with only the materials that it needs when they are actually needed. By doing this your waste is reduced in several ways. First, you will not waste space by storing excess inventory. As all business people know, space comes at a premium cost, so it is important to use every bit of space you have in the best possible way.



## The Art of **Kanban**

Storing excess inventory is usually not the best use of space. One of the other big drawbacks to holding onto an inventory of components is the risk of having to waste them when a part is upgraded.

Since your company will also be using Kaizen and looking for ways to make improvements it is likely that components will be upgraded or changed on a regular basis. If you store excess components you will have to dispose of them every time an improvement is made. This wastes a great deal of money in addition to the space and manpower needed to deal with the materials.

By the same token you will reduce the amount of waste and scrap materials you produce. Again, costs will be cut and your needs for storage will lessen because you will only keep the raw materials that you need at a specific time. Once those diminish, more materials will be delivered so you will not lag in production, nor will you overproduce in an effort to use up excess materials.

## **Flexibility**

When you manufacture something, production is never on the one constant level. Instead there are peaks and valleys that you will need to account for in your business. The Kanban system is able to help you meet these needs because the raw materials are shipped to you through the supply and demand process. When production is high you will naturally get more materials delivered to you and when it is low you will get less.

In addition to controlling materials this system also allows for quick changeover should you need to manufacture a new product. Since the supply chain is guided by your needs instead of a constant stream of materials and storage you can switch to a new product whenever that is necessary. Of course, there are limits based on the machinery you have and employee training, but the problem of supply lines will not be an issue.

## **Cutting Costs**

Cutting costs is probably the most important feature of a Kanban system. If you were to look at your costs for maintaining inventory, you will probably quickly see that it is quite expensive. When you are able to reduce inventory you are also able to reduce costs. The same can be said for reducing overproduction and costs. All of these things cost money, while a Kanban system costs very little to implement and can save in big ways.

Another way that it cuts costs is by reducing logistical costs and wait times. When your employees do not have the materials to do their job you lose money. When you have to pay extra to get the things you need to get your production moving along you also spend extra money. Using Kanban prevents both of these problems because it is all based on supply and demand. You should never again have to pay people to do nothing or pay extra for a rush delivery of supplies.

Kanban is a system that saves time, saves money, reduces waste, and maintains and improves employee morale. If you have all of these things in place, continued success is sure to follow. These principles allow production to flow in a more easy and manageable way so that there are fewer errors and in fact, less room for them in every day processes.

# HOW TO INTEGRATE KANBAN INTO THE PRODUCTION PROCESS



To get started with Kanban it is important to remember that it is a process that must be done over time. You should expect to take several weeks or months to get your system completely operational and to train your employees. It is also important to remain flexible.

Realize that since every company or office is different so is each Kanban system. You will need to adjust and change as you meet different challenges. It is important to note that this is a multi-step process. The process of implementing it in your factory is also multi-step, for long-term success you must be willing to embrace the whole of Kanban not just the parts that are easy.

## Integrating Kanban



**Step One** - Learn all that you can about Kanban. Study how it has been used in your industry and in other industries, knowledge is always key. You might be able to see a video, attend a seminar, or hire a Kanban consultant to help you understand the process.

**Step Two** - Choose the parts of the Kanban system that are going to work best for your business. At its heart Kanban is as simple as a card in a bin, but there are different ways to approach this idea. You might only need two bins instead of three or maybe you need more to make your facility run efficiently. Kanban uses visual cues to remind people to pull more supplies, but you may want to back this up with a computer or bar code system. You might even find that you simply need a Kanban manual for employees to follow as it's guiding principle.



**Step Three** - Plan your system. It is important to figure out where your bins will be placed and who will handle the tasks associated with them. Keep in mind what you need your system to do. Is it to keep materials flowing freely or are you more concerned with information? Once you know that you can set up your Kanban cards.

### Basic Kanban Card Information



- Supplier
- Card number
- Product information like barcodes or SKU numbers
- Kanban amount
- Location of materials
- Date of order
- Lead time
- Due Date
- Part usage

**Step Four** - Set goals. Remember that part of the Five S's is to sustain, so include this in your preplanning. Think about and write down what you want to accomplish with the use of Kanban and how you will measure your goals. Make sure to evaluate where you are prior to using Kanban so that you can adequately judge the results. Try not to limit yourself in terms of creativity and goals. The system, if used correctly can lead you to great success. Be sure that you have a system in place that evaluates the overall company and the conditions that you work under. It would be easy to blame Kanban for failures or to try to cheat the system. Avoid this at all costs by setting clear goals and standards.

**Step Five** - Implement the system. This will require you to gather whatever materials you need, bins, pallets, boxes, and cards. Make sure that all containers are labeled clearly and that the Kanban cards are easy to understand. You will probably start out with more bins than necessary, as your system is refined these will go away until you have the ideal number for your business. Because there is no set way any business operates you need to account for errors. At the beginning you should maintain a stock of additional materials or supplies so that production is not interrupted when breakdowns in the system occur.

Part of implementing the system is also to introduce it to your employees. You may be met with some resistance, as this is a common reaction to change. Do not let it stop you from putting the system to work. Your employees will grow to appreciate a system that reduces the chance for human error while increasing productivity and self-reliance at the same time. Be sure to open them up to the idea of Kaizen. As your eyes on the ground floor the help of your employees will be very helpful in improving the system and suggesting necessary changes to further your success.

**Step Six** - Follow up. Check in daily how the system is working for you and your employees. Request input and be open to taking suggestions, even if you are not sure that they will work. Make changes as necessary. It is easy to get caught up in the excitement of a new system and fail to see its flaws. But you must remember that guiding principle of fixing things before they are

## The Art of Kanban

broken. Even in the best systems in the world there is always room for improvement.

Go back to the goals you set up and see which ones you have met. If you find that your goals are not being met figure out why. There may be something inherently wrong with your system or perhaps the system by which you are judging success. Again, try not to blame Kanban for failures; it is rarely the system that is flawed, but rather the way it has been implemented. Do not be afraid to start from scratch should the need arise.

# CONCLUSION

When most of us think about a company like Toyota we immediately think of success. However, we also think of that success as based on innovations in the design of cars and not necessarily the production of them. In fact, the success of Toyota has as much to do with improvements in production. As forerunners of the Kanban system they figured out one of the best ways to reduce costs was to cut out the amount spent on inventory and lag time. The system, driven by consumer demand, has been and continues to be part of their success. A testament to this success is the use of Kanban systems in also sorts of industries and offices. Even in homes, Kanban is a way to ensure that you have the things you need on hand all of the time.

[Implementing Kanban into your workplace](#) is a great way to improve the productivity. The system is a relatively simple one that lets current demand dictate supply. When materials in one area run low, the entire system goes into action to replace them. Each bin in each separate location alerts another bin to the need for more materials. You will never wait for materials to arrive because someone forgot to place an order because the system reminds itself. You will also never have to spend time and money storing materials or worry about those materials becoming obsolete whilst being in storage.

## The Art of **Kanban**

Instead, the dynamic system of Kanban keeps materials fresh and supports the constantly changing needs of manufacturing.

Remember that the only blocks to success with the Kanban system are the ones you set. An important step in the process is maintenance and evaluation of goals. If you do not maintain the system and show your employees how to maintain the system you are destined to fail. Always improve it; always find ways to be more efficient. If you can do that you will reap the benefits of giants like Toyota.

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