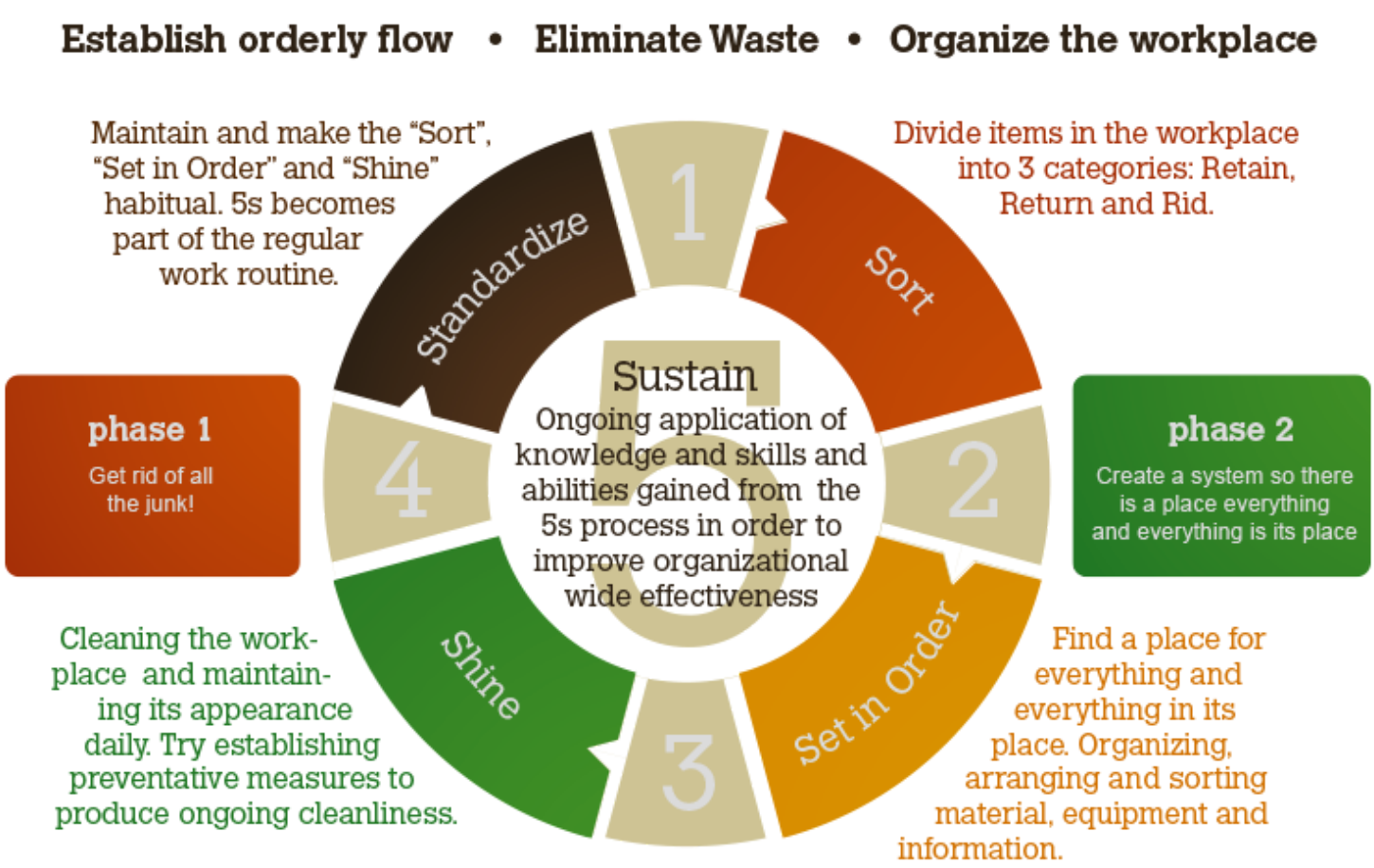
5S Methodology or Housekeeping

Arrelic

Insights



What is it?

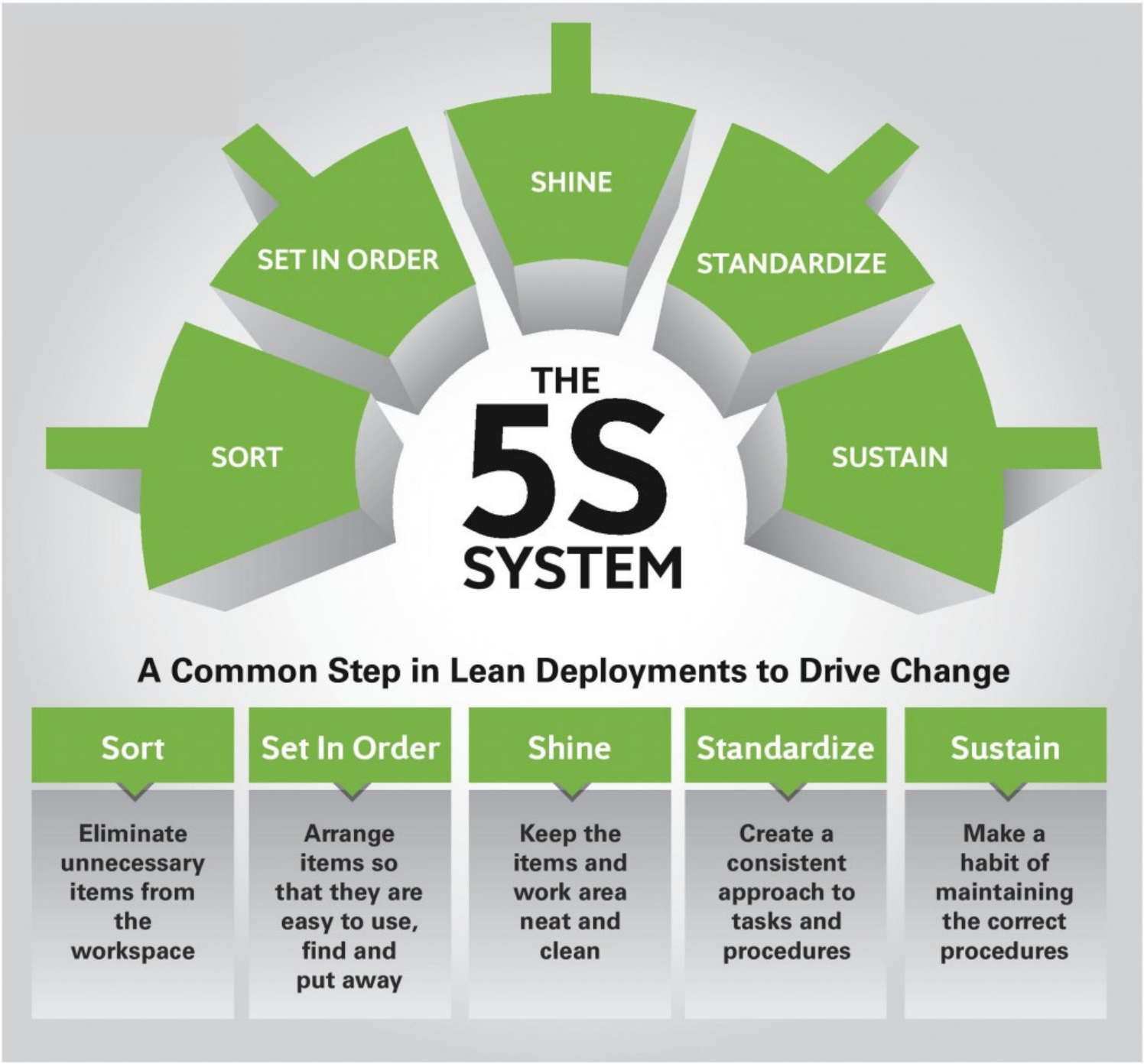
Not a day passes that we don't see the impact of the world-wide economic downturn on the manufacturing industry, including the glass and ceramic sectors. As such, manufacturing leadership is challenged not only with producing superior products, but also with cost control and process efficiencies. These days, the elimination of waste in all aspects of the organization is imperative. Common thinking within process manufacturing is that there are three types of waste: defects, over-processing and waiting (lost time).

5S helps in finding out the abnormalities and helps to clean the waste. While cleaning is an extremely important part of 5S, it must be said that 5S is far more than a housekeeping initiative like so many confuse it to be. As a matter of fact, one of the main purposes of 5S is to be able to identify abnormalities. In other words, if the place we work in is an unorganized mess, chances are we'll rarely be able to spot when something isn't right. But when the things are neat the picture is far more clear. Now when someone refers to 5S they're generally referring to five Japanese words that start with S which are as follows.

1. Seiri, which is commonly translated as Sort.
2. Seiton, which means to Set in Order or Straighten.
3. Seisou, which means to Sweep or Shine.
4. Seiketsu, which means to Sanitize or Standardize.
5. Shitsuke, which means to Sustain or Self-Discipline.

No matter if you work in a machine shop, office, or hospital 5S remains to be the way of increasing your productivity. Now the first reason 5S is so important is its impact on safety. A cluttered workplace is often chaotic and decreases the productivity. It creates and maintains an organized workplace. Waste elimination is one of the most important reasons to implement 5S. The uncluttered workplace will help to increase productivity by decreasing the debugging and search time during emergency situations. Now, the third reason 5S is so beneficial is the fact that its low cost and very high impact. You don't need to spend a lot of money to improve 5S. In fact, you can very well make some money if you sell items you no longer need or use. Next, done correctly, 5S gets everyone in the company involved. It doesn't matter if you wear a suit and tie or a hard hat, 5S knows no boundary. So, it's the perfect opportunity to bring folks that wouldn't normally interact with

one another together and there is no denying of the fact that this type of collaboration makes companies much stronger. Last reason being 5S is the stepping stone of Kaizen or continuous improvement, lean manufacturing concept and total productive maintenance. Okay, well now that we have a better understanding of why 5S is so important, let's discuss each step of the process.



The first step: Sort

This step basically challenges us to get rid of the things we don't need or use. Now, this can be a very hard step for some people since they like to keep everything they've ever come in contact with but this type of hoarding attitude only leads to clutter and disorganization. So, if we don't need it, we need to get rid of it. Now to help facilitate the sort process, lean practitioners often use red tags.

The second step: Set in order

Once we've cleared out all the items we don't need, we need to straighten up what's left. The mantra of a place for everything and everything in its place fits this step perfectly. Let’s take an example to explain the point.A good example of this concept is a maintenance shop that has a board on the wall with an outline of every tool that belongs there. Every tool is visible; if it is not in the appropriate spot, the user can recognize the need to take corrective action ahead of time. Therefore, knowing where to look is the first step at the beginning of a standardized process.

The third step: Sweep or shine

This third concept is based on the fact that the process has now eliminated what is not needed and organized the required tools and equipment for efficient use. The main principle behind this step is to clean to inspect. In other words, if you find yourself sweeping up the same mess day after day, you should do your very best to eliminate the source of the dirt. In fact this is the most significant step to understand that total productive maintenance, kaizen and 5S are very closely related. A dirty production process increases the potential for process variability. For example, consider dirt getting into a batch or coating process and causing rejects down the line due to “foreign material.” A dirty process often requires more time for changeovers due to cleanup-related issues, with the ultimate result being a loss of production or equipment failure. Again, this lost time is considered waste and non-value added time. Potential worker injury is another issue that can be addressed with this step.

The fifth step: Sustain

Most users and research on the implementation of 5S often say this is the most challenging step. It involves making the 5S philosophy a way of life so that the organization can maintain the gains that have been achieved. The concept revolves around practicing the new habits that are being learned. It entails that everyone who is involved feels empowered to maintain order, cleanliness and the standard operating procedures as a normal way of life— as opposed to as a response from an audit finding. This step focuses on defining a new status quo and standard of the workplace. The key to this step is to apply positive tension. In other words, it must be made clear that this is how we intend to operate as a company. It's similar to rope. If a rope is pulled tightly and someone comes along and tugs on it we get an immediate response. However, if the rope is loose and we pull on it we may not realize it as quickly. So this really gets back to being able to .

The fourth step: Standardize

This step is focused on creating standards so abnormalities are easily recognized .Things like checklists and audits are very helpful. Also, some companies even engage in corporate 5S competitions where the monthly winner gets the hold local 5S trophy for the month, while the last place team gets the opportunity to partake in a brown bag lunch with the general manager of the facility as they explain their plan to improve. Color coding can be used for better visualization. It helps reduce the time for searching items during an emergency.

identify abnormalities. With positive tension, we can identify issues immediately. With loose or no tension, we can't tell there's an issue until the damage is already done.

To conclude numerous process industry companies have begun the process of implementing lean manufacturing. Some have even made it an integral part of their business strategy, and many began their journey using 5S. For those contemplating methods for the elimination of waste, as well as positioning their organization for long-term improvement, many lessons can be shared from those who successfully use 5S.

About Arrelic

Arrelic is a fast-growing deep-tech firm aiming to bring the next level of IoT based sensor technology to transform the mode of manufacturing operation and maintenance practice of various industries with extensive expertise in Reliability Engineering, Predictive Maintenance, Industrial Internet of Things (IIoT) Sensors, Machine Learning and Artificial Intelligence. We provide a single ecosystem for catering all industry needs from Consulting to IoT and Analytics as well as providing Training and Development courses for different stakeholders. We aim to help manufacturing industries to improve their overall plant productivity, reliability and minimize total production cost by 25-30% by eliminating machine downtime, lightening management decisions by analyzing the machine data with right mind and expertise; for a worry-free operation.

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