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# **Excelling in Operational Transformations: Using Digitization for Post Implementation Sustainment**

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Front line Operational Improvement efforts – Like Kaizens and Lean Projects - in manufacturing environments are an effective way to rapidly make changes, foster creativity and involve the work force. In most environments, well facilitated events and effective top leadership are a critical combination to ensure that operational improvement efforts are executed with maximum impact. However, even with more advanced business systems where tools like Hoshin Planning and shop-floor accountability meetings are regularly used, operations are still struggling with effective compliance of methods and sustainment of results.

We have discovered that best practices in manufacturing follow-up and controls can be further enhanced using simple digital tools with hand-held devices. The impact of this combination can be truly powerful. Imagine for a minute a line supervisor that after running a Kaizen (CI Improvement Project) and implementing a number of changes together with operators and maintenance personnel is able to use an App to schedule audits, track and record that actual changes are in use days and weeks after the project is completed. Not only that, but also has the ability to receive and send alarms to other team members to check for implementation misses and even use a QR Code to confirm that a process review was completed at a specified location. In addition, this information can be summarized and displayed in an electronic dashboard that everyone has access to in real-time.

This customized alignment between the best well known shop-floor management system (The Toyota Production System) and shop leadership enabling mobile technology can significantly elevate the results of any transformation initiative. People's familiarity with the technology on the shop-floor makes it an effective implementation / sustainment umbrella for just about any type of change initiative in any type of work environment within and outside the 4 walls – manufacturing floor, warehouse, maintenance, distribution, etc.

We see the application of such a methodology - tool in a number of situations:

- Performing 5S Housekeeping audits and red-tagging
- Performing Health and Safety audits and countermeasures
- Performing post Kaizen improvement tracking and task assignment
- Multi-layered audit scheduling and results tracking
- Daily shop-floor stand up meeting compliance and task tracking
- Gemba walk scheduling and assignments

During the last 2 years, Argo has completed over 20 projects that have included the implementation of the sustainment process and App with over 10 clients and the sustainable results have demonstrated the power of this combination.





# CASE STUDY

A manufacturer of home products has over 10 production plants in North America and has been implementing Lean Methods at all of them with different degrees of maturity, results and sustainment. Some of the plants with lower levels of performance are in the U.S., but there are also 4 maquiladora plants in Mexico with important production and quality gaps. Argo was selected to run 3 Lean Transformation Pilots at 3 of the plants with a particular focus on rapid results, transfer of knowledge and increase the sustainability of the improvements.

One of the projects dealt with the redesign and re-layout of a complete product line (from RM to FG) to reduce a production backlog of 8 weeks. Historical lead time for this type of product was 1.5 weeks, however, due to significant increases in demand, a people turnover problem and a technical design change, the production area had been struggling to keep up with requirements. Lead time was as high as 4 weeks and the backlog had grown to 3 months. In this type of commodity business, one where agility, lead time and quality are the key differentiators, this backlog was starting to translate into order losses and loss of accounts in the order of \$2 – 3 Million for the 1Q of 2019. In addition to production delays, the company was dealing with a reduction of almost 10% in First Pass Yield primarily due to the lack of stability of the workforce and poorly documented "easy to understand" process and quality standards.

The Argo – Client team organized a "Blitz" force designed to turn the operation around in 8 weeks. The team focused on three primary objectives:

- 1. Achieve flow and reduce production bottlenecks
- 2. ID and problem solve major quality errors and install Critical to Quality and Quality Control Points in the key steps of the process
- **3**. Install a daily visual shop-floor performance dialogue to focus on the production objectives and perform root cause analysis.

The Kaizen projects started impacting results within the first 4 weeks. Production numbers had increased by 20%, First Pass Yield was improved by more than 40%, backlog



had been reduced to 5 weeks and the team was having shop-floor shift meetings to discuss hour by hour production, targets for the day and major scrap and rework reasons. Supervisors and Company team members were engaged and leading most of the events, meetings and improvement discussions. However, Argo still had to be actively involved to maintain the sense of urgency, training and on the job coaching. Due to the high employee turnover, a major challenge that still remained was compliance with some of the leader standard work routines by team leads and supervisors.



Argo installed a daily Sustainment Process supported by a strong Visual Management approach and our App to ensure that both, the leader standard work routines and management process audits were conducted even after the Argo involvement was completed. The leader standard work routines are extremely important in this type of situation because they act as the glue that holds the new changes together. The changes included:

- Design and installation of model cells
- Material presentation and Standard WIP controls
- Re-balancing of assembly operations
- QC checks at critical points of the operation.

All these changes required a robust method for ensuring procedure compliance to the operator level and periodic process checks from the production line leaders and QC coordinators. After the design and installation of the App, Managers, Supervisors and Line Leaders had clear instructions and electronic check sheets on what to do every shift and every hour to ensure the process was being followed and that the appropriate data was being collected for further analysis. In addition, every time a Gemba Walk is started, managers have to scan QR codes located in key process locations to confirm their attendance. Managers are also able to take pictures and attach them to the electronic forms in the App to visually document issues or opportunities for further analysis. A similar approach was followed at the other two project locations with similar results. At one of those locations, the project dealt with the production transfer and installation of a



new production line and the need to formalize / train the work force with the new Control Documents and process parameters as well as new QC routines. The same steps mentioned previously were followed after the installation of these process tools. The sustainment process and App ensured the production teams were conducting daily process control audits, layered process audits and 5S reviews and electronic red tagging. The results of this effort were impressive. The typical learning curve (and production requirement targets) in a production transfer project with this complexity was expected to take about 10 to 12 weeks. Using the App the team was achieving 100% compliance with all the routines and audits and therefore process stability within 4 to 6 weeks.

The App allowed supervisors to check and record the most critical points of the new production process at the right time to avoid breakdowns, it also allowed them to send notifications with location specific tags to maintenance and QC personnel when they needed follow up with immediate attention to mitigate production deviations.

In all 3 projects the combination of the sustainment routines, leader standard work and support of the right – customized technology (App) made a significant impact on results of the company. After the 3 projects and testing of the method, the company is starting to deploy the sustainment App at other locations in their North American network.

Our experience in deploying operational transformations using Lean Methods always has pointed us in the direction of initially doing things manually and visually, using visual shop boards and using paper check sheets and Kamishibai cards. We have now realized that with the current development of easy to use digital tools and the ubiquity of mobile devices, Lean transformations can thrive in an environment that mixes traditional process improvement tools with customized App solutions.

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