



Building What's Next® The Podcast

# Continuous Improvement

Episode 20



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*Featured in this episode*



**Mike McCoy**  
Former President  
Korry Electronics



**Cori Palmer**  
Senior Project  
Development Manager  
Mortenson

Continuous Improvement and Lean principles are paramount in aerospace manufacturing for a variety of reasons. Whether it's to increase or maintain delivery rates to Original Equipment Manufacturers (OEMs), optimize labor and productivity, or embark on a new greenfield project, suppliers have a critical need to assess flow on the manufacturing floor and optimize their lines.

In this episode, we sit down with Mike McCoy, former president of Korry Electronics, an aerospace technology firm in Washington State, as well as Cori Palmer, senior project development manager at Mortenson. Join us as we discuss how margins can be improved through a successful Continuous Improvement journey.

**In This Issue:**

Results of the Kaikaku at Korry Electronics .....	<a href="#"><u>3</u></a>
Employee Retention + Engagement .....	<a href="#"><u>4</u></a>
Customer + Supplier Engagement .....	<a href="#"><u>5</u></a>
The Building: An Asset That Generates ROI .....	<a href="#"><u>6</u></a>
Change Management Tactics.....	<a href="#"><u>8</u></a>
Achieving Executive-Buy-In.....	<a href="#"><u>9</u></a>
Advice to Senior Management.....	<a href="#"><u>9</u></a>

## Results of the Continuous Improvement Efforts (Kaikaku) at Korry Electronics

400%

decrease in  
product lines

57%

decrease in number of  
assemblers required

15%

square  
footage saved

LEED

Silver certification

Less than 1%

employee turnover

Significantly improved  
Margins

“It was a **resounding success**. By the time we finished... we had some significant improvements.”



## Employee Retention + Engagement

McCoy: During my time at Korry Electronics, we made the decision to move our operations from South Lake Union for a number of reasons. In looking for a new location, we took our employees' needs into consideration during the decision-making process. First, we mapped out where all of our employees lived. Before the move, approximately half lived around South Lake Union and half lived north. So regardless of which direction we were going to go, we were going to disenfranchise some portion of our workforce, and we were very cognizant of that.

We did not want our really great employee base to leave us, so we set in place a number of programs that we paid for through the metro programs to have vans rented. We had approximately 250 people carpooling in vans to and from work, ultimately, because we had made that one of our important criteria.

We also heavily involved our employees in the Continuous Improvement journey. When we created mixed-model flow lines, with more than one product on the line, the assemblers communicated that this was a far more interesting job to them; they were learning about the components that went into it, they were learning about the testing that went on at the end of it that they were not used to seeing, and they saw the packaging that they did not necessarily see before. So, through converting to that one-piece flow line, they gained additional skills.

"I know for a fact we never had a layoff. Once a company starts down that path, **it is a recipe for disaster**, because nobody will want to get involved."

Lastly, one of the things we always told our employees – whether it was before we built this new building, or after – was that our Continuous Improvement would never lead to a layoff. Never. What our approach was – and it was successful the entire 20 years I was there – was that we were going to get better. We're going to improve. We're going to be more efficient, and then we're going to use those people to grow even more without having necessarily growing our headcount in a linear fashion. That was a very successful formula. I cannot remember one time I ever heard, "I don't want to improve this out of fear for my job." I know for a fact we never had a layoff. Once a company starts down that path, it is a recipe for disaster, because nobody will want to get involved. The experts on the line will withhold their knowledge. We did not experience that. In fact, we experienced the exact opposite with some of the results we got.

## Customer + Supplier Engagement

McCoy: We spent probably six months working with Porsche Consulting, as well as other industrial engineering teams. We felt like we had a really good plan for our Continuous Improvement efforts, and we had the entire workforce engaged to the degree possible, while we were also trying to get product out the door to service our customers.

One of the things we also did in creating those flow lines was we engaged with our customers, as well as our suppliers, to ensure we were getting their input and meeting their needs. When you're creating one-piece flow lines – mixed-model flow lines – one of the things to think about is how stuff is going to come in the door and then out the door... and everything in between, and the logistics associated with that. And so by bringing in suppliers, they are able to tell you what you can and cannot do. We create the optimal state, and they tell us why it's wrong or right, as well as our customers.

One example is with packaging. Suppliers believe they have to have all of this packaging when they deliver components to you to create the parts. Turns out, when we engaged with them, they thought we wanted all of that packaging. We didn't know why we were getting all of that packaging, and so we solved that problem.

When we engaged with our supply base, we rank-ordered them, in terms of the degree of content they had in our final content, and we sat with a number of them. Same thing with our customers, and you could probably imagine who some of the more important customers are – like Boeing, Rockwell, and others – and so we engaged with our supply base to understand why they did what they did. Quite honestly, we hadn't done a great job of that up until that point. The fact that we were going through this Kaikaku, and we were in real need of their expertise because they know their business better than we know their business... the fact that we partnered with them, and we had always had some really good supply relationships (still do)... they were more than happy, because honestly it ended up saving money and efficiency on their end as well.

**“Our customers were very reticent that we were going to be undergoing the Kaikaku, for good reason.”**

Our customers were very reticent that we were going to be undergoing the Kaikaku, for good reason. They have customers that they need to make sure that they are taking care of. So Boeing, Rockwell, Airbus, you name it... They came into the facility and really dug in on, “How are you going to make sure you don't mess up our deliveries?”

Among other things, we put together some very significant plans make sure all of our customers had their products. And a good piece of that was that we built inventory ahead.

Two things happened. One, we built inventory ahead. Two, they also built inventory ahead. So we got an unexpected spike in sales because they were afraid – even though we were telling them we were telling them we were building inventory. So we kind of had double the inventory we needed. While we were not completely successful in mitigating misses with on-time delivery, we were close. And a good portion of that was that inventory build-up, A, and then B, really strong communication plans with our customers. Inviting them into the plant, walking them through what we were doing and why we were doing it, and I spent quite a bit of time on the road, walking through our major customers to ensure they knew I was thinking about them.

Ultimately all of this led to a lot of efficiencies, because we engaged with our suppliers, we engaged with our customers, and we ran them through our different classes that we had around one-piece flow as well.

### The Building: An Asset That Generates ROI

Palmer: Mortenson has been working with aerospace customers in the Pacific Northwest market to help them understand how their real estate and facilities assets are affecting their bottom line. As we've met more and more companies in the industry, we've found that a lot of their focus is based on current market pressures to improve efficiency and really lower their cost. As companies are thinking about updating their plant floors, or even doing a greenfield project, we are really asking them – and maybe pushing them when we need to – on questions like, how are they optimizing flow, labor or layout? All with the goal of reducing costs and speed to market.

McCoy: We ultimately settled on building on South Paine Field and South Everett. It was really a great decision for us, because it afforded us the opportunity to really take a lot of the principles we had been implementing for the better part of a decade and really apply them to a greenfield site.

“The building also helped, in terms of Continuous Improvement... it was a **symbiotic relationship between the two.**”

You know, Korry said our Continuous Improvement really helped to design the building we wanted, but the building also helped in terms of Continuous Improvement. And that's really what we were trying to drive to; it was a symbiotic relationship between the two.

We set out with some really specific goals in mind when we decided to build our building in 2009. Our Chief Financial Officer at that time, Bob George, encouraged us to engage with some folks on a design and build concept, and not necessarily put it out on the street for a bid. And that ended up being a great decision, because we had great partnerships, and we were happy with the outcome in that.

“If you look at over the course of a number of decades, you’re going to be making changes to those buildings. How are you going to **ensure you’re spending the fewest amount of dollars for the maximum amount efficiency, and getting to an overall best margin possible?**”

One important criteria for us, and this was as a management team, was that we had been very strongly of the opinion that we didn’t know what the future held. In terms of our growth – where we would be going, consolidation, expansion – we wanted to create a building with maximum flexibility. And by partnering with a design and build concept, it really enabled us to customize exactly what we wanted to do. We knew should we ever want to make significant change in the future, we would have already thought that through.

And so, between employee base, design/build concept, and maximum flexibility – at least for the most part, to the degree that we could see into the future – we had enabled ourselves to be successful in the future if we had any major changes, which we did end up having. We recognized that there is a lot more to the Total Cost of Ownership in the real estate, other than what we initially put up front. We knew there would be changes down the road, and we were looking at a 30-40 year timeframe of trying to be a successful construction project that also was going to lend itself to successful manufacturing.

Palmer: One way our aerospace customers are utilizing Continuous Improvement is by looking at how to optimize their lines. They are asking themselves, “How do I reduce inventory?” and “How do I improve flow?” They’re looking at every way they can to drive efficiency in their production lines. One area that we [Mortenson] can help them in this process is really by looking at their facilities as an asset that can help affect their bottom line and deliver to their customers.

McCoy: If you look at over the course of a number of decades, you’re going to be making changes to those buildings. How are you going to ensure you’re spending the fewest amount of dollars for the maximum amount efficiency, and getting to an overall best margin possible?

Overall best margin possible includes things like, how much inventory you are carrying. It includes how many assemblers are on the line, and obviously, your costing that you are getting from your suppliers.

“[LEED] was important to [our employees]. They wanted to work for a company that was going to be **environmentally conscious.**”

But to the degree that you can ensure all of those things over a period of decades, there's a balance in there between inventory, and the cost of inventory, and the margins associated with the production of that product. It's not about the lowest inventory, it's not about necessarily the lowest cost of building my building; it's the entire total cost of that operation. And there are a number of hard and soft costs to include in that. By the way, turnover is one of them as well. So when you factor all of those things in, the building becomes a very important part of that.

Palmer: So, Mike, as you were thinking about criteria for building your new building, and long-term value of the facility, did you consider at all energy efficiency or environmental sustainability?

McCoy: We did – we actually considered both of them. The genesis for the desire to achieve a LEED certification came from our employee base. It was important to them. They wanted to work for a company that was going to be environmentally conscious. It was a very important goal to us to achieve, at a minimum, a silver LEED, and we did. There is a lot of natural light, and people need that in large manufacturing spaces. So we felt really good that we had accomplished that, as well as we went through two iterations of energy studies with third parties to ensure we were going through and minimizing our energy usage as well.

### Change Management Tactics

McCoy: Change management has always been, and should continue to always be, a very important piece of any senior management team's running of the business. We had very specific things we knew we wanted to accomplish. Sara Dnell, and others on the HR team at Esterline, really took underneath their team's wings what we were going to do to engage the employees.

We had many, many sub-teams for the Kaikaku. There were sub-teams centered around food, there were sub-teams centered around manufacturing layout. And we had all 600 people – at one time or another – over that 6 months engaged. Certainly during the week, we were implementing that. But we had very specific change management principles that we wanted to bring along. The real key here is engaging with people, because I can assure you that the assembler on the 787 overhead control panel knows that product far better than I do. By engaging with them and asking them how they believe that we should be flowing product down a 787 control panel line, it really helped to engage them, and it was another one of those reasons why we had less than 1% turnover both when we moved to our new building and post-Kaikaku.

## Achieving Executive-Buy-In

McCoy: We had outstanding managing commitment from our corporate parent, Esterline Technologies. Not just in terms of the Kaikaku, but ultimately for what we were trying to accomplish. The corporate folks used to refer to Korry Electronics as “one of the lighthouses” of Esterline Technologies. So when there was a new thing/process – whether it was one-piece flow, or whether it was compliance, or whether there was a new system to be tested – Korry was always a lighthouse and was always one of the companies that the corporate parent turned to. And it really didn't hurt at all that we were located there in Bellevue, so it was easy for them to come over. When we went through the Kaikaku, proposed it and the “why,” we could not have had more support from the CEO down, that we got.

Evidence of that was during the Kaikaku when everything was out in the parking lot, the entire senior management team came over almost every single day. We had many metrics being tracked, and a timeline, and we hit the goals all because we had some great team members running that project.

Then post-Kaikaku, we had what we called the Esterline Operating System. It was a series of classes five days long. Our employees, 25 at a time, would go through a class in consultation with Porsche Consulting, and they would learn and build on the principles of flow, around what it meant to flow product in an aerospace environment. The first class was the entire senior management team, along with some of the business unit leaders, including myself. We went through it with the CEO, all five days, and then we got a certificate. And then pretty much every month we had another 25 people going through there, for a few years. Our CEO and CFO, and all the other leaders from the corporate team were leading from the front. They would drop in, after they had been through the classes, as our employees were building product on the line, and they would engage with the employees – and the employees were just thrilled to see that. I mean, the CEO stopping by to see how the flow line's working that they laid out? That's a really great success story.

“Our CEO and CFO, and all the other leaders from the corporate team, were **leading from the front.**”

## Advice to Senior Management

McCoy: My advice to any senior management teams in aerospace that are looking to go out and create a new manufacturing environment is to not only think of the building as the building. It should be something you are thinking about as an asset to generate a return on your investment.

I know that we improved our margins as the result of having a flexible building. It's not the \$X millions you spend up front. It's the \$Y millions you spend over a period of 30-40 years that ultimately decides the success or failure of that project. And by creating something that's flexible, you're setting yourself up for success for future decades. I feel very comfortable and confident in saying we at Korry think we did that.

**"You can't be afraid, because if you don't improve, others are improving around you and you're falling behind."**

You can't be afraid, because if you don't improve, others are improving around you and you're falling behind. To the degree that one can think about separating the up-front costs versus an overall cost of ownership... because I can assure you that the Kaikaku that we went through would have been far more expensive had we gone through a traditional building method, with offices segregated from manufacturing... but by having the foresight to lay the building out the way we did with infrastructure, ceiling, etc., few monuments, and creating a flexible environment in which to create a great manufacturing space, we were able to do that.

We saved a lot of money during the Kaikaku as a result. Not only that, but there were margin improvements on a day-to-day basis associated with the one-piece flow lines. By consulting with Porsche, we were able to drive costs down and improve margins. All of those things go into not just Total Cost of Ownership, but the Total Cost of Profitability that go into what that building is able to do for you. It's not just sticks and bricks. You need to be able to look at it as an asset that can continue to generate return for you over a period of decades.