

MITOCW | Ses 1-7 | MIT 16.660 Introduction to Lean Six Sigma Methods, January (IAP) 2008

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[HYDRAULICS HISSING]

[MACHINE RUMBLING]

[HYDRAULICS HISSING]

EARLL Well, good morning, Claudio.

MURMAN:

CLAUDIO Good morning, Earll. Thank you, again, for coming. It's always a pleasure to show you the factory to you. So
GELMAN: before the main purpose of today, I'll show you the value stream, the factory, the product flow. But before that, I'm going to give you a little preview of who we are.

EARLL Oh, wonderful. Yeah. Well, everybody knows New Balance, but tell us about your journey to lean.

MURMAN:

CLAUDIO Specifically about the Lawrence factory. The factory, it specifically is divided into-- standing here, you've got to
GELMAN: your left side the portion that we call the [? cutting ?] stage. This is the made in America shoes that we cut from scratch and we cut here. And to your right-- it's my right side-- is what we call the source upper world. We get the sole and the upper from Asia, and we just put it together.

EARLL Now, are you the only shoe company that actually manufactures shoes in the US?

MURMAN:

CLAUDIO I understand yes, it is.

GELMAN:

EARLL That's what's behind me here.

MURMAN:

CLAUDIO And that's our competitive advantage is great. You know, turn around shoes in two or three days.

GELMAN:

EARLL Two or three days?

MURMAN:

CLAUDIO Yeah, we're going to get it in the customer's hand.

GELMAN:

EARLL We'll see how you do that when we go through the value stream.

MURMAN:

CLAUDIO Absolutely, I'll show that. So some statistics, we pack 5,200 pair a day and ship 5,200 pair a day. We are 220
GELMAN: associates.

I'm going to show you when we go through operation and the value stream, which is a group operation put strategically in a cell or U-shape to make a product. There's some history behind it, and it's very interesting. What you see here is a product of three and a half, four years of lean transformation. Three and a half years ago, we decided to work with a [INAUDIBLE] production company to learn about that, their production system, which lean is another name for it. Four years ago, it used to take us eight days to make a pair of shoes. Eight days.

EARLL From start to finish?

MURMAN:

CLAUDIO From start to finish.

GELMAN:

EARLL You mean you weren't working on that shoe the whole time but start to finish--

MURMAN:

CLAUDIO Well, that's a good question because it's what we call the value added work, which was only 23 minutes. So the shoe was floating in this factory for eight days, with only associates touching the shoe, adding value to the shoe for 23 minutes. With lean transformation, after three and a half years, we went from eight days to right now, it would take us between two and three hours in value stream to produce a pair of shoes. So that's in 98% reduction.

EARLL It's still about 23 minutes of value added time?

MURMAN:

CLAUDIO Yes, absolutely.

GELMAN:

EARLL So there's actually still some room potentially for improvement.

MURMAN:

CLAUDIO Once you start lean, it becomes part of your DNA. You never stop. Well, you see supervisors and flow coordinators, which are our team leaders, always with a watch, looking at the cycle time to see if there's opportunity to improve.

So there are other statistics we reduced. We used to be in two floors. Right now, we're in one. We emptied a quarter.

I think it's close to 2,500 square feet of floor. The beginning of a value stream-- in those days, it was not called value stream. It was like straight lines-- used to be in the first floor, the beginning. And being on the second floor was too much communication.

EARLL So now you can see the whole value stream.

MURMAN:

CLAUDIO And I'll show you later, from a management point of view, they built it to have a value stream where the beginning and the end meet. It's extremely powerful. So square footage, I think, is close to 30% reduction. It's a work in process. Like I said, 98%, so it's incredible.

So how did we do that? Part of lean, there are two basic concepts, takt time, which is flow based on our capacity of the value stream and availability. It's a takt time of 25, 22 and 1/2 seconds, which means that it's a frequency. Takt time is a frequency of delivery, so at the end of the line, you will see a shoe leaving every 22.

EARLL Or a pair of shoes every 45.

MURMAN:

CLAUDIO Absolutely. So that's the concept of the takt time and flow, and the other concept is of waste. Actually, we have a course we call waste detectives, where we put our associates through and identify, what is a way in the lean world--

GELMAN:

EARLL Is every associate a waste detective?

MURMAN:

CLAUDIO Yes, that's where they are. Everyone here becomes a waste detective. I have a poster, very interesting, that I like to use for tours and also for educational purposes, where in the lean world, they are like the deadly wastes.

GELMAN:

And they are-- I'll go through with you-- overproduction, when we produce ahead, waiting, and this is very interesting. There are some interesting pictures, with associates participating in them, of the examples. Transportation, overprocessing.

EARLL So just on the waiting, for example, eight days with 23 minutes of value added, there was a lot of waiting.

MURMAN:

CLAUDIO Yes, and it used to be normal. Now, it's--

GELMAN:

EARLL On transportation, you had two floors before.

MURMAN:

CLAUDIO Absolutely.

GELMAN:

EARLL OK.

MURMAN:

CLAUDIO Overprocessing, this is a interesting way that people sometimes have to understand. In this particular case, this shoe, it needs a row of stitching at the bottom. Now, they put two.

GELMAN:

People may think, well, two is better than one. No, it's not. The shoe needs one, but sometimes, we tend to add two. Like maybe three coats of paint when two was enough.

EARLL Oh, very interesting.

MURMAN:

CLAUDIO So we look into that.

GELMAN:

EARLL Yeah.

MURMAN:

CLAUDIO Excess inventory.

GELMAN:

EARLL Yep.

MURMAN:

CLAUDIO Waste. I mean, interesting, assets seems to be in the balance sheets.

GELMAN:

EARLL And we'll see this--

MURMAN:

CLAUDIO [INAUDIBLE]

GELMAN:

EARLL We'll see this as soon as we start the value stream walk.

MURMAN:

CLAUDIO Absolutely. Actually, this is the first part of the cutting department. Unnecessary motion, safety has a lot to do with here.

GELMAN:

Here, you have an associate placing a shoe and overstretching, very different from getting closer to an associate. And defects. And we added an eight, which is unused associate creativity.

EARLL Wonderful.

MURMAN:

CLAUDIO It's wonderful. What we've all been trained here is that, as we walk the floor, we do analysis. We are trying to identify this waste.

GELMAN:

We see somebody overstretching. It's motion. We see somebody waiting.

So whenever we see this waste, we put together a continuous improvement activity. They call this an activity. So the whole goal is reduce waste, improve flow. Reduce waste, improve flow.

EARLL I want to see your value stream. Can we get started?

MURMAN:

CLAUDIO Let's start it, then.

GELMAN:

EARLL OK.

MURMAN:

CLAUDIO Absolutely.

GELMAN:

EARLL Wonderful.

MURMAN:

CLAUDIO This is the beginning of the value stream.

GELMAN:

EARLL So this is the front end of your value stream here?

MURMAN:

CLAUDIO This is the front end of our value stream.

GELMAN:

EARLL And you don't call this a department. You call it a value stream.

MURMAN:

CLAUDIO The value stream. The definition is the value stream is a series of operations put in sequence-- we call it a cell--
GELMAN: to make a particular product. It doesn't have to be one product. It can two products, three products, but there is some similar operations. And then you can connect them.

EARLL OK. Now in a little bit bigger sense, your value stream goes all the way back to your suppliers and eventually out
MURMAN: to your stores and so on, but we're looking just at the value stream--

CLAUDIO Absolutely.

GELMAN:

EARLL --starting with what's coming from the suppliers. And maybe at the end, we'll see what's going out to your stores.

MURMAN:

CLAUDIO Correct. And as a concept of value stream issues within a cell in manufacturing, the [? concept ?] is also true for
GELMAN: the whole corporation, whether we are, let's say, a purchasing department. It would be a department part of the whole corporation's value stream, so you are correct.

EARLL Yeah.

MURMAN:

CLAUDIO So what you see here is the cutting. That's the first operation, and basically, materials are coming from our
GELMAN: suppliers. They come in in rolls. They go to the consolidation center and then pull based on the demand and the production schedule.

EARLL So this value stream pulls based on its demand.

MURMAN:

CLAUDIO Exactly, exactly. And the materials are layered, and we build what we call a web.

GELMAN:

EARLL OK. I can see it's stapled. It's stapled right there.

MURMAN:

CLAUDIO GELMAN: Exactly. How much is a given to the cutter its based-- so we have a computer system that, based on the schedule, the number of pairs, the size, and the width, puts out how many pairs we need and then how much square footage to give to the cutter.

EARLL MURMAN: How frequently you make that calculation?

CLAUDIO GELMAN: Well, it's per quarter. Like, daily.

EARLL MURMAN: Daily?

CLAUDIO GELMAN: Daily. Daily, and right now with the different materials, almost any calculation, we deliver 45 hours worth of material.

EARLL MURMAN: So that's kind of like adjusting time.

CLAUDIO GELMAN: Absolutely, absolutely. So the cutter will pick up what's called a die, which has the shape of the part, with the hydraulic machine and place the die on the material. The placement of the die is called nesting.

EARLL MURMAN: Nesting. OK. You're trying to minimize waste, I guess.

CLAUDIO GELMAN: Exactly, it's like a puzzle. Cutters may take from three months to six months to get good at it, not only to understand where the die goes, but also make it with speed because talk about speed. Let me talk a bit of a key concept, which is the concept of takt time. In the lean world, the goal is to flow and to reduce waste, flow and to reduce waste. Based on the demand in this value stream, which is 50 cases a day, a case being 12 pairs, and available time per day--

EARLL MURMAN: That's 600 pairs a day that this value stream puts out?

CLAUDIO GELMAN: [INAUDIBLE] specifically. And seven and a half hours in a shift. The frequency of output is 22 and 1/2 seconds per shoe. That frequency is called takt time.

EARLL MURMAN: OK.

CLAUDIO GELMAN: Takt time. Now, although I just mentioned that the frequency is 22 and 1/2 seconds per shoe, at this stage, because of the characteristics of the operation, we are not flowing one shoe at a time. We are still in a batch world.

EARLL MURMAN: OK, but a small batch?

CLAUDIO GELMAN: Small batches. In the past, as I said before, when our lead time was eight days, in an equivalent value stream, we will have close to 400 cases of [INAUDIBLE].

EARLL MURMAN: OK.

CLAUDIO GELMAN: Now, with the lead time of three hours, our work in process is 20, 25 cases. That's a reduction of 98%.

EARLL MURMAN: So I see a little green thing on the floor, and the visual control says cutting whip, seven cases maximum.

CLAUDIO GELMAN: Absolutely.

EARLL MURMAN: So that's all the space you've got.

CLAUDIO GELMAN: So the cutters will cut the individual parts based on the material, and they will be placing the parts on the bins.

EARLL MURMAN: OK.

CLAUDIO GELMAN: When they finish the hour-- so here, the unit of flow-- you can call it an hour-- could be between six and seven cases, depending on the style.

EARLL MURMAN: OK. So while we're here, I see a broom hanging up there, so I want to just ask you about 5S.

CLAUDIO GELMAN: 5S, actually, it's very typical. 5S is a system or an organization. 5S is for Sort, Sitting Order, Shine, Standardize, and Sustain.

And it's much more than just cleaning. Once you understand the 5S, there are economics in place, and there is a very key location of parts. This is the first system implemented five years ago.

EARLL MURMAN: I was going to ask you. It's hard for me almost to imagine a place where it wouldn't naturally be 5S, but you had to start with 5S.

CLAUDIO GELMAN: Exactly, because one of, I think, the mistakes is thinking that 5S is just cleaning. So everybody understands cleaning, and there's so much to clean. And when you're starting a new process, you can get so many gains by just cleaning. It looks good, but there's much more to it. But the broom in that place with the label that says broom, that's been--

EARLL MURMAN: It becomes part of your organizing your self.

CLAUDIO GELMAN: Absolutely, and it goes deeper. I think that 5S is actually a reflection of leadership. If you cannot get an organized workplace and clean, your chances of flowing product and meeting that takt time are very slim, so it has to do with the discipline. It's much deeper than that, than just cleaning.

EARLL MURMAN: OK.

CLAUDIO GELMAN: So this is a cutting department. About seven cases now, and we're going to walk to the next department is called the prefit department part of the value stream.

EARLL MURMAN: It looks like the second part of the value stream.

CLAUDIO GELMAN: It's the second thing in the value stream.

EARLL MURMAN: You got the cutting. Now we're going to do stitches.

CLAUDIO GELMAN: Exactly. The prefit is a shoe-making technique. Many years ago when we didn't have computers, the way a shoe was stitched is it used to be fitted, two parts coming together, and a very skillful stitcher would put it together. Before you're able to prefit and stitch it, we fit it.

It needs to be prefitted, which is you do marking. You do embroidery. You do other things before you put the shoe together. That's where the name comes from, prefit. So we do embroidery with the logo.

EARLL MURMAN: That's where the NB comes on.

CLAUDIO GELMAN: Our main USA logo is there. And then you will see a series of miscellaneous operations that are required to make a shoe, for example, the reinforcement of the tip. I talked about embroidery. Some styles take embroidery. Others do not.

Here, we have a machine called [INAUDIBLE], a radio frequency machine. It's not being operated right now, but as an example, this is the part that will make these [? decals. ?] It's a nice feature because it's nice what it's going to do.

Again, some cells have it. Some cells do not. And if he go through the team, you'll see associates making other miscellaneous operations to the parts of the shoe.

EARLL MURMAN: You have the flow of material start over there, goes to the--

CLAUDIO GELMAN: So we go cutting, prefit. Well, let's go to the computer stitching, and we'll see some stitching and then eventually the assembly, where they put the sole on.

EARLL MURMAN: So if things are getting a little out of sequence, timing-wise, could someone from here go over and help the prefit people?

CLAUDIO GELMAN: It's a very good point. When we changed from the batch and queue world to the lean world, we changed the management system. In the past, you have associates and supervisors, nobody in the middle.

In order to support that takt time of 22 and 1/2 seconds and maintain that flow, now we changed the system where we have the supervisors, we have the team leaders, and then the associates. So team leaders fill in if there is a disruption of any kind, a bathroom break to a phone call to a quality issue. They will jump in to maintain the flow.

EARLL MURMAN: The team leader will?

CLAUDIO GELMAN: Absolutely.

EARLL MURMAN: So the team leader can do everything?

CLAUDIO GELMAN: Absolutely, yes. So still, in this team and the prefit, we have batches. The parts are prefitted. We put a reinforcement to the toe and make a little [INAUDIBLE].

EARLL MURMAN: OK.

CLAUDIO GELMAN: These associates, they are making little holes on the part. They put them back on those bins that we talked before and brought [INAUDIBLE] batch to this department that's called computer stitching.

EARLL MURMAN: Computer stitching.

CLAUDIO GELMAN: So what I'm going to show you right now are stitching machines, but they have a computer and cameras. And the way it works, you'll see an associate picking these kinds of parts, put them on what's called a pallet, these little holes that you put on pins. And they probably will be fed into this machine, and you have lights taking pictures and a computer. And it's taking a picture three frames per second, so the cameras tell the computer, this is the edge. And the computer tells the sewing machine where to put the stitch.

EARLL MURMAN: OK. OK.

CLAUDIO GELMAN: At this computer stitching department is where we transition from the batch to the flow, and that's what I'm going to show you now.

EARLL MURMAN: OK, great.

CLAUDIO GELMAN: This associate here-- I forgot to mention when we talked about the different management system, remember takt time and flow. Supervisor and team leader to help, but also, we want associates to be on the line producing the shoes at that takt time. So another level is called the point of use.

EARLL OK.

MURMAN:

CLAUDIO The goal of point of use is to bring the parts to--

GELMAN:

EARLL OK.

MURMAN:

CLAUDIO --the operators, actually adding value to the shoe.

GELMAN:

EARLL So this lady's a point of use associate?

MURMAN:

CLAUDIO That's correct, a point of use associate.

GELMAN:

EARLL She looks pretty busy, too.

MURMAN:

CLAUDIO Very busy. They have to distribute a case every nine minutes, and they have the flow from this computer stitching to the next department and come back and flow. Everything is about flow.

GELMAN:

EARLL So you want to keep this person-- you want to have everything she needs to do what she needs to do.

MURMAN:

CLAUDIO Exactly, exactly. In the past world, this person would leave the machine, would go and pick up the parts, come back. A lot of variability in the system, and reduction of waste is to reduce variability at the same time.

GELMAN:

EARLL They must have to work very closely together.

MURMAN:

CLAUDIO Yes, absolutely. So here, you have the computer stitching machine. These are the parts that came from the cutting, and the associate puts the parts on this pallet. It's fed into the machine.

GELMAN:

EARLL OK. Goes back in the machine.

MURMAN:

CLAUDIO You got the cameras taking pictures.

GELMAN:

EARLL And now it's stitching.

MURMAN:

CLAUDIO And then the sewing machine's stitching where the computers tell them to stitch. The pallet comes up. Here, we got the part.

GELMAN:

EARLL OK.

MURMAN:

CLAUDIO Now, why only three parts? It's because under the takt time of 22 and 1/2 seconds, that's all that fits in this
GELMAN: machine. So we take all the time that is required to stitch a shoe. We divide it by 22 and 1/2 seconds, and that tells us how many associates we need to put to flow.

EARLL Now, when you switched to the takt time approach, did you have to redesign some of these machines to--
MURMAN:

CLAUDIO Completely. In the past--
GELMAN:

EARLL The old machines couldn't fit the takt time?
MURMAN:

CLAUDIO I'm sorry. The machines are OK. We have to change the thinking of the designing of the pallets. In the past in the
GELMAN: batch and queue world, we were very proud when we could put as many layers as possible to save machinery.

EARLL OK.
MURMAN:

CLAUDIO The goal was the machine efficiency.
GELMAN:

EARLL Great.
MURMAN:

CLAUDIO Because you get rewarded in a batch world for machine efficiency. Right now, the goal is into efficiency and
GELMAN: associate [? tool ?] safety.

EARLL OK.
MURMAN:

CLAUDIO So what we did is now we don't takt as many layers as we can. We only put enough layers to maintain flow. The
GELMAN: machines are the same, but the design of the pallet and the number of parts has changed radically.

EARLL Very good. And did the associates participate in that redesign?
MURMAN:

CLAUDIO Oh, absolutely. I mean, that's a great question. When we talk about the team leaders, that's one of the major,
GELMAN: major changes. You know, we're reading the books about our associates are [INAUDIBLE] assets.

And I think we're talking about-- you know, we're doing great things here, where associates have a great part in the problem-solving activity and the design, supervisors and team leaders consulting all the time. That's what makes a big, big difference. But before when we talk about batch, now you see single [INAUDIBLE] flow. You have flow.

EARLL So we've got a cell here. We have a cell.

MURMAN:

CLAUDIO You have a cell, exactly.

GELMAN:

EARLL I mean, this is a very good graphical realization of a cell. You can see it all connected together.

MURMAN:

CLAUDIO That's a good point. This is a good example of flowing, and we ask them not to have more than two pairs.

GELMAN:

EARLL It says right there, two pairs only.

MURMAN:

CLAUDIO Two pairs only, yes.

GELMAN:

EARLL And you got some visual work instructions here.

MURMAN:

CLAUDIO Absolutely, that's part of the standardized work, where we define the standardized width. And visual
GELMAN: management is a big part of it, and if you have more, if I see three pairs, you know, there's a problem because the associate probably was having a problem. The flow coordinator, or the-- we call the flow coordinator the team leaders. We calling them flow coordinators.

EARLL Oh, they're flow coordinators.

MURMAN:

CLAUDIO Yeah, it's the name we came up with.

GELMAN:

EARLL That's much better than team leader,

MURMAN:

CLAUDIO Yeah, because their goal is to maintain the flow, in a way.

GELMAN:

EARLL Well, the title flow coordinator means-- a team leader focuses on them. The flow coordinator focuses on what
MURMAN: they're doing.

CLAUDIO Exactly, exactly. So visually, if you see three pairs, the flow coordinator will come and say, something is not right.
GELMAN: So visually, very powerful.

EARLL So Claudio, I see some little red dots here where it says, red color label. What are those for?

MURMAN:

CLAUDIO It could be that these machines sometimes are very sensitive to the shape of the part. Because you're taking a picture, the part is sort of warped. It fools the machine, so in shoe-making technology, it can have a stitch runoff. **GELMAN:** So they're searching for a little red dot, and as it goes by, the flow coordinator will notice, fix it quickly, and put it back into the line.

EARLL Now, is that something that came out of an employee suggestion?

MURMAN:

CLAUDIO Probably, yeah. And they like to have that, and they identify it themselves. At least, the defect is there, but they take ownership. That's a big thing that changed. **GELMAN:**

In the past, they were just trying to, you know-- we have inspectors on the line put in the dots. Now, defects happen, but now they have ownership. And we're very proud. It's really an environment that it's OK to show their mistakes, and there's no problem.

EARLL And they're happy with that?

MURMAN:

CLAUDIO Oh, not a problem. And interestingly, when we changed from the batch to the lean, standards are very important. **GELMAN:** Standardized work, which is the definition of the best flow of a product, considering cost, [INAUDIBLE], economics.

And some people thought, well, if I have to do always the same, management was concerned that our associates would feel like robots. And the feedback that we got after a few months of lean implementation is that they love to know what they have to do, so management and even human resource's concept that they would feel like robots was not correct. And what we're trying to teach them is that instead of a paradox-- because standardized work tells you, always have to do the same thing, but as you do always the same thing, you have a foundation for problem-solving and for continuous improvement.

So standardized work is a continuous improvement tool. It depends how you look at things. Through that repetition, they will recommend changes.

EARLL That's a really interesting approach because that makes standardized work be something where you're always trying to improve it compared to, now we can forget about it. **MURMAN:**

CLAUDIO Right, absolutely. But that's another thing. Sometimes, we go crazy, and it never stops. Once you've got the stream rewired for continuous improvement, it never stops. **GELMAN:**

Because of management, it really changed radically. Managers become more teachers and coaches. Challenges, I think, it's always-- production managers, we call them, they always have to have gentle tension.

In my experience of what I read, you will not introduce lean with that tension. You know, I read somewhere else. This is like a pressure cooker. It's always pressure to just release the pressure.

EARLL Very good analysis.

MURMAN:

CLAUDIO OK.
GELMAN:

EARLL Great. Maybe we should move on.
MURMAN:

CLAUDIO Yes, so here, you got the case ready for the next department.
GELMAN:

EARLL OK.
MURMAN:

CLAUDIO And the case will be sent to the stitching department, so I think we should go around. And I'll show you from the
GELMAN: beginning.

EARLL OK, very good.
MURMAN:

CLAUDIO We're just going to go around.
GELMAN:

EARLL OK, good. Boy, a lot of visual control here.
MURMAN:

CLAUDIO Yes, so I wanted to talk to you about that before we talk about the stitching cell.
GELMAN:

EARLL OK.
MURMAN:

CLAUDIO Takt time, flow. Flow coordinators are required to keep details of-- you have the exact idea of the plan versus
GELMAN: actual, if there are any deviations.

EARLL OK.
MURMAN:

CLAUDIO This is the production board for the last team that we haven't talked yet, but if there is negative, they have to
GELMAN: put a reason. In this case, it was waiting for the closing. Closing happened to be--

EARLL This is today's?
MURMAN:

CLAUDIO This is today.
GELMAN:

EARLL So I have five after 8:00, and this says 7:00 to 8 o'clock. So immediately, this was filled in.
MURMAN:

CLAUDIO Yes.
GELMAN:

EARLL Because we're now on this shift here.

MURMAN:

CLAUDIO Right, and we'll see what happened.

GELMAN:

EARLL OK.

MURMAN:

CLAUDIO OK? Yeah, that's a good observation. So for supervisors, managers, you come here, and you know we're waiting
GELMAN: for closing. So the first question I will have, what happened in closing and the stitching? You have a board there that then the flow coordinator says, machine number seven was down for 10 minutes.

EARLL OK.

MURMAN:

CLAUDIO Just big picture detail. On their desk, they have a more detailed log that will tell them what happened with that
GELMAN: particular machine, but you see how they're connected.

EARLL Very, very good.

MURMAN:

CLAUDIO And it's part of the supervisor and management to make sure that they make sense.

GELMAN:

EARLL Morning.

MURMAN:

ROSE MARY [INAUDIBLE] broken the thread. Good morning. How are you?

MUNOZ:

EARLL Good.

MURMAN:

CLAUDIO You see? They've broken the thread.

GELMAN:

ROSE MARY Broken the thread.

MUNOZ:

CLAUDIO That's why--

GELMAN:

EARLL Oh, the thread broke?

MURMAN:

CLAUDIO The thread broke. That's what we're talking about. She knows about it.

GELMAN:

ROSE MARY MUNOZ: I told [INAUDIBLE].

CLAUDIO GELMAN: OK.

EARLL MURMAN: Is she the flow coordinator?

CLAUDIO GELMAN: She's a supervisor, 25 years in the company.

EARLL MURMAN: OK.

CLAUDIO GELMAN: What an asset.

ROSE MARY MUNOZ: That's my team.

EARLL MURMAN: Yeah, so this her team.

ROSE MARY MUNOZ: Uh-huh.

EARLL MURMAN: I saw you're way up there.

[LAUGHTER]

CLAUDIO GELMAN: So like we were talking before, we talked about the [INAUDIBLE] generation, problem-solving, involvement, and we have a very simple way to appreciate the associates. To talk about interaction between supervisor and associates, I will introduce to you Rose Mary Munoz. She's our supervisor--

EARLL MURMAN: Buenos dias.

ROSE MARY MUNOZ: Buenos dias. Como estas?

CLAUDIO GELMAN: --in the wide value stream. She's been with a company 25 years.

EARLL MURMAN: Wow.

CLAUDIO GELMAN: So she's seen a lot from the batch and queue world to the--

EARLL MURMAN: It's OK.

CLAUDIO GELMAN: --from the batch and queue world to the lean world, so any questions you want to ask her, it's--

EARLL MURMAN: Yeah, Rose Mary, it's really critical-- in transformation to lean, the people are really, to me, the key part, the critical part.

ROSE MARY MUNOZ: Uh-huh.

EARLL MURMAN: And you're a front-line supervisor, and you have a value stream. I guess this is a picture of your value stream here. Yours is the gold value stream.

ROSE MARY MUNOZ: Uh-huh.

EARLL MURMAN: So as supervisor, what are some of the things that you do when you work with your value stream team?

ROSE MARY MUNOZ: The most important is to work with the associates because lean is 90% associates and 10% the rest, material or maybe supervisor. They're the most important ones to introduce lean system, and they understand what they're doing. That's the most important thing that we can do to get that [INAUDIBLE].

EARLL MURMAN: Yeah, Claudio was telling me that one of the ways you do this is you get suggestions from them. You engage them with suggestions. So Rhea here, she's contributed some kinds of suggestions, and what happens to those suggestions when she contributes them?

ROSE MARY MUNOZ: The suggestions they give, we check if-- we try to implement all the ideas that they have. When they give me some idea, we try to implement. We work with them, and that way they feel more-- how I can say it?

EARLL MURMAN: More involved?

ROSE MARY MUNOZ: More involved in helping the team.

EARLL MURMAN: Yeah.

CLAUDIO GELMAN: How do you help them with the idea? Do you help them think to it, or do they come up with idea by themselves?

ROSE MARY MUNOZ: No, they came up with the idea by themselves. And when they don't have no idea, I go with them, and I would say, for example, what do you think? You don't have no idea how you can get any ideas?

Sometimes, they say, oh, maybe I don't have too many time to think and something like that. I told her, what do you think if we had put, for example, the [INAUDIBLE] here close to you? You can save one second. I said [INAUDIBLE].

That's fine [INAUDIBLE]. We can try it. They all try anything that I can help them do.

EARLL
MURMAN: So as a supervisor, what's the biggest challenge you have in this job? I mean, you've got 25 people. That's a lot right there.

ROSE MARY
MUNOZ: Work together.

EARLL
MURMAN: Work together.

ROSE MARY
MUNOZ: And teamwork, that's the most important. When we're all working like a team, you can get anything you want [INAUDIBLE].

EARLL
MURMAN: Well, super. Well, let's go back in the factory. You've got a lot of work to do.

ROSE MARY
MUNOZ: Yeah. Thank you.

EARLL
MURMAN: OK, thank you.

CLAUDIO
GELMAN: Thank you. So this one's called stitching. Before in the computer stitching, the upper was in the flat form. Here is the first time the upper takes a 3D form.

EARLL
MURMAN: OK.

CLAUDIO
GELMAN: So it's a cell, and basically, it will follow-- something stopped here. You have to understand. You will follow these [INAUDIBLE]--

EARLL
MURMAN: Yeah.

CLAUDIO
GELMAN: --to feed to what we call the assembly department.

EARLL
MURMAN: OK.

CLAUDIO
GELMAN: What is the sole.

EARLL
MURMAN: OK.

CLAUDIO Still, in the stitching department, you still have continuous flow. If you looked between the station to upper, to
GELMAN: upper, to upper, that associate just noticed he did not put another shoe on that tray until one was removed.

EARLL The combine, OK. Flow.
MURMAN:

CLAUDIO Exactly, so they're pulling--
GELMAN:

EARLL Pulling, yeah.
MURMAN:

CLAUDIO --very frequently. That discipline is very, very important. You don't want that overproduction.
GELMAN:

EARLL You're right. There are two there, two there.
MURMAN:

CLAUDIO And you still have-- they were stopped.
GELMAN:

EARLL I just saw the switch.
MURMAN:

CLAUDIO Yeah, and they were stopped.
GELMAN:

EARLL As soon as she pulled one off, he put one there.
MURMAN:

CLAUDIO It takes months and years to get that, but they understand. They understand that the shoes are not going
GELMAN: anywhere if they overproduce.

EARLL You know, it looks like a symphony. Everybody's playing together.
MURMAN:

CLAUDIO Yeah. Yes, exactly. It's a takt. It's like a rhythm.
GELMAN:

The shoe circulates to the department. They stopped. That's why they don't have a shoe here. The associate will put a-- and basically, the department is-- there are two basic operations. It's called the last thing, where you-- this is called the last.

EARLL The last, OK.
MURMAN:

CLAUDIO You have a last. This is a style, and you have a last per the foot. The foots are very different.
GELMAN:

EARLL Yeah.

MURMAN:

[INTERPOSING VOICES]

CLAUDIO Then they have-- the width is David. That's D. It's called David. New Balance specializes in width, so this
GELMAN: particular shoe goes from B, very narrow, to a 6E, very wide. And each foot requires a different last.

EARLL So how do we know when the shoes are going through this cell that-- are they making it for a particular size last?

MURMAN:

CLAUDIO There is a document that is printed every day and distributed to all the supervisors per value stream that they
GELMAN: know exactly the sequence, so he knows very well. The flow coordinators in this teams knows very well what's coming.

EARLL So that's done on a daily basis, so you're really responding on almost a daily basis to the pull in customer?

MURMAN:

CLAUDIO Right. Yeah, it's a daily. Yeah, daily.
GELMAN:

Sometimes are weekly. Sometimes are daily, but we know exactly. At the end of the day or the afternoon before, it gets put in these documents.

EARLL Is that based on the orders that are coming in for shoes?

MURMAN:

CLAUDIO Yeah, it depends on the work orders. Some shoes are go directly to customers. Some orders go to the warehouse.
GELMAN:

It depends who they are for. It can be a weekly work order or a daily work order. Regardless of that, this document is daily, and it gets distributed, again, to the supervisor, flow coordinator, and set-up people. Set-up people are the ones that bring the work.

So there's no question. So in the case of the last, the set-up person will have a document, so there's no need to talk. Every single transaction is very clear who's responsible, what needs to be done.

EARLL This must give you a competitive edge over your competitors whose shoes are being made in another country.

MURMAN: And the market is here, and there's a time lag between those two.

CLAUDIO Yes, it is. We're working right now with our lead time of three days. It's to try to help the retailers to minimize the
GELMAN: inventory, so it started Friday.

Saturdays and Sundays are big days. On Monday, they place an order. Three days later, we can deliver it back to them.

EARLL And this lady is doing it right now. She's--

MURMAN:

CLAUDIO Absolutely.

GELMAN:

EARLL Real-time response. OK, cool.

MURMAN:

CLAUDIO This is to be in a customer in three or four days, and that makes a big difference. Basically, in this department, these associates-- the shoe is put into what's called a conditioner just to get some steam to soften up a little bit. So when he removes a last, puts on the paint, and put the shoe on, it flexes [INAUDIBLE] to fit. The shoe gets cemented on the bottom.

EARLL OK.

MURMAN:

CLAUDIO The sole is the layer from behind. The associates with that yellow machine over there, basically, what it does is activates-- maybe I'll show you a little more closely here. So the shoe is cemented. It's put in this big dryer--

GELMAN:

EARLL OK.

MURMAN:

CLAUDIO --to dry. The sole underneath, this comes from behind.

GELMAN:

EARLL OK.

MURMAN:

CLAUDIO The right sole for the right upper. The cement gets a little bit of heat in that--

GELMAN:

EARLL In that oven?

MURMAN:

CLAUDIO It's called a activator oven. Then the associate will get the upper and the sole activated. They will stick it together, put it in this big press where the shoe stays for two minutes to ensure bonding.

GELMAN:

EARLL OK.

MURMAN:

CLAUDIO And then goes to our table where the packing associates will do some basic inspections, will remove any cement, will apply the laces, any tags, advertisements. Some tissue inside the shoe to keep its shape inside the box.

GELMAN:

EARLL Yeah.

MURMAN:

CLAUDIO Get packed.

GELMAN:

EARLL And that's it.

MURMAN:

CLAUDIO And that's it.

GELMAN:

EARLL OK, so Claudio, this now goes to your customer, and if I--

MURMAN:

CLAUDIO Yeah.

GELMAN:

EARLL If I go to a New Balance outlet or a shoe store, I can buy this.

MURMAN:

CLAUDIO You'll see those shoes, absolutely.

GELMAN:

EARLL Claudio, thanks so much for showing--

MURMAN:

CLAUDIO It's been a pleasure. Really, a pleasure.

GELMAN:

EARLL And you know, as we're leaving, I kind of want to know, what's the next step in your lean journey?

MURMAN:

CLAUDIO It's interesting. The answer is more of the same, but what I mean by that-- everything is about the thinking. So what we'll do, we will work in more sophisticated problems. We continue sharpening our problem-solving skills, so we will be able to resolve more complicated waste problems.