



Liz: Hi everyone, welcome to Waste360's NothingWasted! Podcast on every episode we invite the most interesting people in waste recycling and organics to sit down with us and chat candidly about their thoughts their work this unique industry and so much more so thanks for listening and enjoy this episode.

[INTRO MUSIC]

Liz: Hi everyone. This is Liz Bothwell from Waste360 with Jason Gates co-founder and CEO of Compology. Welcome Jason and thanks for being here.

Jason: It's a pleasure Liz. Thanks for having me.

Liz: So, I read that when you were a child you used to wait to see the garbage trucks come to your neighborhood. We'd love to hear a little more about that and your background and how you ended up here.

Jason: Yeah. My chore growing up was always taking out the trash. It was something that I've done for as long as I can remember. I actually got started more formally in the waste business working in New York City on some large infrastructure construction projects where my job was managing all of the debris coming off of our construction sites and on a project that was 80 blocks long and had 60 roll off boxes at any one time.

It was a full-time job managing that and it really gave me an opportunity to understand how the industry operated, what tools were available to waste companies to manage their businesses internally and to interface with their customers.

Liz: That's great. And then you've also spoken about the fact that your manual start in the industry helped you automate the right way. Could you tell us a little more about that evolution and how you initially started with Compology and how changed your technology to sort of suit your customer's needs?

Jason: The original idea for a Compology came from managing the waste on these construction projects and I have to credit my co-founder Ben Chehebar who was an engineer at Adidas and he was putting sensors in shoes and the playing surfaces that athletes were competing on to measure their performance. Then taking that information and going back and changing the design of shoes to see if he could actually help athletes jump higher, run faster, cut quickly. And it was his idea to put a sensor inside dumpsters to track a couple key pieces of information, their location, their service, time of service and then use images to identify the fullness and the content of the containers. And at first, we focused very specifically on commercial front load containers and capturing that information for commercial front load. And it was really through the voices of our customers that helped us develop and expand out of just commercial front load and into open top roll off which is construction demolition debris or scrap metal recycling.

Liz: Well what a start. I didn't realize the origin story. That's fascinating.

Jason: Yeah. My co-founder we've known each other since middle school so grew up together, went our separate ways for undergrad and early professional careers and came back together to start completely about six years ago.

Liz: That's great. And you seem very customer focused, and you credit a lot of Compology early success to being that way. Could you share how you've done that over the years?

Jason: It really is a cultural mindset shift within a company to operate that way. And the idea of getting customer feedback is one that is widely spoken about but very difficult to implement, actually. Everybody has their own views of the vision of where an industry should be headed and that can vary depending on your perspective right. So, a scrap metal recycler might have a different view on where the industry is headed from someone who is providing residential collection services or commercial front load

services. And what we have always aim to do with our team is be able to ask the right questions of customers, put their feedback in context to make sure you understand why a customer is responding that the way they are and synthesizing that with our own vision of where the industry should be headed or is headed and that is something that we aim to do every day and continue to get better at and certainly something that we're not perfect at yet. But I would use this opportunity as a shout out to all of Compology's great customers who are out there listening who have gotten excited and provided us with all of that great feedback that has contributed to a lot of the new products that we've launched.

In particular one that we're really excited about is a product that's called C-score which is able to actually count the individual pieces of contamination inside a recycling container whether it's a commingled recycling or cardboard container. And be able to report back to a customer to let them know that they might need to remove that contamination, they might need to change their collection route and actually pick that container up with a trash truck or even be able to enforce a penalty for having that contamination in the container in the first place. So that is a product where it was born directly from customers saying "Hey could you use the images from your cameras to do this?" And it took about six to eight months for us to really develop even just the first prototypes of. Now it's a product that's being used across the country with a lot of success.

Liz: Oh that's great. So, it is gaining steam. I was reading that you had done this, and I was wondering how the rollout of that is going.

Jason: Yeah, it's been a tremendous success. We started with just a handful of early adopting customers and now we have a c-score or contamination monitoring deployments across the United States and Canada. We've been seeing it used in a couple of different applications. Waste generators directly are using it to enforce internal corporate policies to make sure that their individual locations are recycling the best that they can and meeting their zero waste goals. And then we have haulers who are using the technology to change their collection routes and actually pull contaminated containers off of recycling routes and put them onto trash routes as well as use the information that we're providing to enforce contract policy that's already in place. So a lot of a lot of haulers already have the ability to bill their customers for contaminated

loads but they haven't had the ability to identify those loads as being contaminated or really enforced with data to show that there really is an amount of contamination that warrants the billing. In the past and so we're really giving them the tools to do that.

Liz: That's great. I'm glad to hear that you've obviously been on the forefront of the Internet of Things in the industry. Is your goal still to equip all 9 million dumpsters in the US with your sensors?

Jason: Absolutely. And I believe now more than ever the economics of making that feasible are coming to fruition. The cost of implementing Internet of Things technologies has continued to come down and the reliability and different applications of the technology continue to improve. So that is still something whole heartedly that the compiler team feels is the future of the industry and something that we're driving towards every day in our country.

Liz: Good luck. I'm sure you'll get there.

Jason: Thank you.

Liz: And I've also heard you speak about I² IOT or the industrial Internet of Things could you talk through that a little bit for our audience.

Jason: The concept of the industrial Internet of Things zooms out a little bit further and so with Compology we spend a lot of our time thinking very specifically about the waste and recycling industry. And while that is an industrial application there are tons of different businesses that could benefit from the use of Internet connected sensors and I² IOT or the industrial Internet of Things is more of an umbrella term that encompasses some of these other industries and other applications. So, where we're starting to see industrial and Internet of Things head is the larger transportation logistics industry. And in fact, we've had customers who run long haul over the road transport fleets and they're transporting bails of recyclable material. They started taking the cameras out of the dumpsters and putting them into their long-haul transport trailers to use for exactly the same value proposition, they want to know where their trailers are how full they are at any time and when they should go and service them. And that has actually opened up an entirely new line of business for Compology where we're transitioning and

launching a product line specifically for over the road trucking for 53-foot dry van and refrigerated trailer. But that is that is again one very specific vertical within transportation logistics.

We see applications regularly in manufacturing where equipment is now being outfitted with sensors to track for vibrations that may seem or maybe leading indicators of a breakdown or we see jet engines with sensors on them that are reporting data back to the manufacturer to let them know when preventative maintenance should be happening and making them safer than ever.

And we actually see some of that technology starting to appear in in trucks and there's been a lot of talk recently about smart trucks in the waste business and how the connected truck is making drivers safer and helping reduce maintenance costs and I would I would put all of those items under the umbrella of the industrial Internet of Thing.

Liz: So many applications for it. This is just the beginning.

Jason: It really is and it's exciting to see industries that have historically thought of themselves as old school really starting to see the benefit of applying that technology.

And I think there is a responsibility for the vendors, Compology included, to help usher in that change and for the other listeners out there who run technology businesses I think that's a something that we can all take a joint responsibility over is making sure that we're introducing these technologies in a way that, one add value to the businesses that we're serving, but that we're doing it in a way that is ethical and takes data and security into top concern.

Liz: Definitely because that is on high alert lately everyone is concerned about security of their data. So that's a great point.

And speaking of data are you seeing any trends and in yours now that you're aggregating more you know whether it's more waste, less waste, smarter recycling what are you seeing happening out there.

Jason: We have seen things mostly on a local level so while across we have, we have cameras deployed in in containers in 48 states, every province in Canada, Puerto Rico and Mexico now.

The most interesting trends are happening at a at a citywide level, I would say where we can directly see the impact of using technology. And I'll give you one really specific example that that we've seen that stands out is around the use of highly targeted education to combat contamination. We've been able to show that over time we can actually watch the number of and weight of contamination that's going into murph's drop over a week by week, month by month basis and in cities where they are using programs that are powered by C-score. So, we're tracking the amount of contamination that's in the container. We're educating customers about it. We might even be using a financial penalty to help people really realize that they need to make a change, that that contamination has come down by upwards of 60 to 70 percent over time.

Liz: Wow that's quite a number.

Jason: And we've been able to adjust the messaging to customers and the education that they're receiving to the point where it's very personalized so we're able to say on a per store basis a poor physical service address basis the types of contamination that are entering the container. Generally, when it's going into the container and specifically what they doing to change their behavior in order to not contaminate those recycling loads anymore.

Liz: Education has so much to do with it doesn't it? We spoke to Michele Nestor on a previous episode and she said you really can't do anything obviously without that, so it's hand in hand with all of the technology and the front end on the back end, but without that consumer education a lot of what we're doing is not going to scale right?

Jason: Absolutely. And I took this really interesting trip. It was a vacation to Tokyo last year and while I was there, I asked some of my colleagues to set up some meetings for me with the local waste management company just so I could learn how the industry operates in Japan. And I was fascinated with the way that they have embraced education around recycling and it starts actually in the classrooms for most children at that kindergarten, first grade, second grade equivalent level where the children there get

homework from school about what materials are recyclable and what are not and they can go home and they can teach their families about it. The result of doing that is they don't even have Murph. They're able to take the material, the plastics and the metals directly from the waste generator to the facilities that are going to be processing it and reusing the material because it's so clean.

Liz: Wow that's amazing.

Jason: And it was really an inspiration and that was right around the time that we were starting to launch our C-score products for the first time and it seeing where an industry could be given the right levels of education and the right support and was really inspiring and it's something that our art team really takes to heart.

Liz: Oh, I bet. So you're in the Bay Area of California is often first or among the first to focus on reforms, new policy bands etc.. What happening there now that's pretty progressive for an industry that many of us might not know about?

Jason: Well there's a new Senate bill that's a lot of us here in California have been watching pretty closely called SB1383 and it has a requirement that 75 percent of recyclable material, and they define recyclable as both organic and fibers, be diverted from landfills by 2025. And I think there are some particularly interesting elements to this this policy around how we're going to get there, requirement on hauling companies and cities to monitor containers for contamination and not service containers that are contaminants. So, the government in this case is being a primary driver and forcing cities and haulers to adopt new processes to manage contamination in those containers to get to those zero waste goals.

Liz: That makes sense. That's quite a driver.

Jason: And I think it's interesting because the conversation is always centered around how do we get to this end result but what is it going to cost. And everyone is cost sensitive. Whatever solution gets put into place has to be scalable from a cost perspective. And I think it's really interesting that there are a lot of ideas that get put out and proposed which are cost prohibitive or may work at a very small scale. And there are a handful of things that have been proven to work at large scale and how do we

make sure that municipalities recognize what those technologies are, get them implemented and make them part of the model policy.

Liz: And are you seeing progress already?

Jason: I am I am. So, Bay Area Air Quality Management Authority, Livermore sanitation and Compology have teamed up to start working together on implementing a monitoring program in in Livermore specifically on organics. And we've been having tremendous success with being able to identify contamination going into organics containers and getting it removed prior to service, which is dramatically increasing the cleanliness, the purity of that organic stream. So that was something that with 1383 coming down in the next couple of years, the San Francisco Bay Area Air Quality Management Authority and Livermore Sanitation wanted to team up to really run this this pilot program and be able to use the experience and the data that we collect to serve as a model for other haulers and other cities in California who are going to have to meet the same requirements.

Liz: And 2025 is going to be here in no time.

Jason: That's right. The clock is ticking.

Liz: So do you think the industry is moving in a direction where it's more data driven? It certainly feels that way. But what are you seeing and what are you thinking? Because you're on the front lines of this.

Jason: I do. I think the waste industry we should be giving ourselves a little bit more credit than we than we have in the past. That we've certainly used data to make informed decisions historically. And I think it's not necessarily about collecting new data points but it's about collecting those data points more efficiently and more accurately.

For example we've always tracked the efficiency of driver and understood you know time of collection for time, or to collect, yards per hour, how long it takes a driver to do a route, those concepts of efficiency are not new but we're just getting way more effective at tracking them using technology on truck and technology on containers to confirm when the when the work is actually happening. I think there are still tremendous

opportunities and certainly there are always new things that we can measure. But I would also say that there's a lot of low hanging fruit still to be picked by helping to automate the collection of data points that that we've collected for decades. You know, another really good example of that is we do a lot of manual auditing of containers whereas whether that be sending a person out specifically to go and look in containers and track how full they are what the contents is or having a driver stop part of their route and go out and check containers. It's an activity that's been done regularly for decades. And how can we now use technology and container monitoring and all the different sensors that are out there to automatically collect that information on a regular basis. One at a lower cost and do with a better-quality result of information that lets you to make more informed decisions.

Liz: Sure. So, you're speaking at WasteExpo in a panel discussion called Artificial Intelligence in the War on Contamination. What takeaways can attendees expect to get from this session?

Jason: I'm really excited for the session, Liz!

Liz: It looks awesome, Jason. I'm going to have to sit in on this one as well.

Jason: We've gotten together Jason Rose who's an Area Vice President for Waste Management and Pat Carroll who's the President and CEO of Environmental Solutions Group, who manufactures truck bodies and the third eye truck bays video monitoring system. And between the three of us, we've seen a fair amount in terms of what has and has not worked from a technology perspective in the industry.

And so, Jason Rose, he's bringing the operators perspective of why technology and why technology applied to contamination is really needed and the benefits that he's seen directly from implementing new technologies in his operations.

Pat is going to be able to talk about some of the things that ESG is doing around the technologies that are available on truck.

I'm going to be able to talk a little bit about the technology that's available in containers and we're going to synthesize it all together and really trying to focus on results. So,

what you can expect to see when implementing new technology and really what technology is coming down the road and in the coming months and years, what we should be expecting to see that's not already on the market today.

Liz: Oh, great. Looking forward to that.

Jason: Yeah. So, we've all been in the trenches and have some great experience to share around what's worked and what hasn't. What some of the "gotchas" are when implementing this kind of technology and when making a technology purchasing decision what are some of the questions that should be asked to make sure that you're implementing the right thing for your application and I'm really excited. It's gonna be fun.

Liz: Okay great. So, what else should we be paying attention to in the world of waste recycling and organics?

Jason: Well I think in the industry what we're starting to see is a larger responsibility of large waste generators saying that they want to contribute to our zero waste goals. And that comes in a lot of different forms. We're starting to see waste generators change the packaging that they're using and collaborate specifically with big recycling companies to understand what materials they should and should not be making their packaging out of and what they can be doing themselves and ordered to reduce the amount of non-recyclable material that's getting generated. We're seeing a shift of large waste generators to promote an industry around the reuse of products as opposed to single use. And I don't know about you but in San Francisco it feels like almost everybody has a travel thermos, BYOB mug to the coffee shop as opposed to just using a paper cup. The push from generator responsibility side, I think is really interesting and is helping to drive change in the industry in a really positive way. It's bringing awareness to it. It's making consumers more conscious of what they're buying and who they're buying from. And it's really changing that dynamic. Right there are supplier companies who now get a lot of credit, get a lot of customers by promoting how focused they are on diverting waste from landfills and doing making a sustainable choice. So, I think that's going to become an increasingly influential piece of the industry over the next several years.

Liz: I think you're right and I think with the upcoming generations they're going to expect that, and we will have to deliver that. So, it's no longer about OK is this recyclable, it's

OK what materials are you using to begin with and where will it end up. And I will choose from there, at least it seems that way.

Jason: Yeah, I don't know about you, but I still get confused sometimes in terms of what's recyclable and what's not. There's a lot of packaging out there where it's unclear or it might be a mix of recyclable and non-recyclable material in the same package. Frankly it confuses consumers, right? I work in the industry and sometimes doubt it even exactly sure where materials should go.

Liz: So true. And then so what advice would you give to professionals entering this industry for folks who are entering the industry?

Jason: For folks that are entering the industry, there is a ton of excitement and experience maybe in tangential industries and with new technologies that we can bring. But I think it's also important to remember that our industry has not gotten to where we are today by mistake. And that there are many experienced individuals and companies who have tremendous perspective to be able to offer. And it's really about marrying the understanding and of new technology and new applications with that historical experience. That is what's going to generate and move us forward.

I think that goes back to where we started the conversation around being able to use customer feedback and a lot of the time, it's the new commerce to the industry and kind of the next generation of management here. It's our responsibility to help educate those who have been in the industry for much longer and hold that experience educate them in terms of what's possible and really use them as a resource when thinking about what that next step is and what their industry really needs from a tools and processes perspective. But I think a mistake that can commonly get made is technology is going to rule the world, we're right, you're wrong. I think that one causes a lot of folks to put up barriers and be resistant to change but also you don't end up with the best result when you're when you're developing technology in a in a bubble or in isolation. You lose perspective on what's actually happening, boots on the ground, and at the end of the day you have to remember that the trash still needs to get picked up right regardless of what cool sensor or piece of technology you've got on your truck or in your container or anywhere else in your operation. The garbage still needs to get picked up.

Liz: Exactly. If you nail it down to that, it's simple. No one wants that at the end of their driveway or in their business. Right it's you need to pick it up and get it done in the most efficient way possible.

Jason: That's right.

Liz: So, what keeps you busy outside of work. Are you loving the Bay Area?

Jason: I do so I'm fortunate that I do get to travel a fair amount throughout North America and to some of our manufacturing partners in Asia. And so, I enjoy being able to see different parts of the country. I've been I've been training for some half marathons. So, I'm getting the opportunity to run in different cities has been pretty fun and I find myself chasing a whole bunch of garbage trucks at dawn as I rolling around working.

Liz: ;That's great. Good for you. And then Jason, how can listeners hear more from you and Compology to ensure your Twitter handle or your URL?

Jason: Yeah, you can hear more from us on Twitter @Compology. And we have a blog up on our website at Compology.com/blog.

Liz: This has been such a great conversation, Jason. I've learned a lot and I'm really looking forward to seeing you at WasteExpo.

Jason: Likewise, Liz!

Liz: OK, thank you.

Jason: Thank you.