

Business901 Podcast Transcription

Implementing Lean Marketing Systems



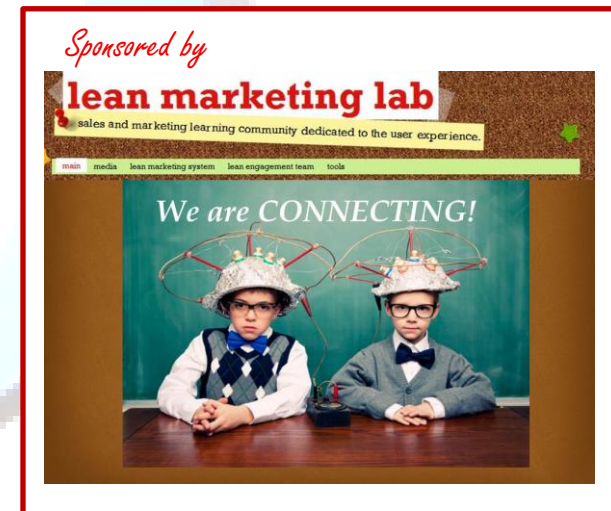
The Power of 3: QFD, Taguchi, TRIZ

Guest was John Terninko

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Aaron Shapiro CEO of digital agency HUGE in Users, Not Customers: Who Really Determines the Success of Your Business, shows why today's most critical driver of success is usability excellence.

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Transcription of the Podcast

Joe Dager: Welcome everyone! This is Joe Dager the host of the Business901 podcast. With me, today is Dr. John Terninko. He has been talking about getting out of the building and seeing customers in his approach to design problems for over 20 years, utilizing QFD, TRIZ, and Taguchi methods. He has authored or co-authored the books *Step by Step TRIZ* and *Customer Driven Healthcare*. But I am reminded by a Ben Franklin quote, "Read a lot, but only a few," which I will borrow to describe his book *Step by Step QFD*. Though I read many, it is one of the few I read a lot. I'm honored to have you on the podcast John. Thank you very much for coming.

Dr. John Terninko: Well I have to live up to that now, huh?

Joe: It's been a great book for me, and I have to start out because you're one of the few people along with Akao and Brian Joiner that promote the use of CAP-Do. There's not much discussion about CAP-Do, and I talk about it a lot but we really don't check to see where we're at first.

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John: Yes.

Joe: *Is that the essence of it, where you think product development should start in that area?*

John: I don't think most organizations really pay attention to what the customer wants and finding out what is the essence of it. Some of the designs are just unbelievably bad. I actually worked with one organization that did not allow anybody to bring in the competitor's products to look at it. Does that make any sense?

Joe: *No. I think you can learn from everybody.*

John: Yes. But see the challenge with the check is, what's the criteria you're going to use? I'm always thinking the AHP approach – the analytic hierarchy process. We're having some weighted criteria that are used. And then to link that up to the Japanese Hoshin, "How does that relate to my business future? What's my corporation's 50 year plan?" It's not profit. It's what do we want to be known for. CVS has just stopped selling tobacco because their image for themselves is they're a healthcare facility.

Joe: *We talk about that now and the lean startup and design thinking and all the new innovation methods, it's like, "Get out of the building and go see a customer." But this has been your approach for 20, 30 years, right?*

John: That's right. My first experience was when I was a prof. at UNH and one of the

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courses I taught was Production and Inventory Control, and I asked the class, "Has everybody ever been in a factory?" They said, "No."

Joe: *Would you take your class outside?*

John: Yes. I made an arrangement with a local company so they can see what it's like.

Joe: *Your books – Step by Step QFD of course I'm the most familiar with – but fairly straightforward. They really do give you step by step ways of going about stuff. But you tackle some pretty weighty subject. QFD, Taguchi, TRIZ – you really gotta want to do them, don't you?*

John: There's about five of us like me, and that's because we were at the right place at the right time, which was roughly 1980 when Detroit all of a sudden panicked that the Japanese were blowing them out of the water. And so the five of us, and contrary to the beliefs of our corporate lawyers, we used to get together because we were all from different companies to try to figure out what the Japanese were doing. And so the first thing we heard about was quality circles. And so what do we do in the US? Well we had hourly workers worrying about parking lots and lunch time and a bunch of other things and nothing about what really helped the company. And so during one of my trips to Japan what I saw is, visible to every hourly employee was the corporate vision. Guess what, if I know what the corporate vision is I might even do this quality circles stuff to help us get there. If we go from that, then that just kind of rolls down to paying attention to what needs to be done.

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Joe: *Those subjects you pick like I said; they're kind of weighty. They're not the easiest for most of us to grab hold of. Is QFD and TRIZ and Taguchi still alive? Are you still seeing a lot of interest in them?*

John: Here's my 30 second analysis. U.S. industry is too lazy, and they're not interested in doing it the way it should be done. Even with Six Sigma. Hewlett Packard's just peeling down how much time we spend finding out what Six Sigma's all about. In the old days – whatever that means – corporations were comfortable with people five day courses. I mean you have trouble getting people through a one day course. So yes, it's being pared down, and I don't think they're really – you have a bunch of accountants running corporations, and they don't have a clue.

Joe: *What's the connection between all three of them?*

John: Take a Venn diagram, and I think I have that in a couple of my books, where one circle is QFD, one circle is Taguchi, and another one is TRIZ. So a simplistic way of describing it – what's the first thing you ought to be doing? Well the first thing you ought to be doing is finding out what the customer wants. QFD helps you understand what the customer wants. But a lot of people lose sight that part of what QFD does is translate the voice of the customer into the voice of each one the functions in the organization necessary for the organization to produce a product or service that you want to provide. So that's an important aspect of QFD – the translation, because the language of the engineer doesn't match the language of the manufacturing people. So you get that nice flow. Now

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all QFD is wave a flag that we need to worry about this. What's the system design? We have a system, but maybe that's not the best system. So for instance what Taguchi is useful for, if you have an existing system, and is a particular aspect in terms of performance, the customer is complaining about, then using Taguchi's now called robust design is a great way of doing it.

The more dynamic aspect is allowing you to tune to whatever performance you really want which is a major breakthrough in terms of design of a product or service. How do I design it in such a way in order to tune it to whatever I want the outlook to look like? The other thing is within a system, whatever the system is, sometimes we have conflicting requirements. One simplistic application of TRIZ is, how do we come up with the design without compromise with conflicting requirements? That's really powerful. Even to consider that as a possibility. The mind-boggling aspect of TRIZ is the ideal system is no system. You satisfy what's needed with nothing. My favorite example around my house – I'm sort of dandy. I have a set of shelves which are roughly eight foot high; eight foot long, one foot deep that only requires six nails to hold this whole thing together. It's got six shelves, a foot space between them. I'm using gravity. Now why do I design it this way? It's really easy for me to take it apart if I want to put it someplace else.

Joe: *The design methods really allow us to simplify things for use.*

John: Yes. The most powerful thing of TRIZ is getting people to recognize that if I raise the level of abstraction of whatever I'm pondering, it allows me to look into other disciplines that I'll get some wonderful ideas. Now getting someone to look another

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discipline is a real challenge in the US.

Joe: *Sure. Tough enough sometimes just to get people to look at competitors.*

John: Another aspect of TRIZ which is great is the patterns of evolution. You can look at the pattern you're on; you can look at the pattern your competition's on, and so you know where they're going, and knowing where you seem to be going.

Joe: *Nowadays it's gotten so easy to prototype; it's kind of short-circuited things a little bit. Do these methods complement that to get it out in front of the customer and leave him try things earlier? Taguchi, TRIZ and QFD – do they fit that mode?*

John: Prototyping is a good idea. It's a nice way of verifying that you're going in the right direction. It also gets you going out to the Gemba. If you're prototyping it that means someone's really going to use it in the right environment. I won't name names, but there's a well-known college that was just bragging about this wonderful project they have where they're going to, in some disadvantaged country, do arsenic testing inexpensively. They described the design. Then they went out into the field and found out that it would have difficulty working in the rain. It really takes two people and on and on. I'm saying, "They didn't consider those things in the design that they went out with to verify that it worked?" Is that what prototyping is?

Joe: *You're saying that we better recognize the balance in that before we do it?*

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John: Definitely.

Joe: *I know your passion these days is the environment, so can you tell me a little bit of what's keeping you busy right now?*

John: My big project right now is creating a 30 acre – I'm a very fortunate person; I own 253 acres – a 30 acre habitat for the New England Cottontail. It's a four year project before the bunnies even get here.

Joe: *Well they're going to have a nice home, aren't they?*

John: Well actually a part of the requirement is for me to have four or five hotels per acre. The New England Cottontail doesn't have good sight and for that reason it goes looking for shelter right away. And so the fourth year is going to be planting a thousand shrubby kinds of things. But the brush piles are for their nesting to protect them from critters.

Joe: *I have to ask, how do you keep all the critters out once you build the habitat? It seems like a place that if I'm a critter that wants a Cottontail, I'm coming before the Cottontail.*

John: Well supposedly there's enough brush and places to hide that they'll be able to survive. I mean we're not going to make it an artificial environment because currently they're being raised in artificial environments. One batch is being raised in New Hampshire, and another batch are being raised in a zoo in Connecticut, and they're going to come

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here.

Joe: *What drove you to this? How did your passion develop?*

John: Okay, how about I just tell you I was raised in Newark, New Jersey.

Joe: *Well you didn't see a Cottontail before?*

John: I didn't even see a squirrel.

Joe: Yes.

John: My first professional job was with AT&T Bell Labs, and I met a bunch of people there and we decided – in those days the Homestead Act existed. If you built a structure within five years on a five acre piece, they'd give you 20 acres. The game plan was – we were three couples – I was going to be an electrical engineer, my girlfriend who I didn't marry was going to be an airplane pilot, and Bob's wife was going to be the nurse, and Bob was going to be a mechanical engineer. So we had our whole little system. But we were already going corrupt the ecological design because the closest neighborhood was on the average 40 miles away, and we were going to have three homes pretty close to each other. So that was the mentality I had when I was 22. Then I got this opportunity to teach at the University of New Hampshire, and I haven't left.

Joe: *Are you attending any TRIZ conferences or anything?*

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John: France has does something really interesting with TRIZ. Nikolai Khomenko who's now deceased was a prof at Strasbourg in France. During a ten year period of time, Strasbourg was training professors to train future teachers to train fifteen to seventeen year olds. The educational system in France, very much unlike what we have here, is kids are tracked as to where they're going to go. So these are people who are going to be technicians and what not. And they were teaching these kids TRIZ thinking. That's a great idea. Right now they have a few hundred thousand kids that have been trained that way. I'm in the process of working with a teacher's college, working our way through the feasibility of doing this, taking that model and using it from nursery school right on up to high school in the STEM courses and anything else that's possible. There's already a book that GOAL/QPC is selling which is called Productivity. It's designed for three year olds up to eight year olds, and it gets people to break out of their paradigm in terms of seeing what's going on.

One of the fun ones is the plus and minuses of everything and you say, "John, how come you like the bats that you have in your barn?" I say, "Well bats are good because they catch mosquitoes." And the person will say, "Yes, but the bats also poop on your car." I say, "Yes, they poop on my car is bad but if I move the car, it poops on the ground and guess what, that's good fertilizer." And then say, "Yes it could be good fertilizer but it causes you to have to mow the grass more often." And I say, "Mowing the grass is good because then I could use it for compost." So what it shows you is you could see the plus and minus on a continuous whatever kind of direction you want to go. And that's a great little exercise for kids and adults.

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Joe: *You're saying that TRIZ development is just as simple as that. It can be a great exercise for kids and adults?*

John: Yes. Are you familiar with the 40 principles?

Joe: *Yes. I can't say I'm an expert at it and a practitioner, but I'm familiar certainly.*

John: Just take that and forget about using the matrix and all that other stuff. You got some problem. If you go to The TRIZ Journal that still exists, and take a look at the contradiction table, I think there's sixteen different applications of the 40 principles. I did one on social applications. Let me take those engineering terms and just say, "Okay, let me try it for biology. Let me try it for social. Let me try it for farming." It's really interesting to see how that breaks the paradigm of potential solution concepts.

Joe: *Well I think so many things that have been discovered have been borrowed from nature or borrowed from other industries.*

John: Yes.

Joe: *That's really breakthrough thinking when you do that, but it's not really that much breaking through, it's just "open your eyes a little bit."*

John: Well for a lot of people that's a breakthrough.

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Joe: *I see that when you go to Lean 3P now. They talk about going back to nature. It's just that we have to take the old and create something new out of it to be able to apply it, to get people excited about it. With TRIZ and QFD, I read things, "QFD has died now," or "TRIZ is not popular." We kind of recreate it but we're using the same principles.*

John: I think that a marketing ploy of consultants. But there is some truth. The reality is our view of the world is influenced by vocabulary we use. Sometimes changing the words causes a breakthrough for people. Let me get a little spiritual. There's a four volume book – and I forget who the author is – Conversations with God. The person doesn't know who he's talking to and eventually says, "Who are you?" "I'm God." "Do you talk to everybody?" And God says, "Anyone who'll listen to me." "So how do you communicate?" And God says, "Well first I communicate with feelings, and if feelings doesn't work, then I try thoughts, and if thoughts don't work, then I try experiences. And if experiences don't work, then I use words. And words are the worst way of communicating because those are approximations to feelings, thoughts, and experiences." I tell you that story because I think it's a great model to understanding the difficulties we have in terms of understanding each other.

Joe: *I think that's excellent. I think that's one of the best sales and marketing lessons I've ever had.*

John: It's simple words. It's just unbelievable. My favorite story about Taguchi – are you familiar with American Supplier Institute?

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Joe: Yes.

John: They were actually a spin off from Ford, their supplier quality support group. ASI would hire a couple of college students for the summer. It was kind of an internship. This one student who now works with them full time, actually for about 20 years, was a double E major and he had his senior project, and he used Taguchi for coming up with the design of this system, whatever it was. The professor gave him an F because he didn't use the process of calculating things that he taught. Eventually, he was able to convince the professor to give him a D and the guy graduates. Well five years later the professor calls him up and says, "Can you show me that stuff that you used on your project?"

Joe: He had an awakening somewhere along the line, right?

John: I really have a multi-schizophrenic behavior in terms of the things I've dabbled in, and anytime I try crossing boundaries, people are very, very uncomfortable.

Joe: Is there anything that you would like to tell the listeners or to promote for yourself?

John: As a consultant, if you're asked to come in and help with a "Taguchi problem," because of my broad experience base, I might fix it with QFD. And the broader your experience base, the more options you have as to what you do.

Joe: Your email address?

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John: It's just my name – john@terninko.com. I'll talk to most anybody.

Joe: *Is there anything you'd like to mention that maybe I didn't ask?*

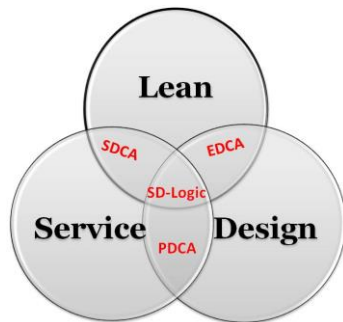
John: Well here are two environmental things. I really think our federal economists aren't paying attention with their notion that three percent inflation is good. The only thing that's good is zero percent inflation. And the other is, we gotta worry about this geometric growth of the world population. Spaceship Earth can't handle it.

Joe: *To commend you for the efforts and your environmental efforts, I think that's a great thing to do and I think that's a fantastic thing you're doing because it's always if you want to make a difference, it's all about starting locally.*

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Joe Dager is president of Business901, a firm specializing in bringing the continuous improvement process to the sales and marketing arena. He takes his process thinking of over thirty years in marketing within a wide variety of industries and applies it through Lean Marketing and Lean Service Design.

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