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Implementing Lean Marketing Systems

Applying the OODA Loop to Lean

Guest was Dr. Terrance Barnhart

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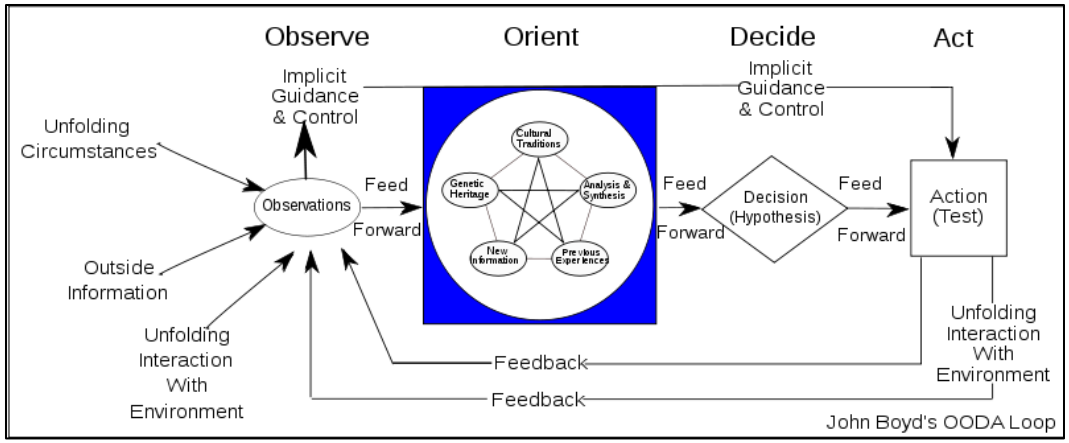
Dr. Terry Barnhart, the Senior Director Strategy and Continuous Improvement at Pfizer Global R&D discusses the OODA Loop in this Business901 Podcast. We expand this theory into some practical applications and using the OODA Loop in and outside of rapid deployment. Dr. Barnhart has an upcoming book due out at the end of the year on using Lean in Product Development. It will be published by Productivity Press.

For more information on the OODA Loop there is a Boyd symposium coming up on October 15 and 16 at the Marine base at Quantico, VA. You may contact Stanton Coerr Stanton.coerr@usmc.mil. Dr. Barnhart will also presenting a short course for Management Round Table on Lean in R&D, which will include a lot of Boyd theory, including the OODA loop and beyond, in Cambridge MA on November 3&4. Go to www.roundtable.com. The promo code FOT (friends of Terry) will give you $300 off.



Applying the OODA Loop to Lean

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Joe Dager: This is Joe Dager, the host of Business 901 podcast. Joining me today is Dr. Terrance Barnhart, the Senior Director of Continuous Improvement in the Strategic Management and leader of Pfizer's Agile R&D Team. In his current role, Dr. Barnhart develops a lean transformation effort designed specifically to implant fast learning systems to improve the innovation, quality and speed of pharmaceutical R&D. Terry has joined me on the podcast today to discuss John Boyd's OODA-loop principles.

Terry, could you start out by finishing that introduction and then tell me how you first became familiar with Boyd's OODA- Loop.

Dr. Terrance Barnhart: I became interested in Boyd's OODA-loop because of a friend of mine who had mentioned him in passing in one of his short courses. Your readers or your listeners might be familiar with Jim Luckman from some other work that you've done. He didn't have anything other than the name associated with him and that was just too intriguing. I started looking around and I found a gentleman by the name of Chet Richards, who still holds some of the Boyd work and still talks about some of the Boyd work. With Jim, we went to talk to Chet, and I think we spent 16 hours talking to Chet about the OODA-loop and about Boyd, because of course Boyd had passed on some years ago.

I was fascinated by what the thought process was and the study that Boyd had, and I've been a student ever since. I've tried very hard to learn as much as I can about this because the implications for lean the implications for innovation and the implications for teams are just tremendous.

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Joe: For the people that aren't familiar with the OODA-loop, it starts out as Observe, Orient, Decide, and Act. This is what the acronym stands for. People think about it from a military viewpoint, because that's where Boyd originally developed it from, as combat airfare, was it not?

Terrance: Well, I think he got it from that, but only that reflection from his later work. It really stems from his study of 3,000 years of warfare and specifically the 30% of wars that are actually won by the weaker, smaller opponent. It turns out, in his study; he demonstrated that in every study that he could find, every war that he could study, the party that learned the fastest won every single engagement. I mean, it might lose a particular battle, but they always won the war.

He studied that and he thought back on his time as a fighter pilot and there's some great stories about him never actually losing an air combat simulation as one of the lead instructors at Top Gun for the Air Force. His early work as a fighter pilot just fed that thought process that became the OODA-loop.

What's interesting about the OODA-loop is that unlike PDCA or DMAIC, which we think about which are really based on science, and how we think about science, the hypothesis generation, and so on, what Boyd talks about in OODA, in particular, the second orientation is really about the entirety of the thought processes that we have, all of the mental models, all of the assumptions, all of our backgrounds in genetics, make up our personal orientation.

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If we have very flexible orientation, what this means is, as things in the outside world come to us, we will be able to consider different options as to what that means, how it might fit with other things that we've seen, and what we might do in the future.

Now this becomes very important in war in that, when bombs start flying, when smoke is around you and things are very, very threatening, people's orientation locks. They stop being able to see the outside world in any sort of objective sense. They stop being able to think about how it compares internally to other things that they've seen, other things they've thought through and they stop being able to act entirely and when that happens, their hands go up, and they surrender.

I think the best example of this, a recent example, are the two Gulf Wars in which the same exact strategy was used against the same exact army with the same exact results. They've locked their orientation. As a result of that, even though they knew the same thing was happening, they couldn't find another way to approach it.

Joe: One of the things, when I look at the OODA-loop, that surprises me - it's applied to air combat and Top Gun school but it is also applied to a whole war effort. It's like there's a whole different tempo to it, or cadence that can be developed. That to me, is a hard thing to grasp.

Terrance: That's a really good point, and I think that's the real genius of what Boyd was able to do. He did an awful lot of work. There's this really nice slide deck on what he called the organic design for command and control, in which he takes the OODA-loop from the individual and expands it all the way out to very large organizations and everything in

between. The really slick thing about it is that orientation exists within the individual, but it exists within groups as well. So we, as Americans, have a certain orientation about government that it should be of the people, by the people, and for the people. We have a very different viewpoint about other countries because, for so much of our history, we've only had two on our borders.

But there's so much distance between the U.S. and Europe, for example, and the Far East that it creates within Americans a different viewpoint than Europeans have. There's nothing wrong with that, that's just a result, but it becomes this societal orientation.

Now what's interesting is you can create more flexible orientations with practice. You can create more flexible orientations by trying many different things. Just think about a small group. If you are a basketball coach, you want those basketball players to be able to handle very tall centers, you want to be able to handle very fast teams, and you want to be able to handle very controlled teams.

If you think about the various things that might happen on the court, you want your team to be able to adapt instantly to any changes and styles that they see, whether they're game-to-game, or within a game. The team that can do that the best will have the best chance of winning on a very, very regular basis.

Boyd talks about it in terms of small unit action. So if you're a small Marine unit, you want to be able to be very, very fast at assessing things at the local scale. If you're the Marines as a whole, you want to be able to assess battlefield situations, or even entire theater

situations and be able to adapt to them as they move. So it's really fractal. It starts with the smallest and ends up at the very largest scale.

Joe: We center on the Orient section of the OODA-loop because that seems to be that gray area, that gray matter that's going on in our mind. It's all of our traditions and the new information and our heritage that is affected. We're doing this spontaneously too, in a cockpit. Those things are still affecting us?

Terrance: Right. Maybe I'll go through the whole OODA-loop and just talk about it in the context of a cockpit and maybe in the context of Boyd because he used this to win engagement after engagement. He had a standing bet as it turns out to win these things. But if he's got somebody on his tail, he's going to try something. He's going to dive, he's going to go up, he's going to do something, and he'll be looking to see what it is that you do as a result of that.

If you follow him, and you stay on whatever his move is, he hasn't gained against you. But if he doesn't something that's unexpected and it takes you a little bit longer to react than it took him to do it in the first place, he can make another move. So he's now observing you. He does something, so he acts. He observes you, and you do something. If he sees a break between your action and the orientation he thinks you're going to have, he can now exploit that.

So he can decide on another action. He can either extend what he's doing, he could do another unexpected action, and then he acts again. So what he's doing is observing you, reorienting himself, deciding, and acting.

The faster he does that -- so, if I'm on his tail, and we're doing this, if he gets a little bit ahead, and then he gets a little bit more ahead, he is operating his OODA-loop faster than I'm operating mine. In the military sense, they call it, "Operating inside of their decision loop, or operating inside of somebody's OODA-loop."

That's Boyd, operating his learning cycle -- his Observe, Orientation, Orient, Decide, and Act cycle -- faster than I am operating mine. If he does that for any length of time at all, he will be on my tail, shooting me down.

Joe: He reacts very quickly and decides, and then acts again, decides, acts again, and brings out a stronger differential, a stronger differential advantage. This is warfare. How are we applying that in today's world? How are you applying that in Lean or R&D?

Terrance: Well, in Lean, let's start with Boyd's thought, and he thought that Toyota was the -- I don't know how broad a study he did, but Toyota was the one, very easy, shining example he had of a company that operated a fast learning loop, that operated an OODA-loop. Other companies were either not learning, or they weren't learning nearly as quickly. He could see Toyota separating from the rest of the automotive industry. If you think about the applications of the OODA-loop in your organization, my organization, or someone else's organization, we could imagine us using this in a competitive sense that is a destructive sense to overtake the competition.

Wherever we are now, if we start operating inside of our opponents OODA-loop, we will pass them, and we will do so in very short order. That's one way to use it. So if you could

create within your company, for example, this high learning rate, you will pass you opponent.

Chet Richards has a whole book entitled, "Certain to Win," on exactly that principle. So that's one, but the second is if you're thinking about installing Lean in a company and the company's never seen it before, or in a new area of a company.

R&D is a great example. That's where I sit. R&D has never seen Lean before and very well may have unhappy associations with the word "lean" and "mean." They may have heard of things that think it's a manufacturing gig, all this kind of stuff which may or may not be true.

But if you're going to overcome those things, essentially you must have a faster learning loop than the company does, in destroying your ability to create within that company. So you can create strategies that are specific to improving the company, using this OODA concept.

Joe: Is it a problem solving or is it a decision making type of methodology?

Terrance: That's a really insightful question. So if you look at PDCA, it's very much a problem solving sort of concept. I would say this is similar between the two. Or you are solving problems very, very quickly, but not in the demonstrated "by God, we know this is the case," sort of sense that PDCA would. The deep level of problem solving isn't really so much required as the fast problem solving. So you can think of it as problem solving, or you can think of it as decision making.

I would prefer to be a little non-committal on that. Because if I think back to orientation, any time that I can look at a problem and re-orient myself in such a way that that problem either doesn't exist or I can now find a path to its overcoming, I've done essentially the same thing, but with a different nuance to it.

Now in R&D, this is really important, because in R&D often the problems are fairly ill-defined. In the past, two of them are really not so well understood. It's so much of an orientation game, sitting with a problem long enough to be able to reframe it in a way, in your mind, so you've got an orientation so that you can even start against it.

When you've got problems like that, OODA -- I'm not saying it's just a better way to describe it, it's not really so much different, and it's just an easier way to describe that mental process of creation and innovation. Does that make sense?

Joe: It's like a current state model of how you make a decision, and then you go forward to make some changes and develop a hypothesis to the outside world, let's say. Or to a customer, make that hypothesis and you test it out on a customer and see how it acts, and then you observe it, and you come back. How does it make you change? Because you have your mental model, is it just in the recognition that there is a change out there, that you handle it? I guess I'm struggling with the question a little bit. It seems like you already developed a mental model.

You try out the hypothesis on, let's say, a customer, and then you watch the customer act. And your action -- I guess you act first in applying that decision, you watch the reaction of that, and you adjust to get what you are really looking for then, right?

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Terrance: This really drives in to a lot of the interesting difficulties with discussing the OODA-loop that you've experienced yourself. The really fascinating thing is that when you're working as a small unit, for example, what you really want to do is create unconscious capability against known approaches. So when something brand new comes up, you can spend all of your mental energy around that. And even then you want to have as broad an orientation, or as fluid an orientation, as you can. Where that preset stuff breaks down is where the people who are really good and really fluid come to the fore. But the guy who's flying in a fighter jet wants to have very, very quick response on things that are fairly well known and established.

So the thing that you're looking to understand is how does an organization reorient itself? The orientation itself is wrong, and Boyd would make that quite clear up front. It's not that it's wrong because you don't want to have a good mental model, good understanding, good current state of what the world is like. It's just that our minds are very small, and the universe is very large. So everything we have is this tiny model of what's possible.

What we want to do is to create the ability to change our orientations very quickly. Faster than in the case of war: our opponent. Faster in the case of business: our competitor. Faster than the universe as a whole: in the case of our personal growth.

So what does that mean? It means that if you've got canned responses that are faster than someone else's, you don't have to go through observe, orient, decide and act. It's almost like you observe and act.

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You cut through, right through the center of that. It's when you don't have that opportunity -- let's use your example, which I think is really good. When you go out to your customers and test something and come back, and try something else again as a result of that.

Toyota did a great job when they launched Scion, in that they stopped doing full-on North American launches. They launched in California with a bunch of different ideas. And then they launched in -- and I don't know exactly when the sequence was. But then they launched, say, in the Southeast. And then they launched in the Midwest.

Everywhere along that, they were learning about the audience they were trying to connect with. What kind of advertising, what kind of accessories these people would want, and what kind of basic market presence does Toyota need to create in order to access that young market they had had so much trouble with.

It's a much longer learning cycle than you would have in the cockpit of a fighter jet, but think of how much faster that learning cycle is than launching a Celica GT, and then waiting to see if the customers are going to show up, and then two years later launching another version, or three years later, or something. Much longer learning cycles than this idea that they took through their marketing.

So what really is very valuable with this whole idea is how you can create within your organization, the ability to access where your mental models are wrong, very, very quickly. Adjust your orientation very, very quickly to adapt to that.

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Joe: If you have that mental model, part of the orientation is that you continue on with what you know, because it allows you to concentrate your efforts on the changes that are happening around you. The part that you really know and are at your core principles, your core belief, let's say as a company. You know that is what works for you. You do not have to change any of that. What you have to do is adjust to the outside surroundings and concentrate, and tweak your efforts on that to be successful.

Terrance: Exactly. Joe, you've really hit it. If you think about it in exactly those ways, what you are looking is pinging the outside world with your company. Who do you have out there? Do you have your engineers out there? Or do you just have your marketing guy. Do you have your sales people coming in to your engineering area, or don't you? What are you doing to feel what's going on in the outside world? Because the outside world in doing a whole bunch of things to screw you up. There are new innovations all the time. Disruptive, some just incremental, whatever it may be. You've got competitors that are trying to eat your lunch. You got new people coming in from you know other markets that are trying to, you know work you on the edges and all that kind of stuff.

How are you out there observing the outside world, and then adapting your orientation, and then acting against it? So if you find out that your product development is twice as slow as your competitor's, you need to do something, because they will kill you.

If you find out that you are twice as fast in product development, and getting the right kind of stuff on the market, you know you probably want to look at some other part of your organization. Maybe you really could do some great stuff with those new products with a really interesting work on marketing.

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There's a whole lot of different things you can do, but if you're not pinging the outside world, if you're not getting that information and accessing it against how you think now, then somebody is going to do it for you.

Joe: You hear people talking about operating inside the opponent's decision space. We're inside the OODA-loop, can you kind of expand on what that means a little bit?

Terrance: Well essentially that just means that they are reorienting, deciding and acting faster than you can do the same thing. So, if I'm a small part manufacturer and I'm turning over new types of products or getting into new kinds of business twice as fast as my competitor, their products will seem old very quickly. Or I'll have been able to look in new areas that they can't access because I've just been able to get to different parts of the market and so on. Probably the best example of this is the Yamaha/Honda wars, I think its 1983-ish, where Yamaha built a big plant and announced that they were going to take over number one in the motorcycle industry.

Honda didn't fancy that, so Honda brought out something like 63 new models in the next 18 months, some ridiculous number. Because they did that, their R&D was creating new models, testing it in the market. Come back, change, and test the new model in the market. Change; test the new model in the market. They could do that literally two to three times faster than Yamaha could.

As a result of that capability, Honda was developing motorcycles that looked, felt, and acted different and were more aligned with the market as they went than Yamaha. They

were operating inside Yamaha's decision loop. They were operating inside Yamaha's OODA-loop.

Joe: How does OODA apply to other businesses?

Terrance: I think that OODA, if you think about just from that description of a learning loop, that could be at a very strategic level. It really can apply to any business that's really thinking about where it wants to move next. Because you can define that up front, or if you have a very high learning loop, you can have the market define it for you. And that means just what Yamaha, or what Honda did. That is, they came to the market and the market told them something. They turned around and pinged the market again with a new product. The market told them something, and they kept popping these things out. As a result of that they sent themselves in new direction that they might not have done had they not been at that speed.

You can do this if you're a small company. You can do this very, very rapidly. If you're running small and I'm going to say relatively non-complex. Everything is complex, as we know, but if you have relatively easy changeovers from model to model, if you can drop the cycle-time to bringing a new model out, you can introduce it at small levels.

This is just like putting out some flow, packets of flow, just like sending stuff out to the market to see what happens. Modifying it and let the market pull. This is a really nice link back into lead. Because if you can do this if you have a high OODA-loop, the market will pull good stuff out of your company. At least that's my belief. Haven't tried it in person, but I think the evidence is there.

Joe: Oh, I think it will. If the marketplace sees it, reacts to it, they will pull it. I use examples like YouTube starting as a dating service. The customers pulled the good things out of that dating service, the videos.

Terrance: Yeah, this is a really good point because the Internet business landscape is just one big gigantic pull from the marketplace. If stuff works, it grows like Facebook and Google and these kinds of things. They just explode. If people don't find it very interesting they might limp along. If people aren't interested at all, nothing happens. The thing is if you will, the economy or a segment of the economy is acting. You probably want for your company as the single entity to do this, rather than a whole bunch of these and a whole bunch of other stuff doing it for you. You would like to get it on a regular basis. I think you'd do it, but you again have to be operating at this high learning loop speed.

Joe: How does it -- OODA-loop -- actually apply to strategy? I mean, you think about it, war as a strategy. What's the connection between your strategy and OODA-loop?

Terrance: The connection between OODA-loop and strategy is that you want to run a strategy that has a high learning rate. So I will give you the rather unhappy example of the blitzkrieg, because it's really pretty fabulous in this respect. All the negatives aside and we understand that it's a very negative example. What they did in the blitzkrieg was to find the places where there were openings and run through the openings and then curl around behind and attack the opponents from the opposite side. Their strategy was to take, for example -- I'm just going to make it up -- take Paris. But what they did in fact was to look for openings in the lines and start cleaning out from behind the opposition forces, in a way that the opposition forces could not react.

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Their strategy was two-fold then. It's the objective, which would be the city they were trying to take and a thoughtful approach to doing so. Which was, we're going to apply probes everywhere, and as soon as we find a place that's soft, we're going to run through there.

We're going to keep a couple of better probes going so we find another place that's soft and run through there. So you have got four or five different forks coming through, it's going to happen so fast that the opposition won't know what to do about it. Once they are surrounded, their orientation will lock and they will surrender.

Honestly it's the same basic approach that was used in Operation Desert Storm and so on in the Gulf Wars. So, from a strategic point of view, if you are a company it probably will look different in that you will have different goals, they won't be destructive. But you will have essentially the same idea, so let's go back to Toyota going in its launch of Scion.

They're probing the marketplace, when they find something that works they're going to use that in the next probe of the marketplace. As a result of that, their strategy of achieving a solid commercial launch with high up-take in their chosen space is far more successful. It's not a big batch thought, it's about small packets of learning and building those small packets into that large value, just exactly like Lean.

Joe: The OODA Loop has come to the forefront in the last year or two, more so than maybe what it did for the previous five, or is that just my lack of knowledge of this subject? Are people talking about it more, are you seeing it more?

Terrance: I don't think that's just your imagination. I think that a couple of things happened. First, there was a biography of Boyd by Quorum, which is actually a fabulous book. It's like 1,200 pages long but it's very fascinating. It's fascinating stuff. I think that started popularizing stuff. The second is that it really took hold in the military in the last 10 or 15 years. Things take a while to filter out of the military. So as people are coming back from having been on the ground using this sort of thought process, it starts getting into everyday life. I think that's another aspect of it.

I think it's just, for example, people like you or me who have been talking about it in our environments, that someone else picks it up and they spread it. You're just starting to see the network coming alive with the idea.

Joe: I've seen it in the Lean software area more than other areas, and in the innovation area where they're looking at the loops. In the agile methods where they talk about the OODA-loop more because it seems a nice pattern to ground them in how they include the customer and how they orientate themselves to the customer. That's where I first noticed it.

Terrance: The analogy is really perfect. The really top agile programming folks are compiling every 20 minutes or something. Their learning speed is unbelievably short. Their learning loops are just incredibly fast. So I don't think there's anywhere else that runs a clock speed anywhere near as high as those folks. I could be wrong, but to your point, I can easily see it taking off in the programming area.

Joe: How does this work in a team concept? Or does it?

Terrance: Yeah, it depends on how you think about it, Joe. In a team concept, you're trying to create a team that has a higher learning speed and is capable of reorienting. So there are two things: capable of reorienting very, very quickly on the basis of new information. Flow sports are great. If you watch a hockey game you see a team that shoots a puck in somewhere, there's some flow to it, it bounces in a different way, something like that. The teams that are really, really good automatically adjust, actually without thinking but almost without any hesitation at all. There's almost no timeline between something strange happening and then flowing to the right place to be when that happens.

Why this becomes an advantage is, even if you're slightly faster, someone who's out of position for even an instant, opens up a passing lane and an open passing lane leads to a breakaway, a breakaway leads to a goal. You know, if you think of the old, the NBL Lakers, Magic and Worthy and so on, were fast-breaking like crazy. Those guys could turn an opportunity from nothing into two points just like that.

I think the analogy is really clear that with teams, the ability to turn as a unit starts to become the really, really big thing.

Joe: When I look at something such as pair-programming. I've talked to some other people about the collaboration and how you can instantly have quality built in the more collaboration you have, because of the fact that you have that feedback, that instant feedback, where you're sitting there with that decision you make and you're not waiting for feedback, let's say from a customer out there, you're getting it from the person right next to you.

Terrance: Well, that's right. As a matter of fact one of my favorite teams here at Pfizer, they felt that their inclusion of new data from outside, as well as their ability to share information inside, was too slow. So they would digest the paper -- a new paper would come out in one of these major scientific journals. It would take a couple of weeks and then it would get into the mainstream of how they were thinking and then they would have a new direction come out. Imagine that's a couple of weeks where you're doing the wrong thing or you could be doing the wrong thing. You could be spending a couple of weeks of research effort against something that's going to turn out to be not valuable and you could have known it two weeks prior.

This team thought about that problem for that exact reason and was able to put in place something where from the time of publication to the time that they changed their strategy and incorporated it within the group, was less than two hours. The absorption of it….

Joe: That turns into a pretty significant advantage.

Terrance: Oh, you have no idea. But that was just the start of it. So, you think about that and you start thinking "OK, what else did they need to do?" So I would be in these meetings and someone would suggest "You know, we need this data analyzed so that we can make this decision." Nobody requested a person to do it, but 20 minutes later it's in everybody's email inbox. It would just appear. This is exactly the same thing as the Magic's and the Worthy's, right?

These guys just know. Somebody just knew who the right person was to do it. They knew exactly who it needed to be provided to and they knew exactly what the content was that

needed to happen. They developed that sense amongst themselves. Once you do that, you cannot operate any faster than that.

Joe: I think that also comes from is that you follow a particular pattern. Because, again what we go back to, if that 80%, 90% you're doing in a structured way what you normally do, the lanes that you take down to court, people adjust to that and they know where you are and it looks all instinctively, but it's a pattern that you've developed over years sometimes. That makes it easy for the other person to recognize without even looking where you're at.

Terrance: Right. This is a great case in point. If you remember any of Magic's early time in the NBA or occasionally in the NBA All Star game, people who haven't played with him before, when he's got the ball coming up the court, they wouldn't be paying full attention. I saw him actually hit some other players in the head with the ball on a no-look pass, because they weren't expecting it. It's not that the pass wasn't the right place at the right time to the right person, but they hadn't developed that communication to know that Magic was going to do that kind of thing.

Joe: His orientation on a basketball court was superior of where people would be at, what positions they would be in. It goes back to that orientation of your surrounding areas of that you're doing it in business, you're -- I'm going to take this from a marketing spin a little bit -- your orientation within a market. If you truly understand where you position yourself in that market, that makes life a lot easier, doesn't it?

Terrance: Absolutely. If you have a really embedded feel for the playing field and how people move within it, then you spend almost no time thinking about the playing field. You start thinking about other things, like how are people lined up, where are the breaks that are occurring, where are the breakdowns of the opponent. You start thinking about more strategically more important things that you can then capitalize on. The example that I have from motorcycle racing is that, when you're first starting to learn how to ride a given track, but how to ride as a racer, you spend almost all of your time trying to figure out braking points and turning points. You're spending all this time on the mechanical stuff.

After you've gotten enough of that into yourself, you start spending more of your time on other things that are much more subtle, but make all the difference in your ability to get ahead of your opponent. Same thing is true in just about every aspect of life.

Joe: Where do you think Boyd was trying to take the OODA-loop? Do you think he had more he wanted to do to it when he died? Do you think it was open-ended on purpose, that he just kind of left it there, and went away from it?

Terrance: Boyd specifically did not write a book. There's no doubt he would be capable of it. As a matter of fact, he wrote a book on air combat maneuvering that has not since been updated. That was in the 1950s. He didn't believe that the theory should stop in this area, and I'm going to say in fast learning, but, you've got to take him beyond the OODA-loop at the point where you start talking about that. Because he wanted to think about, how do you create environments in which people succeed? OODA is a portion of that, you can interpret a lot, but, really, OODA's just a portion of that.

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How do you create environments in which our Army, of course he was working with the US military, will always succeed and cannot fail. That's a tall order. But it requires an awful lot of study of an awful lot of different things. And the reason, I think that you would find -- and I don't know this for a fact because, of course, I never talked to him -- would be that if you looked at things that people have written down, people tend to codify that as the answer.

In the Lean community, you can easily look to a couple of seminal works and see where people have stopped thinking beyond those things. He never wanted that to happen. He didn't want it to just be the OODA-loop, or just be what Boyd thought he wanted people to continue progressing this.

I think that comes from his studies. He read something like 30,000 books, some seriously ridiculous number. I personally know a person who's read about 10% of the library that he donated on passing. It was thousands of books, that. So it's a pretty impressive piece of work that he did.

Joe: He sounds like a guy that could have tested a Kindle's capacity?

Terrance: Blown it up. From that, you know, you just can't -- if you've seen it before, you've seen people take concepts and lock them in. If you've seen that, you can't let that happen to your own work.

Joe: You felt that it was a continuous involvement, his learning. When was the OODA-loop actually created?

Terrance: I'm not sure when he finalized it, or whether it was ever quite finalized, which gets back to your comment before. But I think he had the nascent ideas of that in the 1950s, when he was flying. I think it came into real strong existence and understanding in his work, when he started building strategy in the '70s, and when he started really presenting it in the 1980s. So the military reform movement, he was a very big proponent of, and component of. I think it was really starting to gell very tightly by then.

Joe: Do you think the OODA-loop is going to stay as popular as it is now in certain circles? Do you think it's going to be expanded on? Is someone going to carry the torch?

Terrance: I don't know. I think the OODA-loop itself is probably as baked as it needs to be. What I think is going to happen is that people will expand on the thought processes surrounding the OODA-loop, of which there is quite a bit, by the way. But the thought process is around how you create environments in which people can quickly re-orient themselves. How can they re-frame their thought processes? How can they see their thought processes, and find the ones that aren't working and throw those out and try new ones?

There's an awful lot of study left to go in that. There's an awful lot of work that's out there already, which is a lot of what Boyd read. But there's just such a tremendous body of experimental work to do yet, and I think that's where people like me, you, and others in the Lean community come in. In essence, we're doing some of that work. It's not specifically Boydian, but it's certainly the same ideas. How can you better improve a company's ability to adapt to a changing environment?

Joe: I think those are pretty big questions, probably bigger than me when you go through that. But it does seem that when you look at that and we start using words as mental models, - and a company's mental model of their environment - as things are changing here, we have to adjust very quickly to our surroundings to be able to succeed anymore. I think that's really what a lot of this is about.

Terrance: Absolutely. It gets nothing but faster. And if anybody imagines that things are going to be slower or easier because China has suddenly come on board, they're really in a tough place. But I don't think anybody believes that. I think we really are now learning how to adapt more as industries, let's put it that way, as companies. But I think that's going to accelerate, and I think there's just nothing but tremendous upside to companies doing that.

Joe: Well you had mentioned to me if I wanted to read more about Boyd to read Frans Osinga's book "Science, Strategy and War." I got that book after you said that and I have not finished it. I'll say this, it's not one of those books that I could sit down and read cover to cover in one sitting.

Terrance: I'll tell you I didn't find that a particularly easy read. It's clear. It's a clearly written book, but man, it is hard slogging. It gets into the theories that Boyd used to create his thought processes.

Joe: One of the things he mentioned in there is what he called the 'strategic game' as one of interaction and isolation. Can you expand on that just a little bit for me?

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Terrance: Yeah, all his stuff is so fascinating: Interaction and isolation. If you become isolated, your orientation will lock, or it will slow down really dramatically. In war, the whole idea behind winning without firing a shot is to isolate those people from what they're external world is telling them. That's why people make fog in war, that's why they shoot warning shots, and that's why they do all these kinds of things. Even if you don't do anything else, you isolate them so that those people can no longer make sense of the world around them. If you put a person in a box, - solitary confinement - people go crazy in solitary confinement.

Why, because they've lost touch with the outside world. Their orientation stops working, and they can no longer grow in themselves. You can do the same thing to a company. You can do the same thing to a government. You can do the same thing to just about anything.

So what you really want to do is create the ability in interact yourself with as wide a number of people, with as wide a number of experiences as you can, and you'll never be isolated. Where, your opponent, assuming you're in a competitive situation, will likely be more isolated, and more so, as they do things that are inconsistent with their surroundings. Why is this useful if you're doing Lean?

If you've got a strategy to install Lean in an area where there's significant resistance, why go after the resistance? That's attrition warfare. That's really going after the stuff that people want you to go after. Go after the stuff that's easy to go after and move that, and then isolate those areas of resistance.

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Don't fight them; just isolate them. After a while, when all this good comes from Lean, it almost invariably happens that people are going faster, and they're happier. You've got pole systems that are getting things through cheaper and more effectively.

What will happen is the naysayer's will either collapse because they've lost touch with the rest of the world or, frankly, they'll find themselves on the out.

Joe: The analogy, again, I go to the marketplace of a business outside of an organization is as you gather more market share that's kind of how an idea takes off, how a let's say a YouTube turns into a movie thing from being a dating service, is that as they develop that and they interact and create the interaction of it, the other ones that were putting movies on the web became less and less, and they became the dominant player. With that interaction and I can relate a little bit to the Internet world of how companies grow and how others get isolated and fail. I mean, when I'm looking at the different social medias like we talked about, a Facebook type thing, when they were growing as a college network, they weren't the only ones doing the same thing at that point in time, but they were able to take their interaction to different colleges and grow it and the other ones just became isolated and fatally succumbed to what the dominant player was.

Terrance: That's right. This goes back to not just those Internet companies, but any company that's really interacting with the outside world is going to find things that other companies will not. If you've got your engineering out there and you're not afraid to have those engineers out there -- scientists, what have you -- if you feel like your sales people are the only people who can be trusted to talk to the outside world, you just won't get that

unbelievable set of opportunities that more eyes, different kinds of eyes can have when they interact with the outside world. Does that make sense?

Joe: It does, because one of the things I've talked about a lot and I haven't been able to -- that I'm really looking forward to talking to someone on my podcast sometimes, here's a plug to get someone on here, but sales is no longer a single event. It needs to be a team and a collaborative event with your customers. And I'm not sure, I think companies are doing that now whereas in the '60s and the '70s and maybe even the '80s, it always seemed you had that great sales guy out there that was driven and was closing sales, your closers and stuff. But I look at sales as a team environment, a team game now, which kind of goes back to what we're talking about here.

Terrance: Well, I think it's even gone beyond that. If you think about the sects of social media, your sales people are people that aren't even associated with product. People are telling other people about your company all the time. They're doing it on Facebook, they're doing it in other social media outlets. If they're saying great things about your company, other people are going to be coming to you that you had no idea existed, right? Interestingly enough, I was talking with somebody at the Front End of Innovation Conference not so long ago and they were working with Intuit. They had what they called a lab website. They've got these Google labs and stuff like that. They had one as well.

They had people who would come up to them and volunteer to do stuff for them that would come up with new product ideas that would actually work on them from outside the company.

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This is where that interaction turns -- and I'm not saying this is the only example, there's probably millions and millions of ways of thinking about this -- but that interaction created for Intuit, and no doubt Google and all these other companies, just such opportunity that they would never have been able to pursue, identify, think about. They just didn't have the time and wow, what an opportunity there.

Joe: Speaking of interaction, there's a Boyd symposium October 15th and 16th, I believe.

Speaker: Yeah, it's down in Quantico at the base there, the Marine base. There's a guy by the name of Stanton Coerr. He's running it. The cost is pretty small as in zero. If you get in touch with him, they may still even be looking for speakers. They've got two days. The last one I went to was three years ago, which might have been the first and only, I don't know, but it had really interesting talks. A lot of it was military there, but I'm going to be talking, some other people are going to be talking.

I'll be talking about R & D and how you think about Boydian stuff and R & D. Somebody's going to be talking about business strategies, someone's going to be talking about how it works in general business operations. It's really expanding, to your point. The OODA-loop is getting out the way Boyd thought is getting out.

Joe: You're also presenting at the Management Roundtable, too?

Terrance: I do a course, it's been about annually, but this is a little sooner. I've got a course in Lean and R & D, in which an awful lot of the theories that Boyd presents in his work has been incorporated. Because Lean and R & D is a fairly new area, and we're

cutting our teeth and we're trying new things, so we've brought in from all kinds of things like Boyd biology, et cetera, to really find out how we can move innovation to the next level. Not two times better, but 10 times better, 50 times better. I'll be talking about how you can think through those problems and achieve. So that's with the Management Roundtable, available on the web.

Joe: You can find that at Roundtable.com.

Terrance: Yes, and that's November 3rd and 4th, in Cambridge, Massachusetts.

Joe: Also, you're a soon to be an author, right?

Terrance: I hope to be. My publisher is pressuring me, and with good reason; I've been late. But so many of these things come up, and you learn, and then you want to rethink. But should be by the end of this year we'll have a book out on Lean and R&D with Productivity Press.

Joe: Well, I'll welcome you back to the podcast when your book publishes so we can talk about that a little bit.

Terrance: Fantastic. Thank you.

Joe: I think that would be a great subject to have, and I would like to thank you very much for the conversation. This podcast will be available on the Business901 site and in the Business901 site iTunes store. So, thank you very much, Terry.

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Implementing Lean Marketing Systems

After the podcast, we kept talking and Terry added this insight:

Terrance: A strategy for implementing Lean. Just think about the purpose of implementing Lean is to improve the company. Well, some people might be damaged by that, but you can't control that. All you can control is how do I get this into the company the best way that it's possible with the least amount of damage and the most amount of happiness.

Actually that's the Boydian approach, because his whole point, and I didn't mention this, but his whole point is that those, you remember I was telling you about those 30% of wars that are won by the smaller, presumably weaker opponent?

They're much less damaging. Much less fall-out in the end than the ones that are just pounded out. So, you look at World War I, you look at World War II, you look at the Civil War in the United States, and then you look at the damage from the Gulf Wars. Very few killed in the Gulf Wars on either side, very few. We're talking what, dozens in the case of the Allies?

Hundreds and thousands perhaps in the case of the Iraqis, but if we went at them as they did in World War I, there would have been hundreds of thousands of Iraqis killed. Which would you prefer, right? I mean, this is a very positive thing.

In any case, I just think it's one of those unexplored areas. And I think really, really valuable with internal thoughts within a company, they think we spend an awful lot of time slugging it out. You've heard these same things. You've got to get the CEO to do your

change implementation. The CEO has to do it. Then it's a "pound it out" against the company's culture. Well, what if we went with the company's culture? Found the areas where we could infiltrate and do this, and let the people who aren't interested collapse on their own.

Why did you assume that top management was the only way to do this? Why didn't you try another way? I mean, that's really how fast is your OODA-loop? Look, I started here, so I'm a management consultant. Well I was originally brought in as a management consultant within Pfizer, so I've been at McKinsey awhile, but I started with the Strategic Management Group as a strategy person. We went in with an all-day meeting with my client leadership team and they damn near threw us out physically. They were just not ready. It took me four years to get back in to have that same kind of discussion with them - four years!

I stopped doing that same approach. I started working with people who were interested. People who were under pressure, People who, by god, didn't know how they were going to deliver. We worked with them to solve their problems and you know what happened then. You talk about your social network; those guys go and tell other people, those guys tell other people, and pretty soon your phones are ringing off the hook.

Well, I didn't do this on purpose. This is not the way I envisioned it, but, boy, it's certainly better than I would have, it's far better than had they actually thought it was a good idea and acquiesced. Because I would never have learned this and I would never have gotten nearly this far in this company. I mean, personally, in terms of Lean. Never would have gotten anywhere near the impact we've had. It's amazing!

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Joe: It is amazing. The typical excuse is always the buy-in of management.

Terrance: Right. Which begs the question? I think this is a very interesting point and I think this would be something Boyd would talk about as well. Ideas come from all over in an organization, in a community. The CEO cannot hold all of those ideas in their mind any more than we have the correct orientation. There is no correct orientation. It's just ours and some parts that are more wrong than others, but we need to find those as fast as we can. Now, if you think that somehow the CEO is going to find Lean the best thing in the universe and then take that up as their cause, why would we imagine that. They've got other stuff on their plate too, right?

So if you think back about Boyd, Boyd started in the Air Force. The Air Force to this day hates him. Boyd, however, found other people along the way, and the military training doctrine of the Marine Corp is actually built on Boydian thought because he influenced those folks, and those folks were able to start talking to the right people and they did get the senior leadership on-board, the commandant of the Marine Corp.

Then it spreads out from there, then it spreads out from there, and now you and I are talking about it. The thing that's really fascinating about that is, that's not going at the top guy first, that's going at wherever you can go.

The thing that Boyd did, I know he read the Dao and read Daoist stuff. But what they talk about in the Dao is really, the only thing you can change is yourself, and the only thing you can really change is your ideas. If you want to change the world, you change it by doing one step.

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Anywhere that you change, will change the rest of the world a little bit. All you have to do is change it a little bit here, change it a little bit there and then suddenly you'll find something that changes it non-linearly and you cannot predict what that might be.

So, let's go back to Toyota. If you think about how Toyota started with Lean, you've got this guy, Ono, in this machine shop and he's doing these crazy other ways of doing business. Everyone else is thinking Ford, Ford and Ford. Suddenly Toyota gets in this really bad jam. They have to layoff: 15%, 20% of their employees. They have to bow before the banks and the Government just to stay alive.

Suddenly Ono's work prior just was crazy stuff, now is the way the company will be saved. Then suddenly you go from this small idea to something that is absorbed instantly through the rest of the company, the rest of the company just starts absorbing these ideas ding, ding, ding, because it suddenly is part of their success.

If you can find the cultural levers that are aligned with Lean that absorb ideas into your company, you won't need to go force anything. It'll pull it in whether you want it too or not. You won't even be able to stop it.

That's the kind of thing that we've been thinking about. How can we do this with people? How can we do this with divisions? How can we do this with entire companies? It's fascinating because I think there are ways consistent with what Boyd taught. It's not the same but, I think there are ways that companies can boot-strap the stuff. I don't mean to say it's a grass-roots or bottom-up, it's a whatever it is that gets into their cultural system. It'll absorb it very quickly and spread. How can we do that with Lean?

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Implementing Lean Marketing Systems

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What others say: *In the past 20 years, Joe and I have collaborated on many difficult issues. Joe's ability to combine his expertise with "out of the box" thinking is unsurpassed. He has always delivered quickly, cost effectively and with ingenuity. A brilliant mind that is always a pleasure to work with." James R.*

Joe Dager is President of Business901, a progressive company providing direction in areas **such as Lean Marketing, Product Marketing, Product Launches and Re-Launches. As a Lean** Six Sigma Black Belt, Business901 provides and implements marketing, project and performance planning methodologies in small businesses. The simplicity of a single flexible model will create clarity for your staff and as a result better execution. My goal is to allow you spend your time on the **need versus the plan**.

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