



ACHIEVING SPEED IN NEW PRODUCT DEVELOPMENT

Transcript of Audio Session
Moderated by Claire Quinton
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▷ ACHIEVING SPEED IN NEW PRODUCT DEVELOPMENT: TRANSCRIPT OF AUDIO SESSION

A discussion with Lawrie Cunningham of Black & Decker and Preston Smith of New Product Dynamics, moderated by Claire Quinton of the Knowledge Roundtable.

Claire Quinton: Good afternoon everyone and welcome to our Knowledge Roundtable audio conference on Achieving Speed in New Product Development. My name is Claire Quinton, I'm the Head of Membership Services for Knowledge Roundtable Europe, your normal host would be Jane Hogan, but she's not available today, so I'm standing in, in her place.

The call will work in the following way, we have a series of set questions which the experts will each answer and then there will be time after every question to either ask a question yourself or share experiences, if that's appropriate.

Our two speakers today are Lawrie Cunningham of Black & Decker and Preston Smith of New Product Dynamics...We have five questions which you've all seen [and] we have three additional questions...

Can I now hand over to Lawrie Cunningham just to say a little bit of information about himself briefly and then to Preston...to introduce himself as well, please.

Lawrie Cunningham: Thanks Claire. Hi everybody this is Lawrie Cunningham. I work for Black & Decker. Currently I'm serving as VP for Black & Decker. I've been with this company about 24 years and in the business of new product development generally for not far short of 30 years. In the role of VP of Industrial Design I basically have some teams of people located here in Europe, but also in the US and a small team in some of our operations in the Shanghai region in China. A time of great change for the company in many ways. We do very much have a focus on accelerating the rate of product development and this is driven by a number of things: the nature of the business, its competitiveness, to some extent seasonality and the necessity to sell products in and have those products available at the right points in the year. So not only is accelerating the process important to us but delivering what we promised at the time we said we would.

We launch our products into a moving market. The market is changing a lot as we develop the products and to hit the sweet spot and not miss the market we need to continually look for ways in achieving our speed but also launching to promise. I guess that just about covers it Claire.

Claire Quinton: Thank you and Preston would you like to say a little about your experience in this particular field, please.

Preston Smith: Yes, I'd be happy to. Glad to be here. I've been working in Product Development specifically rapid product development for over 20 years. The first couple of years I was an internal consultant on the corporate staff of a firm in the Fortune 200, for the last 20 years I have been on my own as an independent management consultant, focusing on time-to-market issues and product development. These really span the gamut from very small

companies with say 30 or 40 employees up to divisions of the Fortune 10. They span all kinds of products from very complex ones such as aircraft, motor vehicles, semiconductor equipment, semiconductor manufacturing equipment to what you might call more mature, mundane products: food, food packaging, footwear – products like that, all kinds of technologies. I enjoy the variety. Recently, Lawrie had just mentioned that the process has to be adaptable to changes in customer requirements and I'm finding that change is often more important than speed itself because things do change while the product is under development. So I've been moving more into what I call flexible product development so that those changes can be accommodated, even embraced rather than resisted as some other say Six Sigma techniques tend to do saying design it right the first time. But I'm getting into the context of the hour of discussion here so let's move on.

Claire Quinton: Ok thank you very much Preston. As he said we will move on and we'll tackle the first question which is: how do you speed up decision-making? I'll throw this one to Lawrie first, please if you wouldn't mind just giving us some insights and experience on this topic please.

Lawrie Cunningham: Sure. Ok, well decision-making and product development...obviously to move things forward decisions have got to be made. They should be made in a timely way and I think one of the things that we try and do and have increasingly tried to...enforce I guess over the last few years is to make as many decisions as possible, as early as possible in the process. We work to a comprehensive process which is a Stage-Gate, we actually call it a milestone process and one of the ways in which we phase this is to see the initial conceptualising scoping stage as being very, very different from the delivery phase. We have a point in time which we call Milestone 1 where we have a trigger document at which we require to have a pretty decent sort of document which explains what the product is, the nature of that product, what it's commercial objectives are and to try and scope it as far as possible in terms of a, if you will, an engineering product, bearing in mind that's the industry that we're in.

We monitor those decision points very often. We have regular program reviews and basically expose the fact across a fairly wide organisation if decisions are delinquent. If there are things which are lying, which haven't been made then we find it pretty necessary to ensure that everybody knows and understands that and that's a good incentive to actually get some of those decisions underway. And then probably the last point I would make there is that decisions require information and they also require perhaps material – that might be physical material – to enable us to make those decisions and again producing those as early as possible both in terms of the data and in terms of the material, enables those decisions to be made and there's a whole gamut of technology which can support that, everything through from rapid prototyping through to information flow. So having the basis to make decisions, again as early as possible. It's really all about front loading the process, doing most of the operations early. [I hope that answers it] Claire.

Claire Quinton: Thanks for that Lawrie. And Preston would you like to comment on that?

Preston Smith: Yes, there's two quite different types of decisions you can think about in the product development process. Lawrie has just explained one of them very well, are the decisions that basically come at the end of the milestone – come after milestones or at the end of phases or stages, whatever you want to call them. There's another one that's equally and in my opinion even more important and those are the thousands and thousands of day to day decisions that everyone involved in the project makes, and those together add up to big decisions. And if you're going to speed up product development you need to look at these small decisions.

If you think about it and you think of product development as sort of an onion and you keep peeling the onion down to the core, the core of product development is these small decisions that individuals are making every day, every hour on the project and they need information to make those decisions, they need good communication channels to make them. And if you want to speed up product development that's the place to start is with these everyday decisions that people are making. Collect some data, do some analysis, see where the decisions slow down, what blocks them – look at technologies that might speed them up, look at different management processes that might speed them up, maybe it's often giving people more authority to make the decisions. Maybe it's providing them with the resources they need.

The situation will be different in every company. But it's a matter of identifying these inner-loop decisions, if you will, and seeing what's slowing them down and how you make those decisions, those everyday decisions, really is determined by your overall objective. If you want to time the market then speeding up those decisions is important. That's fairly obvious and Lawrie had mentioned that you make decisions early. That gets them off at the critical path and that's all fine and good. However, if your objective is flexibility, then you sort of want to do the opposite. You want to make decisions later – what we call the last responsible moment because you want to maintain your options, your flexibility as long as possible, once you make a decision you're locked into that fork of the road. So you need to start off by thinking pretty carefully about what you really want to have out of your development process and then make sure your decision making fits with that.

Claire Quinton: Ok. Preston, thank you very much. Operator do we have anyone with questions on the line?

Curt Raschke [Texas Instruments]: Yes. Hi, Preston. I wanted to ask you about the small decisions. When you've got co-located empowered teams you sort of do those small decisions over the coffeepot but when you've got the product development parcelled out all over the world that's a little bit harder to do. Do you have any insights on how you might go about making better small decisions in that environment?

Preston Smith: Yes, I do. Excellent question and a good observation. We encourage co-located teams for the reason you've just mentioned, it makes it very easy and fast to make those decisions. Sometimes then documenting them becomes a little bit of a problem but that can be resolved. When you spread out your development around the world, as most companies

are doing these days, then this becomes much harder to do and many companies are adopting dispersed or virtual development teams for a number of reasons. But what I find is that in most cases they don't completely recognise the liability they're taking on here in slowing down and complicating the decision making process. So they employ technologies, there's a lot of web based technologies, there are teleconferences, videoconferences, 3D printers to do a rapid prototyping, 3D fax as they call them; there's all kinds of technologies. You need to explore those, but it goes beyond the technologies.

You really have to look at your development process and again, do some analysis, watch the decisions – see where decisions get stuck. A lot of worldwide teams pride themselves on the fact they have development centres spread out about three spots around the world, maybe there's one in the US, there's one in Australia and there's one in Europe and they say, *"we can design during three periods, three shifts a day."* But it turns out that designers often redesign the previous designers work so what they're really doing is designing things three times a day. You have to be very sensitive to these kinds of issues and work them out on a – basically a case-by-case basis, I don't know of any overall solutions. Although beware of the technology providers who will tell you they have the overall solution. They don't.

Claire Quinton: Thank you Preston. Curt, did that answer your question?

Curt Raschke: Well I didn't really expect an answer, but he gave me some good points to chew on. Thank you, Preston.

Claire Quinton: Excellent, ok. Lawrie would you like to add anything to that?

Lawrie Cunningham: Yes, I guess simply that – I mean I agree with pretty well everything that Preston has said. You know the best team is co-located and many companies convince themselves that they can work more efficiently with geographically disparate teams but it's also a case of the realities of life in the twenty-first century are that we are not going to be co-located anymore. And so it's worth pursuing some of the virtual team stuff in terms of the technologies and to continue almost to put pressure upon those systems to be developed so that we get more and more use out of them.

One of the things I would say is that you really have to reinforce that with personal attendance and personal introduction, if you will, because I think one of the easiest traps to fall into from a management point of view, let's say a program manager using disparate elements of a team which might be specialists in particular functions, not really seeing those members or individuals as part of the core team but using them more as service provider and therefore not sort of co-owning the things that drive that team. There's no mutuality there. So you've got to work pretty hard at that and really the only way in which you can overcome these things are by having people physically present, you know as Preston says, over a coffeepot or maybe even over a glass of beer.

Claire Quinton: Ok thank you. Right we'll move onto question 2 which is: how do you reduce cycle time? Preston would you like to lead on this one please.

Preston Smith: Oh, Ok. This is a very broad question. I don't really even know how to start. The thing you want to think about though is: what type of cycle time do you want, what's important to you? I was looking at some of the stuff this morning on the **Knowledge Roundtable** website. There's an article by Flextronics in there and what's important to them is time-to-volume. Normally we measure cycle time in terms of time until you ship your first product but for Flextronics high volume products, time to volume is what counts. So you want to think about what's the end of your cycle, what really matters. Some companies use breakeven time which is a very comprehensive measure, the problem with it is it's very much a lagging indicator because it's going to be a while before you reach the breakeven point so you don't get that information for a while.

You want to think about *when* you start the measuring cycle time. A lot of companies ignore what's called the fuzzy front-end of development because it's so hard to measure but in fact half of the total cycle time can be burned up right there. So ignoring it is probably at your peril. You want to think about what's important in cycle time, I think Lawrie mentioned that Black & Decker it's not just time-to-market but it's time to hitting a certain market window. Customers expect things at a certain time. If you celebrate Christmas you might expect to see the Black & Decker product under your Christmas tree, for example and that has certain time implications. If you sell your products in Annual Trade Shows and you miss the trade show, you're in trouble. So meeting particular time windows can be as important as just outright speed. Flexibility is another aspect of it. I've talked about that. So what you mean by cycle time and time-to-market very much has to be tailored to the business realities of your particular business. That's what gives your competitive advantage. Don't think about it in just generic terms.

Claire Quinton: Thank you Preston. Lawrie would you like to share with us how you've tackled reducing cycle time at Black & Decker.

Lawrie Cunningham: Well, acknowledging very much what Preston says about flexibility, I think in an environment where you have fairly clearly defined goals, early in the process and you can make decisions, then biasing those decisions which can be made earlier, is in your interest. And again, separating the processes, acknowledging the pre-project phase which we term Pre-Milestone, where you define and scope a project and to some extent where you commit so much of that project because you're scoping it out – and inherently your costs and the time that you can achieve is already baked in when you make those decisions at the end of that scoping.

Resource levels...I think one of the big myths, and I'm sure that many of us on this call have thought it – I know I have – is the...presumption that if you shrink the cycle times you'd be more efficient and you'd probably get those team of designers and engineers working on something else when you finish that project and the net gain there is *they do more*...The problem is that if you compress a program from two years to one year, there are still basically the same number of tasks in it, if you're working reasonably efficiently, you know, the tasks won't reduce to half so you're going to need resources to cover those bases. If you've only used two engineers, you might need four and so on. You have to take it in the context of each industry and project.

Design methodology, I mean we could go on forever but obviously the rapid development of CAD Systems and CAD Systems where the interfaces are very flexible and much more friendly than they were at one stage. So the actual time taken to learn the systems and to produce good results is less and of course allying that to the latest use of rapid prototyping which again enables you to see what it is you're intending to do and speed your decision making.

I think fully integrating the manufacturing sources and suppliers throughout, or at least in the phases of the design part of the program, whereby they can influence it so that you're really, you're ruling out designing against good principles of manufacturability and you have some guarantees that...what you're designing can be made and can be made to cost and time. And you can get some benefits in terms of working round the clock there but I do agree that there is certainly a risk of, well you don't want somebody kind of unpicking everything that you've done the previous day so that you just stand still. That has to be carefully managed.

Again, relating to the kind of industry that I'm involved with, which is electro-mechanical consumer products, some of the most dramatic reductions that we've seen in new product introduction lead-times have been achieved by shrinking the tooling lead-times massively and if you think in terms of press tools and mould tools and so on, typically over the last two to three years there have been many accelerated processes which have delivered faster tools. Depending on the type of tool that you're talking about if we think of something like a mould tool for a plastic housing for our kind of product, if I went back let's say ten years, it was six months, if I went back four years it might have been three months with [Far Eastern] tool makers. Currently it's averaging about 50 days, we've experienced thirty days, and we're talking currently of...twenty days and so on. There's a kind of a different business psychology all-together in the locations that I'm talking about – a degree of risk taking...there's a willingness to do that. Smart working, shifting, more labour available, they have all yielded better lead-times there.

I guess just one word of caution on cycle time minimums, one of the things that can catch you up if you accelerate all the core processes is the kind of peripheral processes and again in our industry I would cite things like packaging and the marketing and communication, the commercialisation of the product and hey what do you know, you know you spend all your life trying to develop these rapid processes and you find that you're actually faster than the commercialization processes and that gives you a whole new set of problems.

Claire Quinton: Ok, thank you, we'll move on to the next question which is *should you outsource certain tasks?* Preston would you like to tackle that one please.

Preston Smith: Well, it would be very unpopular of me to say that you should not because as Lawrie would tell us I'm sure, he's already told us, the reality of the world is these days that a lot is being outsourced. It used to be that we would keep things pretty close to our chest. We didn't want to divulge what we were doing, we had to do everything in-house but the best, fastest moving companies these days are outsourcing more and more of what used to be considered strategic capabilities. So the answer is you should outsource.

But thinking of it in [terms of] cycle time, there's an interesting article about outsourcing from Shure, the microphone people on the **Knowledge Roundtable** website. I was just looking at it this morning. There are a lot of cycle time advantages to outsourcing. People count those but I think it is valuable to keep in mind that whenever you outsource you're creating another communication and decision-making disconnect in your system and if you think of cycle time in terms of the core capability to make decisions and communicate faster at that inner level then outsourcing will inherently slow things down. And so whenever you outsource this is the potential that exists. Now the reality is that it often speeds things up. The reason it speeds things up is because the delay in many cases is simply that you don't have the resources, the people, the bandwidth available. By hiring another organization you can gain that extra human horsepower, if you will, to speed it up and that's the critical thing. And that overpowers the fact that you're adding decision interfaces and so forth.

Another reason people outsource is because of the capabilities. Most organizations have discovered that especially if they have industrial design in their products, they don't have that capability too strongly in house and it's better to outsource it if they want it done well and want it done quickly. And that points out the fact they should have industrial design capabilities in-house and then they could have that available to them and they wouldn't have the delays and the disconnects involved in working across organizations and across continents and geography.

So think carefully about outsourcing. One thing you can think about if you outsource to shorten cycle time, is that is suggesting that there's some kind of flaw in your internal cycle time. So watch very carefully what your contractor, your partner is doing to speed things up and start asking yourself critically 'Why couldn't we be doing those things in house?' They have to work with the same resources you do and if you really want to speed things up you can learn from the people you outsource from and speed up your internal operations as well.

Claire Quinton: Thanks Preston, Lawrie would you like to add anything on that.

Lawrie Cunningham: Yeah, sure, outsourcing, I mean it is a reality and yes absolutely, organizations should outsource where it's beneficial, tactically or strategically. I mean you might simply not have the competencies in-house and you need to go outside, there isn't an alternative. I guess, you know, I mean, and I read the article on Shure as well and it's a really interesting article and things seem to be going very well and the design of the products available from Shure is of a high quality and it all seems to work well. But, I guess if you are a company that tends to go on outsourcing on a permanent basis, in the same kind of areas and the same kind of tasks you know, it's worth...asking yourself the question: 'Are you denying yourself a capability which strategically you need?' Outsourcing partnerships will produce great deliverables, but in the end they are contractual and of course there's a little bit of risk there. Those contracts will usually end and things will change as far as the relationship is concerned and so on. So it is always worth asking the question, should you, in an area where the outsourcing seems to be taking place on a regular basis...own that expertise itself?

Claire Quinton: And Lawrie in terms of Black & Decker have you used outsourcing to help speed up your development process?

Lawrie Cunningham: I think you know the honest answer is in parcels, yes...and that would be where we just don't have [the experience] or it's relatively limited and we need somebody who is more heavy weight in those areas to guide us along. I think other than that, to outsource for a faster rate of product development, not specifically because we think somebody will be quicker than we could do it internally. Although you may argue, well you outsource where internally you don't have the resources and you couldn't do it at all, and absolutely, if you want to get to market with something outsource it.

Claire Quinton: Ok thank you. Do any of our participants have any questions or would anyone like to share any of their own experiences with the rest of us?

Sandy Horton: This is Sandy Horton from Campbell International, actually our question was going back to the tooling...We were going to ask if there were any specifics on how they were able to get the moulded tooling, the moulded plastic parts – how Black & Decker for example was able to get that tooling lead-time down from the longer lead-times to using to 30 days as an average. Is that strictly because of the volume of parts that you're able to run through Black and Decker because there's not that much variability in the number of parts? So your tooling source is pretty well dedicated to Black and Decker or what are some of those keys?

Lawrie Cunningham: Yes some of the keys are...I think one of the first things to say is that most this development has taken place in East Asia; in Singapore, Taiwan and particularly, most recently, in China. It's partly to do with the volume relationship with tool makers, it's not so much to do with the volume of parts coming out of a tool. But it is to do with the fact that there is a degree of pre-planning involved in terms of having stock available and having pre-purchased two week, for example. The way that factors into the company systems and procedures is if you have, for example...a financial approval process then let that take account of the fact that you may want to commit a certain portion of that before you blow the whole lot to enable you to actually underwrite a tool makers spend. And from the technology point of view I think there are a number of technologies which have assisted speed in tool making. But probably the biggest difference of the lot, as regards the tool makers, is just absolutely the work ethic, the fact that they are working around the clock and so on, and their preparedness to do that if they have somebody that they consider to be a partner rather than just a customer.

Sandy Horton: Ok, thank you.

Claire Quinton: Sandy, did that answer your question?

Sandy Horton: Yes that was good information, thank you.

Claire Quinton: Ok, do we have any other questions?

Curt Raschke: Yes, I want to direct this to Lawrie because I think you were the one who made the very astute comment that the fuzzy front-end can be half the total cycle time, but yet when

we talk about a cycle time reduction and outsourcing we always seem to focus on the design and prototyping and launch, in other words the half after the fuzzy front-end. Is there any way to do outsourcing of the fuzzy front-end as a way to reduce the cycle time of that aspect?

Lawrie Cunningham: Ok Curt, I think it was actually Preston that made the comment initially but I mean if you'd like me to make a comment now and possibly just pass it over to Preston for a follow up on that. Is there a way of outsourcing the fuzzy front-end? Yes you can and I think we've talked in the previous section about what you should do to outsource but I guess one of the things if a business is in the business of owning what it does and continuing to build a future based upon that, then there really is an onus upon the people who run the product development processes to ask themselves should they have those competencies in-house. To a degree you can always bring in people from a variety of consultancies and experts in different fields that can contribute towards that process. But my personal belief is that somewhere to own and manage it and also ultimately to be the kind of holder and keeper of the intellectual drive needs to be the company who's name is going to go upon that product or service. Preston have you got views on that?

Preston Smith: Yeah. This is Preston, I did mention that the fuzzy front-end is half of the total cycle time and that comes out of data we've collected with a variety of clients. Obviously it varies a lot from project to project. There's two different camps or views of front-end activity and how to improve it; one talks about cycle time, the other talks about quality. Let me address the quality one first because that's very important. [The] profitability of your product after you've developed it, is very much determined in what you do in the front-end. Understanding the customers, aligning the technology you're going to use with the customer need, understanding where the market is, how big it is, how you're going to serve it, how you're going to distribute your product – all of that sort of thing should be decided in the front-end and that's going to spell the difference between success or failure commercially. So that's important.

So you don't want to eliminate the front-end, but from a cycle time perspective, whenever we look at it we see a lot of wasted time and it gets back to decision-making and communication. People don't have the information they need to make a decision, they don't see the urgency so they don't make it. So time just flips by, by the week or by the month. So what you need to do to speed it up is to go back, look at some past projects, get a nice variety of them so you're not picking on any particular one and see where the time gets spent, and yes you could outsource parts of that but I think that you'll find that a lot of it is pretty strategic. Understanding your markets, understanding your customers, understanding your technologies, and for example, if you have a technology you don't understand very well you could certainly hire a contractor or even a professor at the local university to help speed that up but that needs to be worked into your overall plan. I don't think that I would turn over the whole front-end to a contractor myself but pieces of it certainly could be speeded up by outsourcing them.

Claire Quinton: Thank you Preston and Lawrie. Curt does that answer your question?

Curt Raschke: Yes, it was very helpful. Thank you.

Claire Quinton: Ok thank you. Right we'll move onto the next question which is: when is speed most critical and are the trade-offs necessarily worth it? Lawrie would you like to lead on this one?

Lawrie Cunningham: Ok. Well speed may be the most critical in specific projects where obviously time-to-market is crucial and you know what are the drivers of that. In my industry it could be you want to introduce some innovations to the market in an area and you have decided what that might be and quite honestly you want to get there as fast as possible because you can throw a direct correlation between the time that you're not selling this product – while you haven't got it there – and the money you would be otherwise making. That's a big driver. It may also be driven by seasonality and certain product types and I think Preston already mentioned the existence of launch windows and if you stick those together what it does is it's kind of already trapped you into a time scale where your product development teams are [saying] *"Goodness how on earth am I going to deliver it in that kind of time?"* And I think that that drives a lot of product development. It does in this company and I'm pretty sure that many companies are the same. I think a culture of speed or the capability of speed improves the new project development process because it kind of does look through efficiencies and tries to drive waste out of the system, the redundancy and squeezing out irrelevancies. It causes you to question things that may be widely practiced but are not truly beneficial. You get pretty hard nosed about it. It adds discipline, accountability – it has to add accountability to that decision-making.

Again if I went back a number of years in my own company I can think of almost many famous names but people who would sit on decisions because almost the making of those decisions was part of their power base – well I think with accelerated product development it just drives all of that out of the way because those kind of issues are exposed, everybody sees them for what they are and the fact that they get in the way and essentially they are removed. I think to develop a new product development organisation whether you habitually deploy speed of development to it's fullest extent or not, maybe in some programs you're not going quite on all cylinders because there may be some other things that you want to take into consideration but it has a healthy effect and achieving and having the capability of achieving speed is a good thing. Speed is one of numerous objectives and they need to be prioritised one against the other; what's it trying to do as a product, are the results driven by cost, is it innovation, is it to do with the physical product's performance etc? What's the top of the list, what's random? It might be speed but actually it might not be speed and if it isn't speed – but somehow just because an organisation has got this speed fixed into it's bloodstream it says speed. You may be making some of your wrong decisions or at least denying yourself some of the things that you could otherwise do. You often hear the phrase "obsessed with speed"...organisations are obsessed with speed. How many senior managers have we heard use that term? My personal view is it needs to be kept in balance. If you're going to be obsessed with anything be obsessed with success and if that means speed then so be it and if it means something else like innovation, be obsessed with that.

Somewhere in the last twelve months, I had the privilege of attending a seminar by Dr Bob Cooper and he was talking about speed among other things in the new product development process, and he mentioned something that rang in my ears which was that a business over-focus on speed potentially reduces the degree to which companies want to achieve breakthrough products and important new products. It can drive you towards incrementalism. If speed is always the top thing on the agenda then you will tend to do less on business things than you might otherwise do if there was a more balanced approach. Bob Cooper claims to have surveys that actually quantify this in some degree which if you take a measurement over the last seven, eight, nine years...it is of the new product produced by a certain category of company, whether its engineering related, in Fortune 500 or whatever. But really they are introducing more new products but the overall value contributed by those new products has arguably not increased and may even in some instances have decreased.

Claire Quinton: Thank you Lawrie. Preston I know that you've spoken about this during some of the other questions but would you like to add anything to what Lawrie said?

Preston Smith: Yeah this trade-off thing is dear to my heart and I do not believe that speed is always the most critical even though I'm sort of known as a speed nut. There's a good example that is written up in our book, [Developing Products in Half the Time](#). It comes from the mid '90s. It comes from Black & Decker. Back in that era Black & Decker wasn't as fast as they are today and as I recall their cycle time was a bit over a year to develop a product which meant they could go to an Annual Trade Show, see something a competitor had, wish they had it in their own catalogue but they couldn't get it developed and into the catalogue within the year for the next trade show. So there was a big incentive for them, a lot of motivation to shorten their cycle time down to the point where they could introduce new products between tradeshow. Once they had achieved that then they'd made a major time-to-market breakthrough and they recognised that further compressing their cycle time, in that area anyway, wouldn't bring them this business benefit so they moved onto other frontiers. Maybe time across quality sort of things and I suspect they have come back and revisited them now because there's probably some new pressures against time.

But that's really the way you need to look at time-to-market, it is a trade-off, you pay for it. I do workshops within the subject with people. We do an exercise where we compress a part of the product development process and I always ask them to write down what are the risks, costs and other side-effects that you're going to incur if you do compress it. If you could compress it without any risk, cost or side-effects you'd be doing that today because you've got a lot of smart people in your organisation. So there are going to be some trade-offs. Chapter 2 of that book, I mentioned [Developing Products in Half the Time](#), explicitly covers how you can make those trade-offs quantitatively. It gets into what we call the cost of delay, you can calculate what one hour or one month of delay – how it impacts the profitability of your product and you really need to know that number, the cost of delaying in order to make wise decisions.

The last thing to think about (and Lawrie alluded to this and the Bob Cooper thing and so forth) it's true that you can abuse speed but from what I've seen so far is the one overall measure of the bulk of your development process, it's probably better than anything else is speed, not that you'd always want to use it but the capability to move quickly when you need to. And you can compare this with, I'll use an analogy of a race; a boat race, a foot race, a bicycle race, sailing race – any type of a race is measured in terms of speed. How fast can the racer cover a certain distance and in order to do that (win the race) the athlete, him or herself has to be in the best physical condition. They have to be psychologically prepared. They have to be strategically prepared on how they're going to deal with the competition. They have to have the best equipment. The conditions have to be tuned to what they've been training with and so forth. And it's the same sort of thing with product development, only when every aspect of what you do is up to snuff, is up to par, can you be fast to market and so being slow to market starts to point out the weaknesses that will hurt you, regardless of whether you're focused on speed or something else.

Claire Quinton: Thank you Preston. Operator do we have any questions on this?

Sandy Horton: Yes, we have a question here as it relates to market share. I'd like to hear of pros and cons, if you will, about quick to follow or first to market which one have you had experience in, in seeing more market share gain, the advantages of that please.

Claire Quinton: Which one of you would like to take that?

Preston Smith: This is Preston. I can start off. I really don't have much to say on this academic question. I am sure you're not asking it from an academic viewpoint but it's been a primary question among academics for decades whether you should be a pioneer or a poacher, if you will and you can dredge up data on either side. With regard to time-to-market though it's interesting to observe that you might think that the first to market has to be fastest but actually the first market has the luxury of time because there is no competition at that point. They can take extra time to get it right. The follow up, the follower does need to be fast and that's what we're seeing, for example in China today and Lawrie alluded to that in tooling they're very fast and they're basically doing what some of us might call rip-offs. They're making copies and they're doing it very fast. So, really, both strategies work. Some companies, some organisations focus on being first to market and then after they've explored the new market they move onto something else first. Others are very good at fast following. And you can play the game either way and I've seen winners in both situations.

Claire Quinton: Thank you Preston. Lawrie would you like to add anything on that?

Lawrie Cunningham: Yeah sure. In my neck of the woods, we talk about innovators and fast followers and there are benefits in both. It's good being able to respond to something that somebody's launched a product in your market territory and you need to have a response and you need to turn that response time fast. In overall terms, and I guess this is partly an informed response and partly an emotional response but innovation wins times down, because

for whatever time you have that product and challenge in the market place, you can basically charge what you want for it. You are inevitably going to be in the lead. I guess the other aspect to that is that you anticipate. The common mistake is to launch something and then just enjoy it. We'll launch it and then worry about it because the minute you launch it, get its successor product up and running, with whatever consumer attractions or features or enhancements or whatever it is that you want to add to that. Think of what they should be brainstorming them through and then get that product launched as fast as you can...depending on the industry, it'll be six months to a year or something. But you will keep the market that way. The fast follower is always going to have to react to what the innovator does.

Claire Quinton: Ok and at this point I'd like to refer to three questions which have come in from our members on the call. The first one that I'd like the experts to take is from Leonardo [Beonché] from Unilever. Leonardo has asked: which technologies do the experts think in the near future will help to reduce lead-times in the product development process? And which of you would like to take that?

Lawrie Cunningham: Do you want me to jump in there first?

Claire Quinton: Lawrie that's fine, yes please.

Lawrie Cunningham: Ok it's a great question and I think that it involves a fair bit of conjecture. Hopefully we see them in some of the things that one has experienced in the last few years and my comments I guess...are from my industry. So I know that Leonardo's question came from Unilever and...[the] development of products in that particular area, I cannot claim to have any jurisdiction with whatsoever but maybe there are some parallels. Technologies play a huge part in this, modelling and computer generated design as it would be in our industry is developing with new release levels and new amounts of functionality. And as I think we've previously mentioned at one point, easier interfaces so that the level of immersion and level of training required to utilise these tools is getting less and more intuitive and you can do more with them.

Allied to that emerging technologies, we're not as far away in the TV industry from holographic projection and a piece of conjecture might be something like well, you could make a step change in the whole area of rapid prototyping and so on, by combining some of these technologies. That whole area [of] prototyping has come along way and it's possible to produce things very, very fast and to do them remotely from the source and get other people involved and so on. I think additional developments in those areas will yield some benefits.

Basically I guess the other things are going to be in the region of faster tool manufacturing techniques, although when you get down to it, you know the 20 and 30 days, you begin to question what was the [rate] and how much further can you go, and if you did get any further, how much more would it value. So technologies, I think, were the main benefits, probably also from a projects and program control point of view there will be a number of other software and systems based technologies that can help us along. But hey, it's the future, it's a crystal ball –

we could take some wild swings at this but I'm sure there will be continued further progress in the shrinking development lead-times.

Claire Quinton: Thank you Lawrie and Preston would you like to add to that?

Preston Smith: I'll say a bit. Obviously the advances in the computer technology, software technologies and hardware technologies, semiconductor technologies in the last decade or so have revolutionised all kinds of areas – technologies that could potentially speed up product development. Lawrie talked about some of the mechanical design capabilities, [like] mechanical display prototyping. In the chemical and especially pharmaceutical industries there's Computational chemistry, which allows them [on the computer] to create and check out new molecules by the thousands rather than doing it in a test tube. There's the tooling, a lot of technology has gone into the rapid tooling, the rapid prototyping. There's a whole area of communication.

As we were talking earlier about communication and decision making really being the core process in product development then all of the internet technologies, the videoconferencing technologies, the potential TV holography technologies, email; all of that stuff certainly plays a role and it can just be overwhelming. Unfortunately there is a lot of money to be made in these technologies so there's a lot of vendors out there pushing their products, and it behoves you, the responsibility is really on you to figure out what you want and that means you've got to back up, really look at your own product development process, see where the roadblocks are, see how much more you want to speed it up. Lawrie said that further advances in tooling cycle times right now don't seem to make a whole lot of sense for them. You need to understand this so you know where to go shopping for these tools. Just going out into the market and starting to shop for them, without doing your homework would be bewildering and you'll spend a lot of money on something that probably won't have much overall effect on your cycle time.

Claire Quinton: Thank you Preston. Can I just interrupt at this point to say that our hour is up, but if the two experts are happy to continue for a short while longer, I would like to tackle the two other questions from participants and so it maybe another five or ten minutes. Would that be ok with you Preston and Lawrie?

Lawrie Cunningham: That's fine.

Preston Smith: Sure.

Claire Quinton: Ok. Right the next question, the second of the three is from Roger Jones from Napp Pharmaceutical and Roger has asked: whether the experts have any tips or techniques in terms of working within a regulated industry where the pace of development is determined by forensic tests and operations? Preston would you like to take the lead on this one please.

Preston Smith: Sure. I've worked with some pharmaceutical companies, I've worked with a number of medical device companies, also other regulated companies: motor vehicles, aircraft and so forth. A few things one can say about this. One is that although you're hamstrung and hampered by these regulations, these standard tests and so forth, those are also required of all

your competitors. So it's a level playing field. Your competitors have to do the same thing. So that isn't giving you an unfair advantage or giving them an unfair advantage. Another thing I have learned about this, I originally assumed that when you're looking at a heavily regulated industry like the pharmaceuticals that people would be griping that time-to-market is basically the governments fault, they make us do all of these things. But I ask questions about this when I go to these companies. I ask them repeatedly and very seldom do they tell me that their problems are related to the regulatory environment. Sure that slows them down [in] product development, it requires extra steps but most of them recognise that the real delays in the process are of their own making and I think that's probably the healthiest way to look at it.

I have just recently been working with one of the major medical manufacturers in this country – well they're global I suppose, both in pharmaceuticals and medical devices and this company in addition to being highly regulated also has a very strong corporate quality ethic. And I asked them if either the quality ethic or the government regulation was slowing them down because the primary thing I'm working on with them is time-to-market, and they said that they are not even close to running up against the limits of the government restrictions, the regulatory restrictions or even the corporate quality restrictions. The speed at which they are operating is mostly determined by bureaucracy of their own making and I'm now trying to get my payment from this company and it's a slow process and I realise that's got nothing to do with the regulatory environment or the corporate quality ethic, it's simply that their accounts payable process is pretty darn slow. So that's a good example right there.

Claire Quinton: Thank you Preston and Lawrie, I know this isn't your industry but is there anything you'd like to add to that?

Lawrie Cunningham: I think possibly. First, many industries are regulated to a degree including ours in terms of the products that we put out for sale, so we have to go through tight approvals to sell in our different markets and we also have to come within the scope of UL for example in our American markets and TUV or similar within European markets. So...there is a requirement there to undergo tests and they're not the pharmaceutical standard but they are industry standards and they are therefore quantifiable in length and content. And I think from the point of view of managing timescales and so on, it's simply a question of product planning – what's that going to take and if there is any possibility...of getting closer to those standards authorities. It's actually impossible to control these authorities like UL or TUV and that's right and proper. It's very difficult to influence them but it may be just by the way that you operate with them that you can take some time efficiencies that don't compromise the tests themselves perhaps and get you a little bit closer from an administrative point of view to working with them.

Claire Quinton: Ok, thank you. The final extra question is from Ian McKenna at Infineon and it relates to situations when you have multiple streams of science involved...such as software, chemistry, engineering: how would you manage cycle times in this situation? For example if part of the engineering process changes then obviously it impacts on the software and Ian would

like to know if the experts have any insights on this. And Preston would you like to take the lead on this one please.

Preston Smith: Yes. I have worked with a number of companies that have these multiple streams of science and probably one of the best examples is medical laboratory instruments, the kinds of things that analyse blood and urine samples in a hospital laboratory. These obviously have mechanical aspects: they have specimens that need to be moved through the process robotically; they have electrical processes connected with those robotics; they have software that drives the whole thing, drives the robotics and also drives the testing process. There's usually optics, because often what they do is shine light through a test tube and things like that; there could be acoustic measurements and so forth; so there is many streams of science and this is just the test of it.

This is a much more complex type of a product than something that's only one type of science but it's a good test of the product development process and it gets right back to the basic role of coordination, decision making, communication and so forth. And thinking real carefully about how you're going to organise so that you don't have to disconnect across these sciences. If they're done by completely different groups in different parts of the world, including the different management you're going to have big difficulties. If you create cross-functional teams of some sort to tie them together that's necessary.

Another thing to think about is the product architecture, try to put the optical module in one physical part of the product where you can physically isolate it from the rest and this creates rather clean interfaces. It keeps the optics problems within the optics module so that you don't have to do so much coordination and communication across the interfaces. So there are a number of things you can do but the first one is simply recognising that you've got a problem here when you have these multiple streams of science within your projects.

You see it pretty often these days: the connection with the electrical and software, because a lot of products these days have electrical *and* software [such as] cell phones, automobiles, consumer electronics and so forth. And there's always a chicken and egg difficulty here – the software people say they can't test their software until they have the hardware built and the hardware people say they can't build this hardware until they have the software to drive it, and so you need to get these two folks together and find some way that you can breakout of this dilemma. And that's the nature of the problem that your competitors have at the same time.

Claire Quinton: Thank you Preston. Lawrie, do you have anything to add to that?

Lawrie Cunningham: Possibly from the point of view of administering the product development process, program management and analysing the risk. What are the dependencies of the program on these science and technology contributions? Can they stand-alone and be dropped in and do they impact [the parameter] of the program? And, of course, in many cases they will.

I guess there is the concept of book-shelving, of developing generic science and technologies prior to the demand so that they are to some extent on top. You can take them down off the bookshelf and apply them during the program. I know that's an easy one to say. How many companies do that? It commits resources to doing things that they may or may not use but most successful companies do a degree of that. A program that has dependencies, the science and technology base and those sciences and technologies needing to be developed and they are of indeterminate length, then that program cannot be scheduled. You can't schedule it until you know what you're going to get and when they're going to arrive.

Claire Quinton: Thank you Lawrie. I'm going to conclude the call in a moment. I think we've kept you long enough...That concludes today's call. I'd like to thank Lawrie and Preston for their insights, today. I think it has been very interesting. I'd like to thank the audience for attending the call...Thank you. ^K_R