the product record

PRODUCT LIFECYCLE MANAGEMENT QUARTERLY

VOLUME I · ISSUE 4 · SPRING 2006

Great How Products Happen

ALL TOGETHER NOW

MASTERING THE SIMULTANEOUS GLOBAL PRODUCT LAUNCH

By George Bailey, *IBM*

Imagine people across the world lined up outside their local retail store on the day you decided to make your hot new product publicly available. Could it happen? Could you pull all the pieces together to get your product to people around the globe all at the same time? The experts and skeptics might say it's impossible. I'm here to say it is possible and furthermore it's necessary to derive maximum value from your new product.

The globalization of commerce brings many rewards to companies, expanding potential markets and providing opportunities to grow revenue and profit. This globalization also carries big risks since you're operating in unfamiliar markets and relying on local teams to execute according to your plan. Only if global product launches are planned and managed properly, can they deliver a much greater return. One of the keys to success in the global electronics market is the Simultaneous Global Product Launch.

Traditionally in the electronics market, you spend a long time developing your product or innovation—probably longer than you should—and then you are in a panic to get the product out to the market. So you only launch in your top three or four countries—maybe Japan, the US and Western Europe.

Next comes "rolling thunder". You keep rolling on and on to the next major markets. Unfortunately, every day you delay your product launch to the secondary and tertiary markets, you lose money, because every day your competitors have time to prepare their response, launch their product, and steal your thunder.

CONTINUED ON PAGE 7

ALSO IN THIS ISSUE…

CxO PERSPECTIVE

How Great Products Happen

Turning Innovation, Globalization & Compliance Challenges into Competitive Advantage with PLM

By Jay Fulcher
CEO & President, Agile Software

In this special edition of *The Product Record*, we focus on key topics that were highlighted by market and industry leaders at AGILITY 2006 Las Vegas, the industry's premiere global PLM conference, held in March. These topics include product innovation, globalization and regulatory compliance—issues that affect all companies, regardless of size or industry.

Companies that proactively address and manage these challenges head on—particularly in the context of efforts to drive accelerated growth and profitability through their product operations—are companies that ultimately achieve success. In fact, these business drivers—innovation, globalization and compliance—define what it takes to succeed in business today and tomorrow because they represent just how our industries are changing.

CONTINUED ON PAGE 2

CxO PERSPECTIVE

By Jay Fulcher
CEO & President, Agile Software

How Great Products Happen:

Turning Innovation, Globalization & Compliance Challenges into Competitive Advantage with PLM

CONTINUED FROM PAGE 1

First, product innovation has become a mission-critical aspect of product development across industries, and success is manifested by companies that can implement innovative ideas quickly and profitably. New products and new markets are the top drivers for product innovation, providing the greatest opportunity for revenue growth over the next several years.

Second, globalization represents the changing global landscape we all do business in today. Technology has enabled companies to collaboratively design, manufacture and market products around the world, presenting us with tremendous opportunities along with difficult challenges.

Finally, regulatory compliance has also become a major focus of enterprises as governments continue to institute more regulations than ever before, addressing such critical issues as privacy, health and the environment.

These challenges share the common fact that more and more companies are turning to PLM to overcome these issues. PLM ties a company's product operations together, enabling them to collaborate, streamline processes, and make informed decisions in order to drive innovation. PLM also allows geographically dispersed product development teams to function more effectively than a team located within the four walls of corporate headquarters. In terms of compliance, PLM provides the visibility and control needed to ensure a company is meeting regulatory obligations for multiple products in multiple regions or countries.

Agile customers, partners and industry experts met with the Agile team at AGILITY 2006 Las Vegas to explore and discuss these challenges, and to examine how PLM is enabling innovation, globalization and compliance. This issue of *The Product Record* features just a sampling of the valuable content available at AGILITY, including presentations by industry leaders Tom Kelley from innovation powerhouse IDEO, George Bailey from technology giant IBM, and a panel discussion on how great products happen.

Building a Compliance Process

By Lon Plourde, *ViaSat*

Developing a WEEE and RoHS compliance process has become necessary for virtually all manufacturers and distributors of electronic equipment. At ViaSat, a provider of advanced broadband digital satellite communications and other wireless networking and signal processing equipment, we took the following steps in developing a successful compliance process.

Establish a Steering Committee

Without the support of executive staff, developing a compliance strategy would be an uphill battle. The strategy will require financial and business decisions that can affect the way you do business. Decisions regarding software tools, regulatory subscriptions, development labor and process acceptance will probably be discussed, so it is important to have executive input on the process from the beginning.

ViaSat's Compliance Steering Committee, which met on a quarterly basis, consisted of the VP of Engineering, VP of Operations, a business area VP, Director of Quality and Director of Engineering Services.

Appoint Compliance Manager and Staff

Like any large program, you will need a project lead. The most probable candidate is from the Quality area, since this is where ownership of the process will probably reside. The Compliance Manager should report directly to the steering committee during the development of the process, ensuring proper support for such an important task.

ViaSat's compliance team included representation from the following functional areas: Engineering, Quality, Purchasing, Legal, Component Engineering, NPI, Manufacturing, Reliability, Finance and Sales.

Define Requirements

Defining your specific corporate exposure is critical in developing a compliance strategy. We quickly realized that ensuring our information was current was a difficult task. We also found that there were varying opinions on points such as exemptions, producer responsibility, and compliance requirements. These issues had to be resolved before any exposure assessment could be conducted.

We attacked the problem of maintaining current information by subscribing to a regulatory database. The website contained information gathered from many legal and directive experts from around the world. The database we chose also provided information from other countries, as well as other directives covering issues such as batteries and packaging.

We handled the problem of varying opinions by hiring a consultant with expertise in WEEE and RoHS. The consultant provided us with guidance based on our specific product mix, with specific references to the directives. Estimating conservatively, the consultant saved the company 1-2 months in building our compliance process.

Develop a Data Management Process

In the assessment of the impacts for RoHS, data management was identified as the number one problem to solve because it potentially would require a very large staff to manage.

ViaSat manages tens of thousands of components in its Agile PLM system, and we determined that EU-RoHS substance data wasn't sufficient. We identified many data points to be managed in the database including tin whiskers, material declarations, obsolescence, solder compatibility, source qualification, recycle, reuse, compliance audits and compliance assessment.

ViaSat needed a data management solution that was flexible enough to manage present and future requirements, so we selected *Agile Product Governance and Compliance* (PG&C).

Implement Data Management

Up to this point, the compliance team had been conducting material audits manually, without an effective way to capture the data for future use. Our new data management solution would solve this issue, so the next step was to implement Agile PG&C. Implementation tasks included corporate training, intranet creation, contract revisions, WEEE registration/tracking, corporate procedures, report and auditing structure, product marking and product revisions.

Monitor and Control

Finally, in order to provide due diligence, a process to monitor and control your process and procedures must be in place. Legislation will change, so your process must be flexible enough to evolve with the regulations.

Your process will require more control over your contract manufacturers and material suppliers. They will no longer be able to substitute components without full RoHS compatibility with your compliant BOM. In most cases, certificates of compliance will be required to ensure your compliance requirements are met.

In conclusion, developing an environmental process is a difficult but necessary task if your company ships electronic equipment. The effort you spend now may spare your company from compliance issues in the future—issues that could give you a competitive disadvantage in the market.

Outlearning the Competition

Cultivating the Three Learning Roles of Innovation

Excerpted from a presentation by Tom Kelley, General Manager of IDEO, at AGILITY 2006 in Las Vegas.

For today's discussion, I am going to focus on what I think are the most important roles at the front of innovation—the learning roles... I believe if you can outlearn the competition, if you can have a pace of learning that is faster than the competition, you can have a pace of innovation that is faster than the competition as well. So I want to talk about these three learning roles that we have found from experience are important and useful in almost all organizations.

The Anthropologist

There are three modes of learning, and the first one is called the anthropologist. It's about learning from human behavior. It's about getting out in the field. Getting away from your desk and going out and observing your customer's behavior. Finding the latent needs, finding things your customers haven't even raised their hands and told you about. If you can spot those latent needs; if you can see areas where your customer stumbles, or gets confused, or gets stalled out for a while; if you can solve those little problems... you are well on your way to coming up with innovations that can be valuable in the marketplace...

You need to get out in the world and watch what is really happening. Not what the marketing brochure says is happening, but what is really happening. The more senior you are, the more years you have spent in your industry, in some ways, the harder this gets because you know too much. You expect to see certain things, and then sure enough, if you are looking for them, you see what you expect to see.

Especially when we are working with the CEOs of the world, we try to get them into this state that we call "vous ja de". Everybody knows deja vous, been there before, but "vous ja de" is the opposite of deja vous. "Vous je da" is when you're in a place that you've been a hundred or a thousand or maybe a million times before, and yet you are seeing with fresh eyes. You go out into the field without an agenda, and you just say let's see what we see. And then you're very open to new learning. You're seeing things that maybe you haven't noticed before, and you look for opportunities there for your products and services...

It's not just watching. It's watching, asking, learning, trying things, but it also has some synthesis built in. It's not just that you saw something, but you learned from it. So in this process of anthropology, you have to see things and connect them back to reality...

The Experimenter

The second role, called the experimenter, is quite different—you learn from experimenting. You learn from taking risks with little trials, little prototypes. And with each one you make, you try to learn a little bit more. Some people call it "fail forward". You make a little mistake but have learning attached to that. One of the greatest innovators in the history of America is Thomas Edison, who said, "I haven't failed. I just tried 10,000 ways that do not work."

... You have to find a way to lower the bar. You have to find a way in your organization to show these really ugly prototypes around. Because if you are going to do lots of prototyping, it doesn't work at all if you do twice as many prototypes as the competition, and therefore it takes you twice as long to get to market. That's not a winning strategy. What you want to do is have the ability to make prototypes cheaper and faster than the competition... The beauty of lowering the bar is that it allows the organization to get input from anyone in the company. It allows you to create an idea-friendly environment... and get ideas out on the table so that other people can build on them...

Try to go for multiple prototypes. Try to avoid putting your colleague, your boss or your customer in the position of having to respond to this one idea, take it or leave it. If you can do quick, cheap prototypes, put 3, 5 or 7 of them out on the table and ask what they think of this range of stuff. Then you can have a great conversation about why this one is better than this one, and you can combine aspects of this one and this one, and you can fail forward, and make the next prototype better and better with honest feedback...

The Cross-Pollinator

The cross-pollinator looks far a field, outside their industry, outside their culture, often outside their country, in order to find an idea that they can cross pollinate for their own business... If you are in an industry for a long time, you tend to read the same magazines and go to the same trade shows. And you tend to develop a well-informed but well-bounded view. So the cross-pollinator looks way outside to see if they can take an idea that's far a field and adapt it or translate it back for use of their own...

I really believe, if you can take these three roles to heart—if you can be the anthropologist and learn from observing your customers, or even better, learn from observing your competitors' customers; if you can be the experimenter and learn from enlightened trial and error; if you can be the cross-pollinator and look really far a field for ideas that you can adapt or translate to your business—I think it will go a long way toward helping you build, nurture and reinforce your own unique culture of innovation in your organization.

Tom Kelley is the general manager of IDEO, the widely admired design and development firm that brought us the Apple mouse, the Palm V and hundreds of other cutting-edge products and services. Mr. Kelley has written two outstanding books on innovation, The Art of Innovation *and* The Ten Faces of Innovation*, and is known for helping business leaders make their companies the leading-edge, top-rated stars of their industries.*

How Products Happen

A Panel of Industry Leaders Speak Out on Innovation

Why Do We Need Innovation?

BURKETT: *Why do we even care about innovation? Why is this important?*

RUDZINSKY: We care because we want to save more lives. What we do can have a real positive impact on people. We care because want to come up with the next best imaging technology. We want to find more diseases to conquer. We understand this business, and we care because we know we can make a big difference.

BURKETT: *Is it a challenge from a business perspective to decide what to go into and what not to?*

RUDZINSKY: Absolutely. But we try to focus on those areas we know something about. We try to stick to our core competencies.

KLEIN: Dave's explanation sounds really good. I can only innovate because I have to stay in business. In the semiconductor business, if we don't innovate, if we don't continually break down these theoretical limits, and continue to shrink our circuits down, and integrate more on those chips, we don't stay in business.

BURKETT: *Can you describe the drivers in your business?*

KLEIN: It is very fast moving. It is globally competitive. Chips can be shipped anywhere in the world. A two year product from introduction to end of life would be a relatively long lived product for us. And yet, if it is a new technology, there is probably five years that has gone into that technology cycle, in advance of actually introducing that product to market. So imagine that, five years you are developing the technology, two years you are on the market, and you are putting up a $5 billion plant to build the things. That's a challenge.

JOHNSON: I think we innovate primarily to grow our business. We have to find a way to take a premium solution to more teeth. There are a lot of teeth in the world that we are not brushing. The innovation we are into now is how to bring that unique solution to a whole different market segment.

RUDZINSKY: I would just like to add that Dean, you are right. We are in this to make money as well. We have to create value for our share holders. We are a public company. We have to remain competitive. It's nice to say what we are doing has a positive impact, but in the end we are like any other corporation in America, we are trying to stay in business.

KLEIN: Thank you. I feel better now.

How Does Innovation Happen?

BURKETT: *Can you describe the innovation process? How do you innovate? For example, do you look externally, or do you innovate internally?*

KLEIN: There is a combination. There is that internal evolutionary innovation. We are continually shrinking our products down. There is also innovation on the interfaces that might be on the outside of our chips. But there is also innovation we do through acquisition. We recently announced a joint-venture with Intel to build NanFlash memory. We developed the technology, and in order to bring the product to market faster, and in a bigger way, we are partnering with an external company to continue a rapid pace of innovation. There are a lot of different vectors for us.

BURKETT: *Can you speak a bit about the process? How does innovation happen? For example, how are you structured to manage this process?*

At AGILITY 2006 in Las Vegas, a group of experts got together and discussed how their companies handle the responsibilities and challenges of innovation.

MODERATOR:

Michael Burkett
Vice President of Research, **AMR**

PANEL:

David Rudzinsky
Vice President of Information Systems, **Hologic** (a medical device company)

Dean Klein
Vice President Market Development, **Micron Technology**

Mark Johnson
VP RD & Supply Chain Operations, **Philips Oral Healthcare**

JOHNSON: Traditionally, innovation has been what the engineers think of and then they subsequently try to go out and sell. And there have been a lot of failures in that regard. Now we are trying to redefine innovation as a marriage between consumer insight and technology. We have to innovate on a market side, on a technological side, and on a supply chain side, and bring them all together to meet a consumer need.

BURKETT: *How do you do that? How are you structured to make sure that's successful.*

JOHNSON: I think we have been over structured in the past. Philips is a European company and they take a very methodical approach. In German or Austrian development communities, before you get a prototype it is practically perfect. So the changes we are trying to make now, with our partners, is to get a prototype

CONTINUED ON PAGE 8

6 Steps To Sustainable Environmental Compliance

Beyond WEEE and RoHS

By Debbie Cote & Robert Chinn, *PRTM*

Are we done yet? For companies producing electronic and electrical equipment, the answer is, unfortunately, no. Just when companies have managed compliance to the European Union's Waste Electronic Electrical Equipment (WEEE) Directive and the upcoming Restriction of Hazardous Substances (RoHS) deadline, additional environmental regulations are appearing on the horizon.

New environmental regulations such as China RoHS/WEEE, EuP, Japan RoHS, U.S. Mercury, REACH, and a variety of other energy efficiency/ stand-by and packaging requirements are the next wave in the ongoing stream of new product requirements being imposed around the world.

Sustainable environmental compliance

How can companies respond to environmental regulations while avoiding the potential downside? Sustainable Environmental Compliance - an approach to managing environmental requirements that balances a company's compliance requirements with its costs and business priorities.

Forward-thinking companies that began compliance activities aligned with their development roadmaps have been able to better manage their programs over a longer period while avoiding costly expediting activities and associated risks. Why? They realize that they are not yet "done", and have made compliance activities part of an ongoing business-focused process, and conversion activities part of an exception management process.

An integrated environmental process consists of six basic steps.

Step 1: Monitor

This step triggers the overall process and enables companies to anticipate an upcoming requirement, thus minimizing the cost and disruptions associated with reactive, event-driven responses.

Step 2: Interpret

In this step, companies assess a given environmental requirement and its associated timelines. The interpretation process is threefold. First, what products and which regions are affected? Second, do the internal processes, systems, or resources need to be updated? Third, how is risk assessed over time to determine not only when a requirement needs to be integrated, but also when that requirement needs to become a critical path from a business perspective?

Step 3: Implement

During this step, companies define their budget and resources and develop an implementation plan which has the environmental framework elements clearly identified with the action required for each element. A cross-functional executive management team or business council should review the final recommendations.

Step 4: Audit

This step ensures that corporate environmental elements and responses demonstrate "due diligence". As part of comprehensive audit preparedness, companies should integrate documentation requirements, response processes, and be prepared today versus designing and collecting documentation after the fact.

Step 5: Report

How a company responds to a government query for a specific product or substance or a more general customer audit is critical.

Step 6: Archive

Accessing the document is just the beginning. Record management is another critical supporting step that has conflicting requirements. Most companies have document management systems based on Sarbanes-Oxley, which requires documents be kept accessible for a minimum number of years. EU RoHS documentation must be kept for a minimum of four years, and although there is no explicit EU WEEE requirement, countries must report to the EU every two years. And the coming EuP directive requires an archival period of 10 years—further highlighting the need for automated document management.

Whether green leader or environmental follower, consumer electronic or telecommunications equipment company, EEE companies need a systematic business approach to environmental compliance in order to maintain global market access in today's economy. The integrated approach outlined here will help minimize the difficulties associated with meeting compliance regulations while providing new sources of competitive advantage.

ALL TOGETHER NOW

CONTINUED FROM PAGE 1

Today you only have a couple months before a competitor can replicate a technology.

Consequently, your profitability goes down. Products may help you grow, but the real challenge and the real reward comes from growing profitably. And every day you delay launching in other markets around the world, you are allowing competitors to develop and launch competing products. This leads to pressure from retailers and your sales force to lower prices, which results in lower margins.

The Simultaneous Global Product Launch—which means people are aware of the product, and it is available through your supply chain and distribution channels around the world, in every market you serve—is a huge advantage in terms of revenue, and even more significantly in terms of profit. You grab the market share, you get the mind share, and you gain the edge, which is very hard to get in this industry.

Reducing Time to Value

You can't survive in the electronics industry unless you are reducing your time to market, using tools like Agile PLM to make yourself faster and more efficient. But in order to really make money, you need to work on time to value, as well as time to market. Reducing time to value requires business process changes that allow you to manage your supply chain and marketing to get your product into all markets simultaneously.

Reducing time to value also requires getting your product to the consumers in the first couple months when they are much more willing to pay a premium for new technology. The price drops off dramatically after that initial period, in part because of the competition. It is more difficult to take advantage of this high consumer demand if your initial launch only covers a few markets, and you wait several months before launching in additional markets.

Innovation and Integration

The two key factors needed to accomplish simultaneous global product launch are innovation and integration. First, you obviously need the innovation processes that are required to come up with new ideas, and turn them into prototypes and then products. But keep in mind that it must be innovation that matters, if you want to deliver the "metavalue" that will sustain profitability beyond the initial launch period. You must develop innovation that consumers actually want—innovation that will make a difference in people's lives.

Integration is also essential. Simultaneous global product launch requires global coordination across development, distribution, sales, marketing and the back office. This translates to integrating engineering with sales and marketing, as well as your supply chain and channel. And this will not happen naturally. You need to establish processes to drive the necessary integration.

Clearly, there is a need for a PLM solution at the heart of simultaneous global product launch because you have to manage the innovation process carefully, and understand exactly when and where the product is going to be manufactured and distributed. In addition, supply chain technologies that support forecasting and distribution are also essential.

Reaping the Rewards

The most direct benefit of simultaneous global product launch is reduced time to value on your investments. But you also gain increased profitability on products because you are capturing a larger portion of sales during the most profitable period.

In addition, you attain the dominant market share position almost immediately. But keep in mind that at some point the competition will get into the market and take away some of that market share. That is why the long-term metavalue of the product is so important, to sustain profitability beyond the initial rush.

If you can combine services and a better design, and pull together unique features and functions, you have a product that is more difficult for the competition to duplicate, consequently giving you a much longer window to control the market. By maintaining market share for a period of time, you become the dominant player, gaining branding impact that will not only sustain the current product in the market but also support future product releases.

If you have a product that you believe will give you a market advantage and market share, having a simultaneous global product launch is essential.

George Bailey is the General Manager of IBM's electronics industry and global lead partner for the electronics industry consulting practice at IBM Global Business Services. In this role, Mr. Bailey is responsible for managing nearly $4 billion of IBM's business within the electronics industry, which encompasses clients in the consumer electronics, semiconductor and contract manufacturing sectors, among others.

How Products Happen

CONTINUED FROM PAGE 5

out there. As an example, we are working with a Chinese development partner. One of the things we have learned is that you cannot spend all this time over-specifying the product, because you will lose too much time. It is best to give them a picture of what you want them to do and have them produce a prototype. It will be off. It will be miserable. But then you start iterating from there.

RUDZINSKY: For us it starts at a high level with business development driving us. The healthcare community telling us what they want. Another thing driving us is staying ahead of the competition. We compete with some very large organizations. To stay competitive, we have to be known as market and technology leaders, so we have to stay one step ahead of them. We also developed scientific advisory boards to think up the next big breakthroughs.

I also look at how we can be more competitive by doing business better. I think we were very innovative in using Agile back in 1999 when no one was using PLM. We said we can introduce products faster, we can be compliant with regulatory requirements we have for FDA. Today, as we go forward I am looking at other areas of IT, ways that I can help employees be more effective in what they do, and that's a level of innovation as well.

How Do We Overcome Innovation Challenges?

BURKETT: *Can you talk about challenges you have had in the innovation process?*

RUDZINSKY: For us, regulatory compliance is a big challenge. It adds overhead to our process. It slows down what we are doing in some ways. I look at SOX (Sarbanes-Oxley Act of 2002) as the biggest inhibitor to progress and success in the last year.

BURKETT: *Do you deal with the issue of free flowing collaborative innovation vs. the well structured side of the business?*

RUDZINSKY: Absolutely. The whole engineering/R&D world is a lot different from our structured finance/IT/accounting world. It's interesting as we try to bring those groups together. I would say our guys are pretty well disciplined. Agile is a tool that provides structure for us. Along with the collaboration and everything else, Agile gives us good structure. Our VP of Regulatory said it puts the necessary controls in place so he isn't going to jail when the FDA comes knocking. But at the same time it allows us to be flexible and to move quickly.

KLEIN: Every technology node we introduce has a whole host of unknown challenges. We keep discovering new challenges and trying to overcome challenges without adding too much expense to the process. We are putting PLM into the R&D process, trying to get a bit more rigor in the development of these processes. Unlike some semiconductor companies, we have grown by acquisition, and that has presented its own set of unique challenges. None of our fabs are identical. They are all different. So when I move a process out of our R&D environment into a production environment, in some sense I am starting over. Dealing with that type of challenge requires new disciplines.

What Does The Future Hold?

BURKETT: *What's going to make you successful 3-5 years out?*

RUDZINSKY: For me it is technology. We can provide technology solutions to enable our guys to be more effective.

KLEIN: In our industry, there is going to continue to be consolidation and acquisitions. Those are challenges in themselves. For us, we are bringing in that culture of discipline decision making through the use of Agile.

JOHNSON: I think in our industry the developing countries are developing and consumers are getting more affluent in many parts of the world. That means we are going to have to look at innovation as being a global collaborative distributed activity, even more so than we are today.

the product record

The Product Record is published quarterly by:

agile

Agile Software Corporation
6373 San Ignacio Avenue,
San Jose, CA 95119-1200

Single copies are $25.00 in the USA. Yearly subscription price is $100 in the USA; Canada and outside of North America is $125 annually. Distributed without charge to qualified candidates.

Please direct all inquiries to *theproductrecord@agile.com*.
For editorial inquiries, please contact Terri Pruett at *Terri.Pruett@agile.com*.

For subscription information, visit
www.theproductrecord.com