

**Transcript:** Luke Wroblewski - *Strategy by Design* - UI11 Presentation.

Luke Wroblewski: Let me start off by asking you guys a question. How many people out here have the perception that design adds value for their business or products? That's a pretty good number. For a while though, that wasn't necessarily the perception, especially coming from the business folks, a lot of times from the engineering folks as well.

So in today's global, networked, distributive, dynamic markets, lots of words there, design skills are increasingly important. So we've gone from a situation where design was considered styling. Have any designers out in the audience ever been asked to make something look good? Make it pretty, right?

And if you can't make it pretty, you make it big. If you can't make it big, you make it bold. If you can't make it bold, then you make it red. That's how people will notice your feature: big, bold and red. So make it look good.

I think a lot of this was sort of brought into the popular culture by folks like Raymond Lloyd, who is the father of "industrial design" as they call him. But he brought this really stylistic approach of design to products ranging from things as diverse as automobiles, I think he did a lot of locomotives, he even worked on the international space station as a designer. Again, bringing his design as styling' sensibility to those products to create things that people kind of revered.

But today, in a lot of the public press, a lot of business publications in particular, and Nathan mentioned that a lot of businesses have started to figure this out, design is becoming almost synonymous with innovation. So you look to these types of quotes: want to innovate, 'forge lasting connections with consumers, 'outflank your competitors, 'growth.'

These are things that previously were not associated with design. But when you look at an article or an entire issue of "Business Week" devoted to the power of design, these are the exact kinds of connotations that they're communicating to people. So "Fast Company" is also on this track, the World Economic Forum recently had a whole track on how design can help with their goals, which had never actually happened before.

Tim Brown from IDEO was there speaking. But it's not just "Business Week" and "Fast Company" and these business magazines talking about this shift. It's also folks like Richard Florida, who published a book entitled "Rise of the Creative Class." Is anyone familiar with Richard Florida? A few people.

Anyway, his central argument there is that creativity is really becoming this source of competitive advantage for companies. And this is what'll really make or break which companies last, which companies don't last, and he attributes this to basically every industry. He has all sorts of data that makes his case.

He did a large study of what are the most creative cities and locations and what are the least creative cities and locations. A very analytical analysis of all these factors: what kind of jobs do they have, what kind of entertainment options they have, social lives, diversity, etc. This data that he showed in there, which is a little bit dated now, but the job growth in the top 11 creative cities was significantly larger than the job growth in the bottom 11 creative cities.

Another person that's talking about this is Daniel Pink. In his book, "A Whole New Mind," he outlines this transition from the information age to the conceptual age. Within this book he actually talks about how there's a rise of rightbrain thinkers, and this rise of rightbrained thinkers is actually going to influence who gets ahead in the business world, who gets ahead in the corporate world towards the future.

The things he points to are six different attributes that really help define holistic, artistic, big picture thinking, which he claims is creating a lot more value in today's economy from the analytical type of thinking we've seen in the past.

In particular he says "the story," and I'm quoting here, "the capacity to explain, understand and persuade, not only with logic but with narrative, of building stories around these things." "Symphony: the ability to see the big picture to make the whole greater than the sum of its parts." So a lot generalist, kind of holistic approaches to solving problems.

"Empathy: the ability to empathize with people, and understand where they are coming from." This is kind of at the core of a lot of usercentered design methodologies. IDEO's philosophies of "hitting the streets" to see what people are doing and driving innovation from that area.

"Play: bringing a spirit of joyfulness and fun." A lot of the "Web 2.0" social applications we see growing right now are things like Half Life, World of Warcraft, very centered around play. There's also products that in areas traditionally don't incorporate play that are bringing things, a good example is Zantos, Mind Campus software.

I don't know if you guys are familiar with it, but it uses GEM methodologies, which is game elicitation methods to conduct research. So instead of giving people a blank survey to fill in a few things, which is as boring as you can be, they actually encourage people to take a sort of gaming approach to gathering their insights and learning about customers that way.

This is something that Nathan had talked a lot about and had talked previous to this, Pink also outlines meanings. So the pursuit of meaning and purpose is really a key portion of middle class life. The central argument is that middle class people really have more than enough of everything. So what they really need is things that give them meaning or purpose.

They don't need more stuff piling up, we have more than enough stuff. If anybody has tried to move, it's pretty much a nightmare, right? I can't even imagine moving these days.

So, all these people are talking about things, but why? Why is this happening? Why are we moving from an information age to a conceptual age? Why is the creative class rising? Why is design more synonymous with innovation? Why is "Fast Company" telling us that in order to form more lasting connections with consumers we need design? What, for that matter, do they mean by design?

Because as we kind of dive into this, we find out that design means lots of different things to lots of different people, especially designers that design designs. So why is this happening? Well there's three trends that I have identified.

One is the notion that markets in general, and this is across multiple markets, mature faster. And I'll outline these in detail in a second. Another one is that we're really in a state of continuous, impactful, and rapid change. And that has a big influence on how companies react, what they can do within that and how they can actually stay relevant.

The third is our world in general is just getting increasingly complex. A, as soon as you open up Internet Explorer you basically are putting a fire hose of information directly into your brain. Anywhere you go there is an overload of products, there's an overload of

messages. The average American sees 3,000 ads a day. Think about that: 3,000 ads a day. It's an awful lot of advertising.

So things are getting increasingly complex. Let's hone in on the first one here: markets mature faster. So there's a couple of data points that I think make this clear. A, we're seeing faster adoption of new technologies. If you look at the growth rate by which consumers adopt things like analog color TVs or VCRs compared to DVDs, the DVD adoption curve is much steeper.

People are adopting that technology very, very quickly, in fact, at record paces according to the Consumer Electronics Association. When people adopt new technologies faster, the markets that those technologies create grow faster and thereby mature faster. Similarly, we can take a look at faster customer acquisition.

This is actually pretty amazing. Skype, which is a voice over IP, kind of instant messaging audio chat software, within 25 months of starting, has over 55 million customers. Consider that: over 55 million customers in about a twoyear period. That's a huge growth rate. In fact, I think this might be a record for a company acquiring customers. It's very, very fast.

So, the more customers you have the more your company grows and the more quickly it matures. Similarly, if we take a look at the top performing companies, right? Like just from our associations there's Dell, there's Microsoft, there's Cisco, Starbucks, Nike, WalMart. Any time you're reading about great companies you might be hearing about these guys.

And we look at the years since they started to what their actual revenue growth is in real millions of dollars, and you look at the new breed of companies that are popping up.

Those growth curves are significantly sharper, again, so EBay, Google, Yahoo, PayPal. When you grow that revenue that fast, you naturally mature much faster because you have a huge influx of money, you have a huge influx of customers, people are adopting your technologies at a rapid pace. And so you might ask, well what are things that are causing this kind of faster revenue growth? There's lots of things at play.

A) distribution, these being a lot of internet companies, clearly they can distribute through out the web, but also UPS and FedEx have really enabled EBay to take off. The ability to ship to anywhere, anytime, relatively quickly.

There's manufacturing. Right now I can buy a piece of 3D modeling software, put it on my computer. I can generate a product. I can digitally email that file over to China, and within about a month long period, I actually have a product out, and it's relatively inexpensive compared with what this used to cost even five years ago, or imagine even ten years ago.

So, manufacturing is the only thing that is enabling this faster revenue growth. There's also the notion of open information. So again, obvious example here is the World Wide Web, but there is so much information. When you tap into that fire hose of the World Wide Web, that companies can get the info they need to move forward much quicker, therefore they can grow much quicker.

In addition to faster revenue growth, we're also seeing faster competition. YouTube made all the news yesterday because they sold for 1.6 billion dollars, but they launched in February 2005. Another interesting thing is that they only have 67 employees. They've been around for what, let's see...February 2005, so, little over a year and almost a half now, and 1.6 billion dollars. But, regardless, the interesting thing is, since YouTube launched in February 2005, at the time I actually gathered this list, there was 100+ direct competitors to that service.

And when I mean direct competitors, I mean since they launched, over 100 different companies could match them feature for feature. So this isn't people that are playing in adjacent spaces to them, or trying to do things very different from them. It's people that have the exact same features as them: the abilities to upload, share, embed, rate, organize videos etc. So when competition grows that fast, the market matures much faster, right? And how can all these competitors really compete with YouTube. They don't have the audience that YouTube has. Clearly that's what Google paid for in a lot of ways. When you talk to teenagers about where they consume video, they kind of have the sheep mentality: "YouTube, baaaa, YouTube."

Similar phenomenon with MySpace by the way, but recently there was, I don't know if you guys saw this, but there was a study that on MySpace over 35% of the users are over 35 now. So as soon as these kids see their mom on there they're going to run scurrying. That's just me. I don't know, I social network with my mom enough over the phone.

So, all these are signs that markets are maturing faster. New technologies are adopted faster. Customer acquisition occurs much faster. Revenue grows much faster. Competition comes to play in your market much faster. And when a market matures, when markets get to that point that they are mature, function is no longer enough to differentiate your company, or your assets, or your products. You turn naturally to other things, design being a pretty important one of them.

This is a graph, that when I saw it in Don Norman's book "The Invisible Computer," I kind of carried with me, repeated lots and lots of times in different contexts, but it basically outlines exactly that transition. So, when you have an unfulfilled need, people really want that need filled via technology and better performance, etc. Either they know they have this need or they don't know they have this need, and the technology comes in and starts to fill that void.

As you sort of move over time though, you hit this transition point, where the quality, the functionality, is good enough, and therefore it doesn't matter anymore, and other factors start to dominate what defines which products get ahead and which don't. And in this case, Don Norman points to user experience as being a very key component. Consumers want convenience. They want things that are easy to use. They want things that are reliable, and low cost, of course. Once you hit commoditization, this is the only way to start distinguishing what you have, and so, in markets that mature fast, design becomes a key differentiator sooner.

So faster revenue growth, faster customers, faster everything. All of a sudden design starts mattering more, and when I say design, I'm really talking about product design. And I have my obligatory iPod slide. If you speak at design conferences and you don't include a slide of the iPod, they actually take away your card and you're no longer allowed to participate. So, I've thrown it in. Check me off.

So, what I'm talking about when I say product design, I really mean the end result of designers. And a lot of factors, as we've seen through Nathan's talk and through Jared's talk, come together to create a real good product, or experience design, or experience strategy, or however you want to refer to these things. And I'll be talking about kind of the visual design aspects of putting together a good product tomorrow.

But it's actually the experience that matters here, and if we take a look at industries that are "commoditized," you know the automobile industry is a great example of this, cars are clearly past that point we saw on Norman's graph. So how do they distinguish? Well, BMW's latest advertising campaign "Give designers complete freedom and they tend to create cars that give it right back." You notice they're not saying "Hey we have brakes! You can turn the wheel!"

Infiniti, not to be outdone, claims that their X45 is proven by design. So in this mature industry, this is how these guys are sort of trying to distinguish their products, and not everyone is as blatant as these guys by actually using the word design. But what they're

doing is they are trying to market to an experience. Design being used for differentiation.

But why else is this shift happening? Well we saw how markets are maturing faster, and things are kind of becoming less differentiated by pure function, but we are also in a very interesting, what I call a continuous flux. And so what that implies is that there's a state of really persistent, rapid, impactful change going on in our markets today, and you see this in lots of ways by the way things sort of naturally change.

I kind of illustrate this by taking a look at the standard Venn diagram here of your technology, created by engineering, your people, the design side, user centered principals, business, your marketing. And the intersection of these three things creates products, what's happening today is that the overlap between these three things creates products, creates services, creates experiences that people engage with. Well, what's happening today is that the overlaps between these things are actually increasing. So, there's more of an overlap between people and technology. There's more of an overlap between business and technology, and business and people. And I'll give you a couple examples of this.

The business and technology one is pretty easy to figure out. Every company these days is run by email. I think there's a great acronym, I'm trying to remember, I think it's like EMMM, email, meetings, meetings, meetings. How most companies run these days. It's EMMMP. PowerPoint, I forgot about PowerPoint. So every company has a real deep connection to technology. Like, if the email system within a company goes out. Whoa! Right? Nothing gets done at all. This was not the case previously, right? So companies have become very tied to their technology. There's a huge overlap there.

What about people and technology. If you take a look at this statistic, I think it paints a pretty clear picture. So, over half of the world's population, I mean the world's population, not U.S. or Europe, was going to have a cell phone by 2009. That's three years from now. So 50% of the population has a cell phone. It's not just a cell phone. These are things that have cameras, they have the web on them, they have SMS, they have text

messaging, they have your address book, your contacts. And people carry this with them all the time. It's not the bat phone, sitting inside a cave, and waiting for the commissioner's call and only when you're there can you get it. It's just something that's embedded as part of you. You're interacting with it all times, and when you loose your cell phone, it's a pretty big deal.

Other technologies work similarly, like your digital photos are on your iPhotos library. Your music is on your iPod. These are huge dependencies between technology and people that didn't exist before. There's an overlap. So this picture that I'm looking at here (I am going to transition into how people and businesses are overlapping more), this picture I got here, I paid \$1 for it on istockphoto.com. Istockphoto \$1 for a stock photo. Getty Images probably would charge me \$185 for this and the people that are on istockphoto.com are just average folks making a couple of extra dollars here and there by putting a collection of their photos online that anybody can purchase. Their spare cycles are part of a business cycle. Uploading a little bit of photos here and there gets me a little bit of an income. This phenomenon which is occurring lots of different places is crowd sourcing.

Josh was telling me a second ago that User Interface Engineering uses Mechanical Turk to transcribe Podcasts at a really cheap rate. They put things in there. Somebody gets on the service. That person doesn't work for them. They are distributed somewhere but they are part of their business. So there's an overlap between people in business that way.

Similarly, I was describing a scenario where I can take a 3D model from my computer. I can ship it over to China and get a product back. But right now in the \$30,000 range, we have personal fabrication machines AKA, three dimensional printers and I would say about fifteen years ago, a HD plasma TV cost around \$30,000. Now there's one in lots and lots of homes as we saw on that growth chart.

So these technologies over time are actually going to come down and so the ability for someone to generate a product and have the individual become a business is greatly re-

duced. There's lots of lower barriers to entry. Web applications is another great example of personal fabrication. I just needed some service space, which I can get through Amazon's Web services. I need to do a little bit of coding and all of a sudden I have a product that I can release to millions of people online.

Another great phenomenon, I don't know if you've encountered this but I think there is a site called backyardprojectors.com. People with a laptop and a projector are creating drivethrough theatres. They will go out and they will just put the laptop up put up a sheet, invite people, collect. Before you had to have a huge amount of investment to create a drive in theatre, right? Now you put it up in a field, get a couple of people and there you go. So another example of the overlap between people and business.

The third example, we're all familiar with personalization from the Netflix model, from the My Yahoo model, Amazon where you are being recommended but recommendations and the personalization, this kind of mass customization occurs in other industries as well. So Adidas will customize shoes to your feet. Lands' End let's you virtually model measurements of clothing to fit you. British Bank Abbey will put your drawings on your credit card. So the further companies encroach into direct customization, onetoone customization, the more of a dependency is between the people in that business because they're creating unique individual products for them.

So what does this say? Well this says that because these overlaps are more pronounced, a change in technology has a bigger impact on both businesses and people. So changes become more impactful and these changes didn't used to be that impactful. I talked about how if email goes out in a company, it is basically lights off. Right? Didn't used to be the case. Same with people in technology, if I lose my cell phone, it is a pretty serious affair and vice a versa, right, a change in people also has a bigger impact on technology and business. Changes that occur in either one of these things are actually more impactful than they used to be.

Now the other interesting thing about these changes, not only are they more significant, they occur faster. I really like this quote from Irving Burger who has been at IBM as a

strategist for the past 25 years or so. The thing that he notes has changed the most in information technology over that 25 year period is how much faster things are happening. These changes are occurring much more quickly.

So this is yet another reason why design matters more to people. In this case, I'm not talking about product design though. I'm really talking about using design as a problem solving methodology as a way to address this state of flux. So we are in a situation where changes are more impactful. Changes are happening more quickly. So how can design help in that area? Well, one way is with something that you guys are already familiar with is rapid prototyping. I think it's IDEO that really discusses rapid prototyping as a build to think methodology.

Once you find a promising idea you just kind of build it up, prototype it real quick and see what happens. See how things work. When things are changing a lot and these changes are more important it makes a lot of sense to start really testing out things and see what sticks and what doesn't.

Another way that design helps is with this notion of abductive thinking. Jared touched on this in his keynote by outlining what does it mean to have an experienced vision for where the company or the product is going. The classic example, of course, of the experienced vision is the compact car. This is actually a moovi, ironically created by Peugeot. Did I say it wrong? This is the winner of their design competition. They had a design competition there to outline where could we go with the automobile? What could these things look like? Again it's an example of what we call abductive thinking. Someone always asks well what do I mean by that, so I have a slide conveniently located, which explains that.

So there's lots of different kinds of reasoning. Not lots but a few different types of reasoning. The ones probably most familiar with deductive reasoning which says there are these general principles or equations and I can apply them to examples. So  $four + five = nine$  and  $three + six = nine$  then  $five + four = six + three$ . There is also inductive reasoning where you use observations and you see what patterns exist and use those to

make generalizations. Again a super simple example, I see tire tracks in the snow. I smell oil. I generally induce, I guess, that a car has been by here. Right? So it's inductive reasoning.

Abductive reasoning is a little bit different because you might not necessarily be able to prove that something is or it must be. It's really more about a desired future state or creating blueprint for realizing that state. So designers might not be able to prove that something is or must be, but they can nevertheless put out the reasoning that it may be. Right?

This type of thinking is a critical ingredient to the creative process. This notion of reasoning that something maybe is what Richard Florida described in the creative class book as why this is so valuable because you can use abductive thinking to create this blueprint. We can take a look at what that actually means.

So Kathy Sierra who writes a blog called "Creating Passionate Users" and I believe is putting out a book of a similar name and theme gives a story. Has anybody actually ever tried snowboarding? Was the first time fun or did it totally suck? [audience comment was inaudible] You were on your butt right? You were cold. You were miserable. You couldn't wait to get back. So why ever go the second time? And what Kathy says, "The reason people go snowboarding a second time is they because have a clear picture of what success looks like." They have this mental image of guys doing stuff like this and doing great tricks and that's really clearly painted in their minds.

They have a reason to go forward even though the first thing is painful and cold and awful you just want to go home. If you paint that picture there is path to get somewhere. Here's the end state, let's figure out how to get there. Jared called this "the stick in the sand" I believe. Hopefully snowboarding sounds more romantic than a stick in the sand but the same basic principle. So there's a clear path to go to.

Abductive thinking really helps you build that clear path. So this is important in a state of flux because things are changing all the time and you have to have a sense of where you can go and what can happen. This is the Apple video that Jared showed as well.

Not only do we have rapid prototyping and we have this abductive thinking. This ability to envision an end state, we also have the notion that design as a process, as a problem solving process is never really finished. I absolutely love this quote from Bruce Sterling, there's a book that he wrote called "Shaping Things". Anybody heard of "Shaping Things"?

You can actually get it over at the MIT Media Lab. They have a glass display out front. Not the MIT media lab, I'm sorry, the MIT Press Bookstore across the street from the hotel. They have a display in the front, I believe it's like number five out of ten of the most popular books but it's a pamphlet. It's called "Shaping Things" and it has great quotes like this: "At any solved problem that has human beings in it just has to change over time. Because people are in a continuous transition from the moment we're born in the cradle to the time we get to the grave, we're always changing."

So the things that define a solution for us are always changing. Therefore, the things that solve our problems are solutions that must always be changing. So another great quote from Bruce in there where he says: "A thing is no more stable than the humans who cherish it. Properly understood, a thing is not nearly a material object but a frozen technosocial relationship." That's kind of cool.

So anyhow, you can take a look at how designs are never done. iTunes 1, iTunes 2, iTunes 3, iTunes 4, iTunes 5, iTunes 6, and it kind of keeps going. Right? There isn't a single release that meets everybody's needs. There is a kind of incremental growth pattern. This notion is design has never done also maps to the way strategy needs to sort of be thought of or should rather be thought of in this state of continuous flux. Right?

So, we have lots of impactful changes happening quickly. The market's always changing so your strategy needs to change with it. Design thinking as a design is a problem solving process, which is really rooted in the real world as we saw before. It's ideally suited to helping your strategy evolve, just the way products evolve.

In the state of flux, where things are continuously changing impacts bigger "design" enables companies to adapt. When I'm talking about design here, I'm not talking about product design, I'm really talking about design thinking, design as a problem solving methodology. A great quote from dSchool over at Stanford which is funded by Hasso Platner who is the chairman of SAP he actually read that "BusinessWeek" article that I showed you guys at the beginning. Went up on stage at the SAP user conference or whatever and started flaunting it around saying, "This is how we're going to move the company forward." He acted on that, he contributed like 30 million dollars over at Stanford to kick off dSchool and their vision is: "We believe great innovators and leaders need to be design thinkers."

And you say, "OK. Well that's great. Design thinking helps me cope with this state of flux. What the heck is design thinking?" Well it turns out you are not alone asking that question. So, not everyone agrees necessarily what design thinking is. The IDEO camp which is represented by Tim Brown, the CEO, will tell you that, "Design thinking is intensely collaborative, it's empathetic. It's using crafts to make things in the real world. It's very pictorial."

The Stanford dSchool Diego Rodriguez will say things like, "It's about optimism, visioning the state. It's about approaching things from the mind of a child, so it's about having this naive optimism about what could be, what the potential is." But yet while having that mind of a child but also having this attitude of wisdom to go along with that so you're not blinded by naive optimism and of course, building the think prototyping.

Rodham School says that, "Hey, design thinking is synthetic. It's about having a coherent overall vision. It's abductive. It's about visualizing what might be. It's opportunistic. It takes advantages of new and emerging opportunities. It is dialectical. It's an intersection of conflicting demands." The Management Innovation Group says it's "Collaborative, abductive, experimental, personal, integrative, interpretive." Adaptive Path says, "It's a focus on customers, users, finding alternatives, ideation and prototypes with our problems, wide range of influences, emotion. And others call it enlightened trial and error. It's called constructive that shapes reality, it's productive and that it participates from the inside.

A lot of things. So, if you really get into and distill this and I deliberately take out collaborative. You know, a lot of people claim design thinking is collaborative because in essence, everything really is collaborative. So, it is not a unique attribute of design as a problem solving methodology, you can kind of break it down into three things. So there's this notion of empathy which encompasses this thinking of the mind of a child from having a focus on customers and users really being interpretive taking some information in from the real world and acting on that. So it's rooted within what it is actually happening in the real world out there. There is this notion of vision, so having optimism, being able to construct potentially depict that in a pictorial manner abductive envisioning what could be? Iterative, so this build to think experimental is finding alternatives approach, so, prototyping, trial and error....

So these four attributes of design thinking help what companies deal with this continuous state of flux that they're in. So, well what else is going on contributing these things? We looked at that how markets are getting faster, are maturing faster, how we are in a state of continuous rapid impactful change. And in case nobody has noticed, things around you are getting increasingly complex. What do I mean with that? Well, everyday, at least a typical day, there's more than 60 billion of emails sent. There is about one billion text messages sent. There is 1.2 million new blog posts which is about 50,000 every hour. Plus I also mentioned an average American sees 3000 ads a day. That's a lot of stuff being generated every single day of information and everything.

And in case you are just thinking Internet phenomenon and say, "Hey this is a web guy, all he talks about web, web, web and technology." If you turn on your TV, typical CNN broadcasts two stories, multiple scrolling stories, three indexes. That's a lot of stuff to

observe, right? You're not just watching a single broadcast anymore. You're seeing lots of things. There's a ticker, there are the stocks, etc.

And so what we're in is this state of information overload. "Conveniently," as Tom Mulhern likes to say, "design gets more importance to this direct proportion to how much information we have to consume." Well why is that? I'll get to that in a second. Let's take a look at a typical example from my world, this is the web world. In the past, we didn't really have a lot of access to information about what was going on with our products. This is an example of coming from Ebay where we were actually a design team put together analysis of what was happening on the product and made some pretty significant changes and some pretty significant revenue for the company as well. And I'll kind of outline what the difference was.

So, we didn't have this data before. All of a sudden we have a whole slew of data, right? A fire hose of information has been opened up to us and we're in a state of getting usability testing data. So we had lots of usability tests going on. There were a number of errors that occurred. How many issues people had? What type of issues they were? Where they were assisted? How they were assisted? How long did it take them to complete things? How much time did they spend on each task? How satisfied were they overall with each of these things?

There was customer support information. So, customer support would track what are the indices or what are incidents that we're getting. How many are happening each one? What are they saying? How are they saying it? So there was a whole slew of data coming from customer support. Best practices, a lot of designers will kind of go around and accumulate patterns that were happening else where in the ecommerce space? What common solutions to the situations we had? That whole set of data. We also had pretty elaborate site tracking, so we knew where people came in and out of flows. We knew what they clicked on. We know how long they stayed on places. We knew what data they entered. We knew what elements they utilized.

So typically that's a lot of information and all that information is measured in very different ways. So how do you make sense of all of that? Well, what you typically get is something like this. Right? You just get a spreadsheet, and here are the numbers. Go figure it out. Because this clearly tells you how you redesign something or what the issue is? I can go right now and figure out what I need to do for the rest of my life based on something like this. It's 72%, darn it, but using the design principles applied to the same set of information, we can actually use these things to really tell more of a coherent story.

In which case, here, a coherent story is between the steps one, two, and three and this is from the registration flow of eBay a couple years ago. You can see a huge decline in the number of people who were actually making their way through the process. This was the big message coming through this data. We were losing up to 70 percent of the people getting through this flow. And every single person that registers for eBay... actually at eBay, they have a dollar amount associated with each person, so you can quantify and you can say, "Hey, 70 percent of losers, lost users." Users aren't losers! "70 percent of the people we're losing times the amount of money each person gains the company, that's a lot of money being lost." And well what's causing that? That's the other part of the story, right?

Again, here you see all these things but you don't really know what's happening. What's causing that by putting the information in context, saying where these things are happening. So this is an abstraction of this, so you can say, "Hey, usability tells us that there's something going on here. Customer support has issues here. Site tracking you see that this only gets used once. Best practices tells us that other people have done it this way." There's a story to tell here, and we can actually put these issues in the context of our narrative. The issues aren't abstracted out in some sort of spreadsheet or PowerPoint. They're actually part of the process of the experience that the people are having.

So it makes a pretty compelling story, and in particular, the attributes of the story is that it really focuses on the big idea. We are losing people through registration. It makes it very clear. It reveals that there is an opportunity here. So there's an impact. These people are going away, forget them, things will be much happier. It puts the information in context, I talked about, but it also creates a prioritized narrative. And ideally, using these kind of design principles applied to this type of information, which previously

would have just kind of overwhelmed people, enables us to make better decisions and to get to decisions faster.

And so these things shouldn't be foreign to people designing products. And so this is where I start, again, talking about how the same skills that are used to design products help us adapt to strategic situations, which clearly is a strategic situation to make sense of all of this and how to apply it. This is the same thing that we do with product design.

So here's a really complex security management application. A customer will go out and install this system on their network to figure out what's going on. What's going on with their network? Are you doing good? Yeah? Are you doing bad? Is there a problem? I don't know. It's a spreadsheet. It's the same spreadsheet we were looking at.

Well, if we go through a process of redesign where we actually apply the same skills, that I'll outline in a second, of visual communication and clarity and telling a story. Here, what we're saying is, "What's going on now? Does everybody have a better sense? No? OK." Here we go. I know the pretzels are settling in.

Well yeah, so it looks like overall, we're a little bit over the minimum threshold for threats, right? Got some exposures and hey the defense system's been kicking in, and here's the amount of traffic that's been happening. So what we've done is we've distilled a whole slew of information to actually tell people a story about what's happening. They can still dive in to all this data if they want and explore and get into there, but there's a prioritized story being told about this information. It's not just a stream of data. It's not a fire hose tapped into your head again.

And so what are these skills that we're talking about? (And this is where tease a little bit, a few folks asked if I'm going to talk about stuff and I'm talking about tomorrow in this

talk, this is where I'm teasing some of these things). There's this notion of visual communication, which is what helps us go from something like this to something like this. In particular, the importance of presentation. So unless they're coming with screen readers and listening to things through an audio interface, what you see on a screen really informs your perception of what it can do, how it can do it, and why you should care about it doing that.

So the presentation of this information of this content, of these actions is really important. And that perception, because it's primarily visual, is based on the relationships that your mind where there's basic principles (which I'll walk through in a second) of how we interpret visual information. And we parse the similarities and differences between things and we assign meaning to them and we sort of put together a story.

Well, by manipulating those visual relationships, we can create a hierarchy that tells people a story about what's going on. And with that story, if we apply the right personality (which I'll get into in a second as well), we can draw the right audience to the story, we can tell them the story in an engaging way. So again, these are the teaser slides. So there's basic principles that outline how we group information.

Does anybody know why when you smell really bad, you don't know it but everybody else does? Any theories? [inaudible answer] You get used to it. Right. You don't notice because there's no change. Our brains are really hard wired to perceive change. So our eyes, when there's very small vibrations or oscillations in our eyes that enable us to see things, because the field of vision is completely changing. So we naturally are kind of drawn to similarities and differences between things and that's how we assess what's going on in front of us.

And so, using that principle of how we interpret perception, there's ways that we group this visual information. Clearly there are a lot of the theories that are underlining these thoughts but proximity. Things that are close together get grouped and are perceived as related. Things that are similar get perceived as related, things that have a continuous relationship.

In order to communicate a specific message using those, we need to understand how to create those relationships. So how do we create things that are similar or how do we create things that have continuance? And the way we can actually introduce, making things similar or different, is by varying the contrast between stuff. So, changing color, changing size, changing shape, those introduce varying differences and create contrast. The more variations of these visual relationships you have, the more contrast you create between two objects.

Well, why do we want to create contrast? We want to create contrast because we can apply more or less weight to things. And so, here, when I pop this in, your eye kind of jumps to that red type because it has a very strong contrast to the background by the color and the shape. Then you kind of go to the image and spend some time there because of the detail, but the last thing you really notice is that dot. There's not a lot of contrast between the dot. So there's a varying range of visual weight associated with each of these objects. Some have more, some have less.

And, well, why do we want to vary the visual weight of things? Well, we want to vary the visual weight of things so that we can use them to tell a story. So in this poster, the first thing you notice is hey, looks like some kind of circus, you see the clowns, the animals, it looks like fun. Then you see where it's happening and you see how much it costs. So there's a sequence by which you parse this information. If the visual relationships were inverted, if the most visual weight were given to how you buy tickets, you'd say, "Buy tickets for what?" It wouldn't make sense as a narrative.

And so to bring it back to product design. (I acknowledge that I'm giving really brief interludes to these sorts of things), what do you look at first here? Any ideas? What does this company want you to do here? What are some adjectives you'd use to describe these guys? It's kind of crazy? Your eye is basically bouncing all over this thing. There's no hierarchy here. Everything is basically screaming at you, and as a result nothing really gets heard, right? Because your eye is bouncing around these items continuously because everything has as much color saturation as possible, as much visual differentiation as

possible, and everything's trying to get noticed. There's no unifying color. There's really no unifying typeface. There's nothing here that coordinates and tells you a consistent story.

Whereas, if you compare it to this, what's the first thing you notice here? Procreate, right? Lots of open white space, interesting shape created, that element right there has a lot of visual weight. And then you sort of move down to "your life faster". And this isn't accidental because that thing cost \$3,000, these things down here cost like \$99.

So you see the first thing, then you move down. Apple is a company. What do they want you to do here? They want you to buy their products. Ideally they want you to buy the most expensive products or the latest product or whatever they're trying to pitch at you. So they've prioritized the store so you say "Hey! Get this or maybe get these." If you want to do something else then the third level of visual hierarchy is the navigation and the search and things like that there.

It walks you through a pretty consistent story and, as it walks you through that story, it's actually also creating a personality for the company experience. If I asked you guys previously what adjectives you'd use to describe [buyitnowcrazyworld.com](http://buyitnowcrazyworld.com), what are some adjectives to describe this just based on what you see visually?

Clean? Elegant? I heard "simple". Right? There are images of technology here, so Apple: clean, elegant, simple technology. That's a pretty great story to tell people.

So in summary for this notion, using visual communication requires us to organize things visually to create a hierarchy that people can walk through and to give it personality. We do that by taking a deliberate prioritization of stuff, organized by visual weight,

manipulated by visual relationships to create understanding. So what people are looking for.

Those same principles right there that I outlined by which we can turn that craziness of "crazybuyitnow.crazy.com" into something more like apple.com, or those same principles we can apply to any set of information, any set of context and action. So we've got a slew of incoming information and we're in a state of information overload, so let's apply those same principles to tell them where to prioritize and get people through things.

Information isn't the only thing getting more complex. It's not just information overload that's leading to a state of increased complexity. It's also our devices and our media and our technologies that are becoming more complex. Treo, obviously is a geek wonder toy of features but mainstream products as well are becoming more complex.

Anybody watch Dragnet? I always forget when Dragnet actually came out so I won't embarrass anybody if they watch it. But when the series launched there was a single story told throughout that episode. Right? It started at the beginning, ended at the end. There were no distractions. You watched it: done. Then there was a radical innovation with Starsky and Hutch. Believe it or not, radical innovation with Starsky and Hutch. A story started at the beginning, then a whole story went on then at the end they referenced that thing that started at the beginning. Pretty complex. Two stories.

Then along in the eighties came Hill Street Blues. And what Hill Street Blues did is they actually had multiple narratives going through the story. But those narratives never happened at the same time. Actually I should point out that a lot of this is coming from Steven Johnson's "Everything Bad is Good for You" which has all sorts of tasty tidbits here, like this about increasing complexity of media and a product. So Hill Street Blues lots of narratives going on at the same time but they were separated. When one ended the next one started and you were never doing things at the same time.

Now Sopranos, this is episode eight of the Sopranos, not only are there multiple story lines but a lot of them are happening concurrently. So that the events that are happening within a single moment that you're watching influence multiple story lines that then get wrapped up in the next episode. This is massively more complex than Dragnet and this isn't isolated to the realm of geeks with Treos, not that anyone who has a Treo is a geek. This is one of the most popular TV shows in America and it's really, really complex.

Similarly if we take a look at Dallas, which started in 1978. The typical soap opera, right? You would think that if any show's got a whole bunch of complex relationships that you've got to keep track of, it's Dallas. Right? Who's something something somebody I'm not going to get into it. So here's a map of the social network of Dallas. It's not that complex. When you look at 24 which aired in 2001... look at that. Way more complex, keeping track of all those relationships? That's a lot more to parse and again, 24 one of the top rated TV shows right now, a lot more complex than anything previously shown.

Speaking of networks and things there is a photo sharing site called "Flickr" which has a very complex ecosystem, or flow of information, or flow of photography or intersection of users. So when a Flickr user takes a photo they can choose to share that with their friends and family or their contacts or with other Flickr users. They can put it in a group. They can post it into a topic. They can discuss it. They can put in a tool. They can drop it into their own set. They can tag that photo. It shows in their Flickr stream. They could go to their organizer, where they can then manipulate all those factors I just talked about. They could also save somebody else's favorites as a photo. They can put comments on it. They can add notes to other people's photos.

They might send their photos out to the Internet by putting it on a blog, by putting it on any one. They can subscribe to the photos of somebody else. They can mark them as public or private. They can associate contexts with maps and they can associate content with it. And by the way, all this stuff is available through RSS feeds.

So I can subscribe to comments that people are making on my photos about the photos I've put up. Or someone can subscribe to all my photos and then find a friend of mine that also has photos and subscribe to that. Right?

But you look at how Flickr's growing and it's like this. People are adopting this like crazy. This isn't easy. You can't make sense of this in a very simple way. Right? But people are using this. This is becoming the de facto photo sharing thing at Yahoo! Over Yahoo! Photo, which is very barebone simple. So simplicity isn't winning out here. Complexity is more engaging.

So what about one of these typical social web applications? Well they enable people to contribute, so we're adding in content. You can flag things. Rate things. Review things. Add things to your favorites. Add content to a Wiki. You could subscribe to a calendar. Add events. You can put comments in. You can tag stuff. You can discuss things on discussion boards. You can have inline chats. These are just ways that you can put information into the system but then you can also share that information.

You can email it to a friend. You can save it to a list. You can put into a playlist. You can IM it to a friend. You can add it to your site. You can download it. You can add a "Track-back". You can add it to your blog. You can subscribe to it. You can add other people to it. There's a whole bunch of features as well. Right?

These social applications are not simple things. Well to bring it back to "why does business care about this stuff"; complexity, if you look at the amount of products returned in a recent study, causes 50 percent of product returns. So things that get too complex, even though we can absorb a lot of this complexity, when things get too complex it causes problems.

What designers do is they manage complexity. So the way Sopranos gets away with having eight intricate plot lines is that there is a unified narrative. Similar to what I showed with that information analysis of the eBay data. Right? There's a story being told there. It's much easier to absorb a story than it is to absorb raw data.

Back in the day, I believe "The Odyssey." I believe that's the epic poem I'm thinking of. People memorized "The Odyssey" because of narrative. They'd go around and they'd tell it. But if you took "The Odyssey" and you abstracted the story away from it and just gave somebody a list of all the words in there, there is no way that they would ever be able to go off and memorize that and then tell it to other people. It's the narrative and this management of complexity, narrative being one of these principles, that helps people to adapt to these things.

Similarly there is another principle of design. So narrative being one of the principles of design. We saw Daniel Pink at the beginning of this talk talking about how important it is. Another one is being able to determine what goes into that story and what doesn't go into that story. So how do you eliminate the unnecessary of things that actually matter?

I'll give you a real simple example. So here's a basic table. What's the thing you notice last in this table? It's the data. Right? This table exists to show this data but instead your eyes are drawn to this really thick border around the labels. The thick labels. So you say "Ok, well that information isn't necessary for me to understand what this is trying to tell me".

The goal of this is for me to get a sense of what all this data is real quick. This is on my web application and I'm just trying to get a sense of "what are the admissions", "what are the discharges" in context. Right? So I could say, "Well there's a are a lot visual noise in this and let's remove it." So now what's the problem? We got rid of a bunch of stuff that seemed unnecessary. Is there anything wrong with this table? Yeah, it's hard to scan this, all of a sudden you are spending a lot of time. Oh my cursor. If my cursor would only come over here. Oh, there she is. Come on.

OK, here we go. We are bouncing around all this stuff, here it is very hard to connect this to this. OK, so, one potential solution is to stripe every row, sort of add back a little bit of visual information. Right? Do we have to do that? We could do. This just bring back minimum amount necessary to accommodate that. We actually look at the information. We see that there is a relationship, number of admissions, number of discharges and we recognize that the border actually helps that groups that info but didn't need to be this much. Just use the minimum amount necessary so there's just a little bit of, we're talking about that visual contrast again, there's just a little bit of contrast between the background and this, enough to distinguish these two things but there is still a problem with this table.

Here's another thing: Time sequence. Numbers of numbers of numbers of...Here we go. So we can do it like this. We also did here, we flipped the order of priority and made the actual data which up here, really got second billing, the primary thing here. So now there's a real clear clean scan line down this info, 10530530 with 205305. So, if you buy into some of the theories that come out of books like tipping a finite amount of attention to devote any particular task that we get into in time and this is one of the tasks. Here I'm spending a lot of time trying to get to this information. Here I can go like this and I am out of here. So it reduces the mental load but I have to parse this information. And so if we abstract these principles out further, we can apply them in multi places. So, speaking of complex products, what is this?

This was the marketing team at a large corporation, who shall rename nameless, trying to make the case that this corporation really needs a global asset management system. Right? Not only do they need a global asset management system because there's lots of problems with global asset management system. In order to build that asset management, they're going to need a lot of money. It is pretty expensive. This is a very large corporation, lots of assets being created over the world. Lots of different groups had to buy into this because, like I said, lots of different groups are creating assets and this is how it was pitched. I don't personally know what they're trying to say.

Using the same principles about well, OK, what's the important information here? What is the story, we are trying to tell? How can we manage the complexity of something even though it looks really simple? It's actually really complex. How can we use this to tell the story? The same asset management system using some of the principles that we just talked about can be communicated like this. The key thing here is that branding assets, marketing assets and assets being created by creative groups like the actual designers on the floor will live in one place. Right? This is one of the key messages that people have to buy into. So, the brand messages create the identity. The marketing stuff deals with multiple channels that has the campaign plans. And the creative assets are things that are done, things that they are using as raw assets.

So this is the picture of this system. Why would all these different groups, the on side internet marketing, direct marketing such why would they buy into this? Well, there is a common process by which all create these assets. So, they plan the thing, they have a planning system, they put in requests. They allocate people to do it. They make the design. They build them. They publish them and they see how they did. Right?

So, trying to get all of these different groups in a very large corporation to buy into pitching in a lot of money to build the system like this. You have to tell them what's going on. This is again some of that vision that Jared has talked about. Using the visual communication to illustrate the relationship between people, processes, content and we are giving them a shared understanding of what are trying to do and why?

So, here's what we're trying to do versus we are trying to put all these different things together because there's a common process by which they get made. OK. Last but not least, not only are we in a situation with those lots of information heading us, this information overload situation, not only are products are getting more complex but all our services, our products are being affected by globalization. So most companies in these days have more than a single country in which they either operate, release products, anything that gets released on the web is by default global.

So, and when I say globalization, I'm not talking about offshoring which most people talk about globalization. I'm talking about all of complexity that globalization creates so there is cross cultural opportunities. There's new emerging markets. There's companies that are diverse across cultural, geographical boundaries. So, when you think about globalization you might think about something like this. Right?

The ability to get McDonald's frenchfries any where in the world. Right? Or Starbucks coffee. Both of them have essentially enveloped the US.

The only state that seems to be immune is actually Mexico. I take it back. A part of Mexico somehow resisted the onslaught of cheeseburger. But in Europe, [wow] look at that. It's like an infection. So anyhow, yes it is interesting that McDonald's is spreading all over the globe. What more interesting is how are they spreading. Steve Portingal has a really great image that he called out in Thailand. So this is what McDonald's is doing, I believe I am pronouncing it in a proper way, the wai which is a traditional Thai greeting. What does this imply? McDonald's is spreading all over the place but look at how they are doing it. Why does this matter?

It matters because in this situation, design has the ability to help frame that context that makes messages, or that makes services or makes products appropriate. To use Nathan's quote it invokes the right meaning to people, it does not necessarily slam them with an incorrect message, it creates context. There is a great quote by Richard Farson here says: "Design has power because it creates situations." Situations really shape what people actually do. If any of you read "Tipping Point", I think you can buy it out there so, very good book, very fast read. Situations are really deterministic about what people do.

A great quote by Richard Farson here says: "Nobody smokes in church no matter how addicted they are." It's that context, it is that situation. Common answer to any design problem what is the right design solution? The answer is always it depends. The reason it depends because context is so important. So designers naturally have a sense of understanding how context frames solutions. In a situation like globalization or moving a product around the world this matters.

Let's take a look at another example. When Ebay, we had a product that we released simultaneously in 91 different cities and I believe 13 different languages, we did not just blatantly throw these things out there. We did some analysis. For Japanese market for example, we did an analysis what is information density in the context. What's mobile penetration in this context? What's the role of this characters and lots of other things as well. As a result the particular instantiation of the product that made its way to that market was contextually relevant. It had an appropriate message. So here classified ads aren't really as well known in Japan as they are in the U.S. so there's an explanation of what is going on.

Integration with Mobile devices. Some of the research showed that deeper categorization actually resonated with people there.

Audience member: And what a lot of people have noticed in relation to design in China especially with some of the portal sites is that its, it looks very cluttered. There's a lot of information there and I ask the question as to why is it that some of the portal sites why do they have so much information, why is there so much clutter? And one of the answers I got, which I thought was very interesting, was there's a perception if there's not a lot of information on the home page that the site itself is not reputable? So its a completely different perception. You know to a western eye where you look at a lot of home page design the white space implies simplicity and clean design yet in China there's that feeling that if there's not a lot of information there they may not be trustworthy or reputable. Luke: Yeah, so we found very similar things and I actually have a great image where I show a street and, I believe, I think it's in Shanghai alongside like one of the most popular portals within China and there's a really strong correlation with the density of signage and the flow of information with people with the density and types of colors that appear in that portal.

But, in particular there's actually two things on here so to your point this richness of activity, I think it goes beyond information, it also goes like how many other people are here? If there's not a lot of people here then this isn't for me. So what we did in the Japanese version that we didn't do elsewhere is put up an indicator of how much con-

tent is happening here. We also exposed a deeper hierarchy than we did here. We did two levels of organization that we didn't do other places.

Another thing we examined was kind of, you know, what's the actual appropriate color scheme here to build out the right personalities and again to drive context. In creating context really means you're working within a particular context doesn't just mean getting, you know, the feature sets and things right; it also means building out an appropriate personality so the nets considered inviting, engaging, and, relevant and part of that communication of personality which is another kind of teaser to what I'm going to talk about tomorrow.

Building out a personality involves the right selection of colors, fonts, images, textures, and shapes. So if I was planning my wedding I would maybe go to wedding channel, find an image kind of black and white of a romantic interlude might be the kind of card you'd get when you'd have an anniversary or engagement. Just kind of romantic black and white image you'd find some light pastelly tones, sans serif fonts. Which, you know, is very similar to things you'd expect when you're looking about information about rugby. The same flowing pastelly really lyrical fonts that characterize this intimacy between a man and a woman also characterized the intimacy of rugby. It has the same level of elegance, right? It's just a swan dance.

So clearly, you know, the rugby site using the same visual elements of the previous site creates an inappropriate personality. The context is wrong. So getting manipulating; all we're done there is switched out the colors, fonts, treatments, and things like that. And these things work together to create a story. So for the Chicago Symphony Orchestra: the selection of colors, typetreatment, photos and shapes all these things work together tell a real consistent story. In this case it's about sophistication and it's about elegance.

Now if you abstract that up and go a little bit away from website design, and let's assume that you're trying to make a pitch that for a user experience process within your company you can go about it this way right? There's a requirements analysis phase, there's a GUI task, there's testing development, and, there's installation, right?

It's very logical way of showing here's how user experience design a process could work; or you could give it a little bit of an more appropriate personality and say "Hey it's all about making an experience. Whee!" Fun right?

Something about the personality of the message makes a difference. So I'm not saying take every single kind of process diagram you have out there and make it fun and engaging, but when you're trying to make a case for a particular thing, the personality of stuff matters. In particular the power of personalized we saw between the wedding site and the rugby site. It's the power to tell the right story and meet the expectations people have and put people into the right frame of mind. It also can appeal to engage your audience.

If you're trying to sell this process, you know, it might be a little bit easier, don't try this at home, to sell something like this potentially than something like this. And again these principles of generating personalities for information, for context, is not necessarily unique to this stuff. It's again what product designers do when they build out things like web sites.

Here's a health site, right? All be it they have a mouse sperm associated with it, but, I think that's the only inclination [laughter] that I actually get here that this is somewhat health related and by the way the mouse sperm is really trying to log in. There's the egg. [laughter].

Does this set the right appropriate message for me to trust my health problems to these guys? Or is something like this a little bit more appropriate? It's like here a page, a product page which we looked at previously, another product page here about behavioral health. It sets a very different tone and a very different message for me. A: there's some soft kind of imagery in the corners but then, simultaneously there's a little bit of a

technology for the look and feel in the right corners. These guys provide technology solutions for the health care industry and trying to communicate that with personality makes a pretty big difference.

So when there's complexity and by complexity again I'm talking about the state of lots of information this information overload. The fact that products and media are becoming more complex and the fact that these products and this media and this information are distributed across the globe in lots of different cultural contexts and situations. Design, again "design" here in quotes enables communication when I talk about design here what I actually mean is design principles.

So before we looked at design thinking as a problem solving methodology we looked at product design as creating experiences. These are design principles applied to instances of complexity within information contexts and products.

So to summarize, and I actually will summarize here, in this networked, global, dynamic and disruptive economy we are sort of living in; markets are maturing faster so product designs and experiences matter earlier. And we need to distinguish things beyond plain functionality. We're also in this state of continuous flux where design as a problem solving process helps companies really adapt and stay relevant within this state of flux and that's observe, envision, iterate that overall process.

There's also this increasing complexity all around us. More information, information overload, interconnected ecosystems of products, complex products, globalization of products and in these situations design principles help communicate meaning or to use Nathan's term they help evoke meaning. Help us make sense of all of this stuff.

In particular, this is a really nice transition, it's these principles that I'm going to talk about in particular visual design and information design principles that I'll outline, in depth, tomorrow and I'll apply to actual product design and information design.

So that's all I got for you're interested in more I write about this sort of stuff over there and you're always welcome to send me email and I look forward to it. Thank you.

[applause - end]