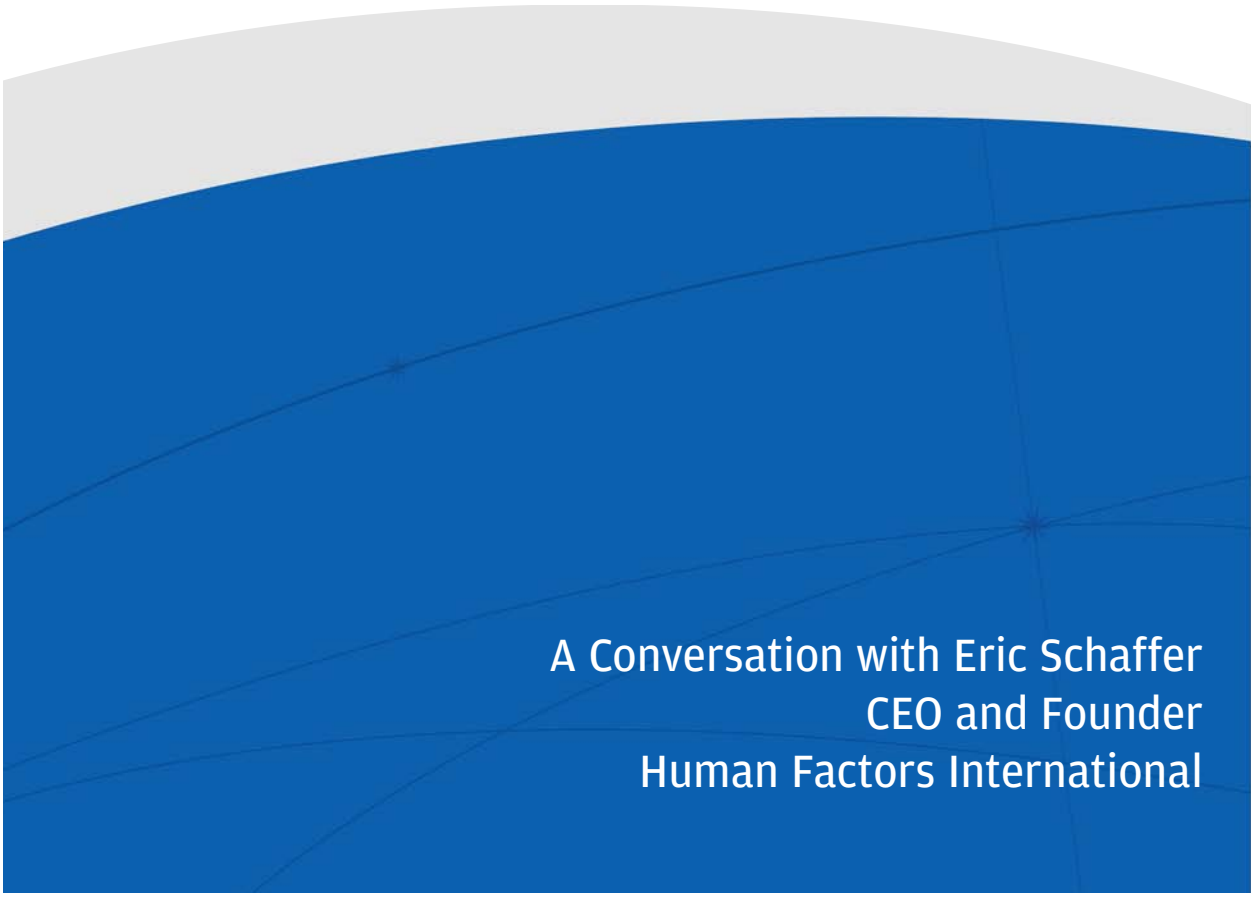
Human Factors International

# Cloud UX

## The Next Step in Institutionalization



A Conversation with Eric Schaffer
CEO and Founder
Human Factors International

# Cloud UX—The Next Step in Institutionalization

In this conversation, Dr. Schaffer talks about the next step in the institutionalization of usability—Cloud UX.

"This is a game changer, it profoundly changes the way we do UX business."

## Cloud UX—The Next Step in Institutionalization —A Conversation with Dr. Eric Schaffer

Jay More, Global President of Human Factors International, interviews Dr. Eric Schaffer, CEO of Human Factors about Cloud UX.

**Eric, more and more companies are institutionalizing user experience (UX). Are there gaps in institutionalization? What's still missing?**

We now see institutionalization of user experience happening globally, and we are working with many clients to set up internal UX practices. We see solid executive championship, and good movement in the direction of corporate governance. There is a strong move towards customer-centricity, and having serious capabilities to do systematic, routine UX design.

**"We're no longer doing piecemeal projects, we're doing projects more routinely across organizations. As this happens, there's a need and an opportunity to look at the issue of corporate memory and how we do UX design in a different way."**

The vision of institutionalization I wrote about in my book, *Institutionalization of Usability; A Step-by-Step Guide*, in 2004, is actually happening. This is pretty exciting for me. But, there's a natural corollary of that—a shift. We're no longer doing piecemeal projects, we're doing projects more routinely across organizations. As this happens, there's a need and an opportunity to look at the issue of corporate memory and how we do UX design in a different way. We need to leverage our industrial-scale user experience work to be more efficient, to be more powerful than we've ever been before.

**I've recently heard you mention "Cloud UX". Can you describe what this is?**

When we do a UX project, we do the project around a given ecosystem. There's a set of users, which we describe as user profiles or personas. We complete a number of scenarios within one or more environments, use various artifacts, and encounter various problems. We may also find various opportunities. In any given project, we easily spend a third of our time documenting, and perhaps as much as two thirds of our time researching. So, the bulk of what we do in UX work is study the user and document from there.

All this happens on a single project. Now, what happens when you have 20 projects, or 50 projects? They are each working in an ecosystem of users, but they often overlap, often massively. So you could have 20 projects going on, all looking at a treasury department. Or 15 projects, all looking at a digital native here in America. So the user type, perhaps some of the scenarios (though not all), and

the environment are all overlapping. They may not overlap completely, but they overlap to some extent. If you start to look at the full set of knowledge about a customer, it's a cloud. It's a cloud of users, environments, artifacts, and scenarios. And that cloud is interconnected because multiple users do multiple scenarios in multiple environments with multiple artifacts.

This means there are various connections. And the connections matter (or not) depending on what you're working on. There is a cloud of ecosystem knowledge. This cloud also needs to include the things we do as UX staff. The cloud connects to a set of projects. These projects connect to a set of things that we design, which we specify—different websites, applications or services. We use various methods and standards. This becomes an enormous cloud of interrelated data which is unmanageable and impossible to leverage.

**"What's happening today is that UX practitioners painfully re-research and re-define each of these things for each project. They are not able to fully leverage the power of 50 projects."**

What's happening today is that UX practitioners painfully re-research and re-define each of these things for each project. They are not able to fully leverage the power of 50 projects. In a sense, we're talking about the core customer-centric intellectual property of an organization. Right now, it's fragmented and very difficult to use.

**How are UX professionals all over the world doing research and design now?**

What they tend to do is they say, “I have question, I have a problem, I have a design challenge. Let me do the research.” At HFI, we frequently have to go to our larger clients and say, “You've asked us to do this research, but another group in your organization is concurrently funding exactly the same study.” This happens particularly in the mobile environment, where we'll have several different parts of an organization in different parts of the world all doing the same study. And we have to flag it so they only have to pay for it once.

What happens today is a UX group tries to find out what's been done in the past. However, they're faced with the problem of finding someone who remembers, or they're faced with a massive repository of project documents that's so overwhelming that it’s rare to get much out of it. There may be some standard personas, or something like that, but because there isn't the connection between the parts of the cloud, it's very difficult to leverage this knowledge.

**“I think that as much as half of the research that gets done today is re-inventing the wheel.”**

**So, in a sense, when somebody in a UX or research group starts on a project, they may be re-inventing the wheel.**

Yes, I think that as much as half of the research that gets done today is re-inventing the wheel.

**Don't the marketing groups track the studies? After all, it is market research.**

Market research sometimes overlaps with UX oriented research, where we're looking at ecosystems and user profiles, or emotional schema around making a decision. But today, research tends to start from scratch each time. And, starting from scratch is really a problem. UX teams need to build on research that’s been done in the past, and not start from scratch each time. This has truly been an intractable problem.

**I can see from what you're saying that as the number of studies increases, the number of UX professionals increases, the number of products that they're trying to tackle increases, the problem grows exponentially.**

Well, it *is* major. Every UX professional that I've shared this perspective with—shared the work that we've been doing in HFI labs—says, "This is a game changer, it profoundly changes the way we do UX business."

"This is a game changer, it profoundly changes the way we do UX business."

It's interesting. As you scale up anything, the nature of the issues can change. For instance, creating a room would seem to be a pretty straightforward thing. But when the room is big enough, you have weather issues to consider. When NASA made the huge rooms for building the space shuttle, they had to worry about it raining inside. It's the same thing when you scale up UX from a couple of guys in the corner to it being done on a routine basis across an organization. It's completely different in terms of the challenges and opportunities.

**Can you describe a situation, an ideal world, where you take advantage of this large-scale operation?**

Within the cloud environment, you have to look at the different scenarios where somebody would be interested in particular information, and be able to take advantage of it. It might be a manager who wants to run a study. The manager should be able, in a few moments, to say, "Have we run a study like this before? Did we have the same user population?" The manager who is specifying research should be able to find it in context of the cloud. So rather than write out a long description of the research that needs to be done, or the methodology (it may be a test, it may be a design project) the executive should be able to point and say, "I want to look at these users, this methodology, and this environment," and be able to do this in a very precise way in just a few moments by pointing to the cloud.

The cloud becomes the common reference for communication. If somebody says, "We're going to refine the checkout project on our website," the designer should be able to say, "Okay, what kind of users use our checkout routine, in what environments, and what projects have we done on the checkout routine before? Can you tell me what scenarios are completed against the checkout routine?" It shouldn't be a process of sitting in a room trying to think it up,

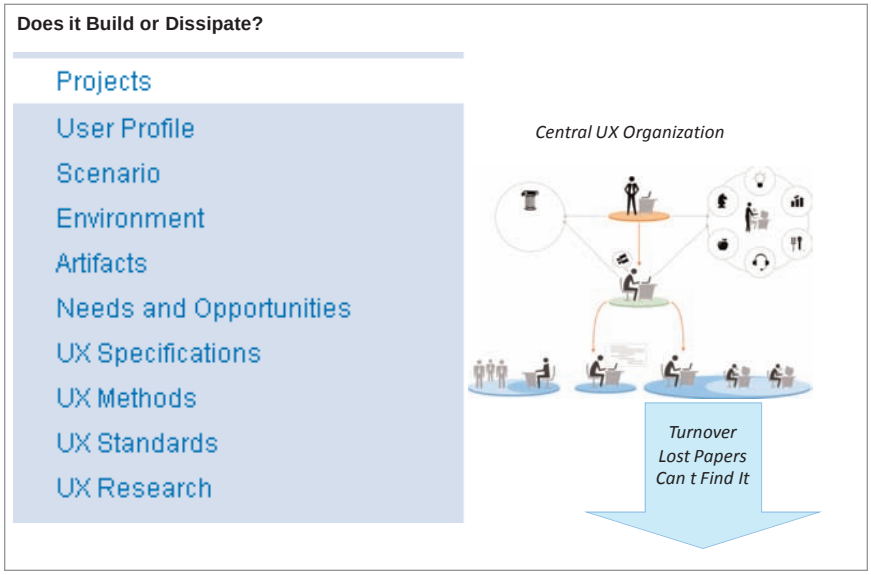
it should be based on a foundation of what's there, and building from that. There may still be a new scenario we didn't research before, or a new user type that has emerged. So, we're leveraging as opposed to building from scratch.

Creating documents is completely different in the UX Cloud. Currently as much as 1/3 of most UX documents is documentation of the users, task flows, environments, etc. And, if that's in the cloud already, it doesn't need to be re-documented. It can be just referred to using the UX Cloud index. So our documents become shorter, with just the content that's really important—and more, in that they reference the richness of the cloud.

**"If you think about a company's intellectual property, the value of a company is, to a great extent, its knowledge of its customer and its customer ecosystem."**

**Would you outline some of the key benefits of cloud UX? Let's start with corporate memory. You mentioned that accruing corporate memory—descriptions of ecosystems, customers, etc.—is valuable.**

If you think about a company's intellectual property, the value of a company is, to a great extent, its knowledge of its customer and its customer ecosystem. In reality these days, this knowledge is contained in the collective knowledge of the individuals in the company—and you hope not to lose them. But, with turnover, it's very possible to have enormous loss in this property. Therefore, the core importance of cloud UX is locking down and maintaining the knowledge of the customer. And this directly relates to the valuation of the company.



Think for a minute about Salesforce. Salesforce is fantastic partly because it provides a central, accessible, continuous model of the sales leads and contacts. If you have an organization where every individual sales person has their own rolodex, than you're at risk that they'll leave—and then what do you do? It's exactly the same with UX assets. I know huge companies that have literally hundreds of thousands of dollars in research findings that are only accessible on the hard drives of the UX staff. Even if they've been centralized in a knowledge management system, they're not accessible in any practical way. We can see that the cloud is a major part of the value of any given organization.

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**So, finding what you need is a key benefit.**

If the user can't find it, it's not there. If I have literally hundreds and hundreds, even thousands, of individual reports looking at all kinds of different things indexed alphabetically, or even by organization, it's really impractical for me to sit down and absorb it. It was fine years ago. I remember I would go in, and there would be 20 reports, and I would read 20 reports, and that was no problem. But, when you have 200 reports, or 600 reports, how do you manage that? How do you absorb everything? Because really, 80% of that content you don't care about—maybe 90%. You need to be able to quickly get to things that matter. And, the problem is that the things that matter are not connected to any indexing scheme that I've seen. So, if you are doing research on air conditioner customers, you know that the same customer population buys kitchen grinders. Well, the kitchen grinder organization has separate data, they're re-researching the customer too. You need to have common data and use that.

**You mentioned the word "ecosystem" several times. Tell us more about creating UX ecosystem content.**

It's core to the businesses of UX today that we're no longer just working at human-computer interface design, where one person sits in front of one computer doing a task. Those days are pretty much over, because usually this one person now has six different screens in front of him, or two screens and a mobile device. You have many different channels and applications facing the person on

many different websites. You also have many different people. So you don't have one person making a decision, you have people sharing content, making decisions together, working collaboratively, communicating, and you have many different environments.

It used to be that computers were only used in standard air-conditioned offices. Now they're everywhere, so we have to consider different environments. The complexity of the new reality has forced us to use different methods and think about things differently. We use ethnographically inspired methods to build models of those ecosystems.

"The complexity of the new reality has forced us to use different methods and think about things differently."

**You mentioned three other benefits in the course of the conversation: Project deliverables would improve, communication would improve, and coordination would improve within the organization. Can you comment on those three?**

The deliverables today are actually pretty shallow. They actually don't have much content because the UX specialist is trying to balance the investment of time against the value of having a detailed description. But, what if every time I worked on a persona I built a richer and richer model, bit by bit, and I referenced this? Referencing takes only a moment. So instead of making slide after slide, I can just have a reference to it, and this linkage connects me to a very rich content base about the user. So, now instead of taking two hours to write the slides and describe the persona, it only takes me three minutes. And, instead of having six slides that give a rough picture, I get a really deep content base that can have video and pictures, and so much richness about that user.

**That helps communication.**

Well, it helps the deliverable. The communication is helped by the ability to point to and discuss the cloud. There's a constant conversation that goes on within an organization about what's to be done in the market, what kind of products there will be, what kinds of strategies, what kind of designs, and what decisions will be made. And, today it tends to get fuzzy because people are talking in generalities.

But, if you can point to the right part in the cloud, everyone will have a common model of the macro-user population, not just this or that user. It's not just market segments that are important, it's the full cloud of the user ecosystems. So, when I can point to that and say here's a scenario we're going to discuss, you can look at the same scenario and ask, "What environment is that happening in, what users are doing it, what applications of the websites does that involve?" When we can get this more robust picture, we have much more clarity in our communication because we're talking about a shared macro-model of the customer population.

**You mentioned improving coordination. Doesn't this go hand in hand with communication?**

"It's not just market segments that are important, it's the full cloud of the user ecosystems."

It does, but it also means I can see what's going on, and therefore avoid things like re-research. If I'm going to do a research project, I should be able to go to the cloud and say, "Has this been done before?" If I'm going to be changing a standard, I should be able to go to the cloud and say, "Tell me, if I change this standard, which of our websites use this standard? Which user types are impacted by changing the standard?" That's the power of having the cloud in a sensible and usable form.

**Sounds like there are a lot of benefits from looking at this problem with a cloud usability perspective. It's a big deal.**

Correct. For more than 3 years, we've been working on how to do this. And it's been our biggest quest because we see this as truly the next generation in UX work.

**You've been heading HFI labs for awhile now, and this is a big issue you have been dealing with. How is HFI labs addressing this?**

Well, it's been a difficult road. We built one complete prototype that failed; we scrapped that. We started again, and now we're finally at the point of completing a practical program that solves the key problems. And there are many

problems that come up. This is a very complex program. We've worked with multiple Ph.D. level staff, banging away at it for 3 years trying to crack this, and get it to actually work.

There are a number of challenges. One challenge is "How do I index the cloud? How to I make it so I can reach in and get the things that I need without making a big mess of everything?" We've solved that. We have an algorithm and a process which will handle that.

Another question is, "How do I make the interconnections within the cloud without it being so laborious and painful that people would never do it?" We found a way. If you think about it conceptually, you would have to take every object in the cloud and connect it with every other object and every connection—and that would take forever. So we found a way to do it which is very fast and practical. How do I create a new object? If you had to create every one by filling out the entire form for every user type, you'd go crazy. We've solved how to do this quickly and effectively, where I can literally make a new persona in 10 minutes—a brand new persona, 10 minutes! We figured out how to create objects efficiently.

**"UX practitioners are now far more powerful in that they become users of the cloud, as opposed to individual project-completion entities."**

Another issue was how to share the references to the different objects in a way which is practical from outside the system. We didn't want a system which was just static in and of itself, like a reference, but something which would extend out into emails, documents, and faxes that could be sent back and forth. And, we've solved how to do that. There have been a whole set of journeys about how to make a practical, effective system.

**The whole cloud UX approach seems to have benefits for an organization. But, let me ask you how it layers into the organization. What does it do for the UX practitioner?**

I think it changes the UX practitioner's job to a great extent. Because, the practitioners are now far more powerful in that they become users of the cloud, as opposed to individual project-completion entities. Rather than working in an isolated way doing a project, they reach out to the cloud, do the project in the context of the cloud, contribute to the cloud, and have the benefit of the multiplying power of the cloud. This changes what we do—we'll spend much less time laboriously documenting, re-documenting, and re-re-documenting, and much

more time thinking about the implications of ecosystems, the implications of problems, and being able to contribute in a much more powerful way because of that.

**But what about other groups? What is the impact on other groups?**

I think the UX pro will not be the only entity, the only organization, or type of persona that wants to access the cloud. I suspect executives will want access as well. Executives will be able to see very clearly where investments are and where investments are needed. For example, if an executive is thinking about approving a project, they can validate that it hasn't been done before. If an executive is thinking about the methodologies that are used, they can see how many times different kinds of methodologies were used. So, a question like, "Tell me all the usability tests we've run," or "Tell me all the types of ecosystem research we've done," is an easy question that takes just a moment. I think executives will use it as a way of understanding the customer ecosystem from their viewpoint to support decision making, to support their knowledge of the customer. They can also use it as a communication vehicle—pointing to the ecosystem, pointing to the cloud—to describe their intent.

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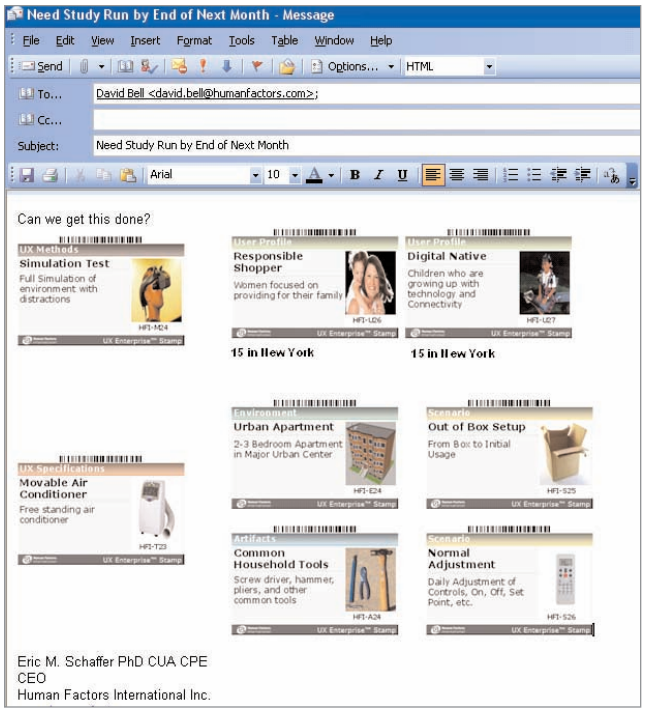

Marketing staff, market researchers for example, have a unique perspective on the customer population which can easily be loaded into the UX cloud. They will also benefit by looking at the scenarios, the environment data, and the other kinds of content within the UX cloud. I can even see people in training accessing the cloud for their own purposes. As an example, if you have a group who is creating training, they would want to know the characteristics of the people for whom they are developing the training. A few minutes with the cloud would tell them things like what reading grade level they need to write to, what math skills will be there, and even what motivations are there for the different user types. They will be able to research the scenarios and even look at the specifications for the different applications, websites, and products they are developing.

**"I suspect that the UX work will be 30% more efficient because of savings in re-researching and re-documenting things that are already there."**

**Let's look at a product launch. For example, let's say that a major telecommunications product company is launching a new smart phone. How would this approach help them? Would it improve the finished UX? How does it help the smart phone network, as an example?**

If I want to do a good job of specifying a new smart phone, I might simply reference this set of users in these environments, doing these scenarios that might have been using this product in the past—that will be our target. There will also  be various needs and opportunities that we want to address. And all this becomes a very solid foundation for the ongoing project, which I would define by pointing to a set of methodologies. So, as an executive, what might take me a day or two to loosely document in a way which might be easily misinterpreted, would now only take me half an hour in the cloud pointing to the things that I want. Then the practitioner gets this charge with reference to the cloud, and is able to very clearly understand what is already known and what research is already there to benefit from.

I suspect that the UX work will be 30% more efficient because of savings in re-researching and re-documenting things that are already there. The time saved will be focused on creating the new insights, the new content, and actually delivering the design. The final design also has to be part of the cloud, and connected. Now we have traceability. So if somebody asks you, "Why are you providing a screen like this?" you can trace back and identify the tasks, the users, and the environments—you now have the connections to be able to justify your design.

Then delivery happens from there. The foundation in the cloud becomes the basis that trainers, marketing staff, and sales staff can use in order to support the products.

**What are the implications for the organization as a whole?**

I think that we're looking at something that's quite revolutionary. If we think about what makes an organization successful today, it's no longer just technology. The technology is important, but the ability to create customer experiences that are effective and that motivate is core—a core capability, and a core kind of intellectual property. The UX cloud is the embodiment of this on an industrial scale. It moves us from the very frightening proposition that, "We have some people who understand our customers," to having a system that ensures that knowledge matures and grows over decades.

"The ability to create customer experiences that are effective and that motivate is core—a core capability, and a core kind of intellectual property."

I've seen many organizations today really damaged as senior UX staff are poached by competitors. When you see the key designers that were working for one telecom or mobile company poached, and now in senior positions in another company, what happened to that original company? They lost their knowledge of the customer—and that's catastrophic. But, if you have that knowledge built into the cloud, it's not so catastrophic, because none of us is as smart of all of us, and pooling together that customer perspective makes each of us stronger.

**What's the practical step for applying this knowledge about Cloud UX?**

In the past there's been no way to do it because the management of that massive multi-terabyte set of data is intractable. It's an issue we've been pounding away on for several years in HFI Labs. Maintaining the cloud of data is relatively easy. But how do you access that cloud? How do you easily cross index the cloud? How do you input the data without spending all your time typing data into a database?

One by one, we've cracked the problems—cracked the problem of how to access, cracked the problem of how to index without too much effort, and cracked the problem of how to easily create new user experience information—personas,

scenarios and artifacts. We've taken these solutions and combined them with capabilities for specifying interfaces and designs, for maintaining projects with version control and supportive group access, and with the methodologies and standards that are essential to usability work. Having combined all that, we created a technical environment, *UX Enterprise*™, which is specifically geared to allow people to work in this new mode.

**"If you have ten, twenty, thirty people who are working on customer experience issues, then it's imperative to leverage the power of that larger organization and *UX Enterprise* is the tool to do it."**

To benefit from this, you have to be in a larger scale operation. If you have three or four people doing UX work on the basis of craftsmanship, you don't have the opportunity to leverage a true cloud. But, if you have more people, if you have ten, twenty, thirty people who are working on customer experience issues, then it's imperative to leverage the power of that larger organization and *UX Enterprise* is the tool to do it.

Find out more about UX Enterprise...

Contact Human Factors International at hfi@humanfactors.com

## About Dr. Schaffer

Eric Schaffer, Ph.D., CUA, CPE
Founder and CEO
Human Factors International

Dr. Eric Schaffer is the founder and CEO of Human Factors International, Inc. (HFI). In the last quarter century, he has become known as the visionary who recognized that usability would be the driving force in the "Third Wave of the Information Age," following both hardware and software as the previous key differentiators. Like Gordon Moore's insight that processor power would double every 18 months, Dr. Schaffer foresaw that the most profound impact on corporate computing would be a positive online user experience—the ability for a user to get the job done efficiently, easily, and without frustration.

Dr. Schaffer's book, *Institutionalization of Usability: A Step-by-Step Guide*, provides a roadmap for companies to follow in order to make usability a systematic, routine practice throughout their organizations. Dr. Schaffer also co-developed The HFI Framework™, the only ISO-certifiable process for user-centered design, built on principles from human-computer interaction, ergonomics, psychology, computer science, and marketing.

Dr. Schaffer has completed projects for more than 100 Fortune 500 clients, providing user experience design consulting and training. He has recently been traveling the world teaching HFI's newest course, How to Design for Persuasion, Emotion, and Trust.

Dr. Schaffer is a member of the Human Factors and Ergonomics Society and a Certified Professional Ergonomist.

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