Work Smarter:
Object-Oriented User Experience Design

A conversation with **Dr. Eric Schaffer**
CEO and Founder
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the same exact thing in the UX field."

What is Object-Oriented User Experience Design?

Think about how computer programs are written. Years ago, all computer programs were written into a flat file. They combined data, interface calls, and processing all in one long program.

After a while, programmers realized that this was very inefficient. There was no opportunity for re-use. Eventually, they moved into object-oriented coding. They began to write pieces of code which could work in different situations. They defined data and functions which could be used repeatedly, under different circumstances. This is much better than re-writing everything specific for each program. By separating out the subroutines, they became more capable of maintaining the code with greater ease.

This was an enormous change in the software field. There is nobody who would ever think about going back.

> **"If we change from thinking about our output as just a single document and instead break that output into its components, then we can stop re-doing those objects over and over again."**

Decades later, we're looking at doing the same exact thing in the UX field. We have the exact equivalent of writing flat file code. For many of us, when we do a project, what comes out is a document or slide deck. At the end of the day, everything that we know and learn is jumbled up inside these documents. If you want to work in this design space, a lot of time is spent looking through the documents and pulling out everything we might know about a user type, scenario, or environment. It's a jumbled mess.

If we change the way we work from thinking about our output as just a single document and instead break that output into its components, then we can stop re-doing those objects over and over again. We can make it easy for people to find and work with them, and create much more efficiency.

Now, the first time you do this it's not going to be any faster. But, once you've done it for a while, you end up having an environment of shared models. You end up with shared standards, project content, customer models, scenarios, ecosystems, and so on. That allows us to do our work in a faster, better, and cheaper way.

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How does the sharing work within an organization?

When we started thinking about this, we looked at sharing within a company. It was a radical idea. But we ran into case after case where a single company would have three different organizations call us at HFI and ask us to run the same study. We would have to work with the groups to combine the work to save them money.

"UX Objects are the things that user experience designers learn, use for design, and create."

So we got the idea that, inside of a large company, you would have a tool we created called "UX Enterprise™" and use it to build a shared model where everybody could look at ecosystem objects, standards, and so on. They could see how things connected and pull information effectively. UX Enterprise is the key to sharing information within an organization. It is an enterprise tool for a large-scale organization.

Now, we're going even further. We think that people can share things worldwide, through many organizations. For example, there are many freelance UX professionals who have various designs, ecosystems, etc., which they would like to share or sell globally. We created the "UX Marketplace™" which allows people to buy and sell UX objects worldwide.

How do you define UX Object?

That's a great question. UX Objects are the things that user experience designers learn, use for design, and create. They are the user experience designer's subroutines…

- ▶ User Profiles
- ▶ Scenarios
- ▶ Environments
- ▶ Artifacts
- ▶ Needs and Opportunities

- ▶ Methods
- ▶ Standards
- ▶ Projects
- ▶ Specifications

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"UX Objects all work together, and we need to be able to maintain the linkages between them."

When you look at the UX field, there is a set of things that we're continuously working on. Those things are core to how we do our work. Without thinking about it, we go through our day and work on one object after another.

There are infrastructure objects like standards, where we have methods and interface design standards. There is foundational knowledge and tools – such as research and training, prototyping tools, test equipment, and so on. There is also important knowledge of our customer ecosystem that we have collected.

In the early days of UX, we thought of human computer interface design. There was lots of research done, and we still need to be able to do that. But no practitioner today can think about just doing human computer interface design. Ubiquitous computing requires designs based on complex ecosystems.

We've drawn on the ethnographic perspective to model many types of users or actors doing many kinds of tasks, using various artifacts under different circumstances. We can look at these in terms of needs and opportunities. We can go in and examine a particular object – such as an artifact – to see how it's used. We might need to see how a mobile phone is used by different users in different environments. Or, we might want to know more about an environment, such as the tasks that happen inside an X-ray room. We also do multiple projects. They can impact a single design – a specification – or you can have a project that affects many specifications.

All of these different pieces of knowledge are the UX objects. The key thing is that they all work together, and we need to be able to maintain those linkages to work with them. We need to be able to know every type of user we've done a usability test on. We need to be able to ask what kinds of methods we've used with those users. We need to have this facility from a knowledge management perspective.

Just building something that keeps track of users and scenarios isn't actually useful in a large-scale enterprise environment. We need to have all of it, and it *all* needs to link up together.

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If you were doing a project with an X-ray room, for instance, you could find out all of the research that had been done on previous projects so that you wouldn't have to re-do your work.

Yes, I could do that. I could find the projects and research that have been done in the past. But, I can also go in and say, "Tell me all the users who show up in that environment. Tell me all the scenarios – what do they do in that X-ray room? What are the needs and opportunities?" I can get all of that in a moment within UX Enterprise.

So, this is a huge advantage to using the object-oriented UX approach for designers working on projects. They can get a head start.

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Object-oriented UX is about working smarter. It's about working in a way which is in fact faster, cheaper, and better. I think, in the future, we'll find that all UX professionals will work, not based on ad hoc memories they have from different projects, but from a shared, documented, tool-based environment that allows them to manage these objects.

We need to do this. We need to have a model of our user's ecosystems. It needs to be connected together. Otherwise we end up spending time re-inventing the wheel. That needs to stop.

Has this evolved in your thinking? Why have you brought out this system now?

I've been going down this journey for about fifteen years, exploring how to do large-scale, industrial-strength UX. I wrote the book *Institutionalization of Usability, a Step-by-Step Guide*, which has been out for almost ten years. We have a new version of it coming out soon.

In that journey, the question came up: What is the difference between doing UX on a small scale – with a master and a few apprentices – and doing UX on a large scale? I have a client who is interested in having a UX team with twenty thousand practitioners. Having this many people working on hundreds and thousands of applications and projects . . . is that going to be the same as having thousands of craftsmen?

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"The contribution from each project isn't just a story; it's the information we all contribute to a cloud of UX objects."

It can't be. It's as different as having a cobbler and having a shoe factory. The cobbler can't compete with the shoe factory because the shoe factory uses the fact that "none of us is as smart as all of us." We get to leverage what the organization knows. The shoe factory has a large-scale set of tools they use to get the work done.

It's very much the same in UX. It's a big change from craftsmanship to institutionalized UX. But today, this is what is needed. We're no longer in a mode of proving that this field is worthwhile. We're now in the mode of scaling it up.

When I started, I'll admit I thought as we scaled, it would not be a problem. I was used to working with myself and a few other practitioners. I thought we would just add more little cells like that. The reality is that this doesn't work beyond a certain level. It will certainly never compete with a mature, process-driven organization. You can't compete by relying on what Eric happens to know, and counting on him to continue to work for you. You need a model of something sustainable, which leverages the knowledge of the organization.

This model of UX is different from the way it started in my mind. It's now process driven, based on standards, tools, knowledge management. It's no longer somebody wise telling a story in a slide show. It's now a database of UX objects we are all working with and sharing. The contribution from each project isn't just a story; it's the information we all contribute to a cloud of UX objects.

It's a completely different way of working. You don't need it if you have three or six people working in a group. Then, you can do OK just working on projects, getting stacks of reports, and having a team member read reports. It's not efficient, but it's not too terrible. But, when we have twenty or a hundred people, we end up with terabytes of lost data. When you go in and search, you find that things are labeled in different ways, and things are spread across seventy or more documents. You can't read through those documents efficiently and practitioners get frustrated and just do the research again. Unfortunately, that's what happens today.

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Working with UX objects is a complete game changer. It's the core of what it means to do process oriented UX. It's not the only thing. You need the staff with the right training and certification. You need the right standards and methods. You need the executive champion and governance. But, at the end of the day, the key to an efficient, large-scale UX practice is the use of object-oriented UX methods.

'Working with UX objects is a complete game changer. It's the core of what it means to do process-oriented UX."

How would a company get started with an object-oriented UX approach?

We've set up the UX Enterprise environment, which is specifically geared to be a workstation for object-oriented UX work. To the best of my knowledge, it's the only tool to do it effectively. It's a question of putting that kind of environment in place, getting people trained to use it, supporting it within management, and getting it over the hump of initial use.

At first, this will seem less efficient than just making a slide show. But, quickly you will reach a point where you're working in a more collaborative way. Then, it will continue to grow and the transition will be complete. It is a change in people's thinking. Now you see people search through project documents to find a standard. Because certainly there was a project that built the standard. And, if you think of everything as a project, that's what you'll do. But with UX Enterprise, the standards come out as separate objects. Once you get this new model in your head and into your process, the benefits will unfold. This is the key to serious UX work.

Is there a way to try out UX Enterprise, for a team to see if this will work for them?

UX Enterprise is a large-scale tool. To really appreciate what it does in an enterprise environment means installing it, and getting people trained, and going through the transition. But, one of the things we've done is make UX Enterprise available in a limited edition for free.

Your Personal UX Enterprise account gets you access to the tool and UX Marketplace, plus 5 gigabytes of storage for creating, publishing and buying objects. Storage and team collaboration access can be added by moving to a more complete package, such as UX Enterprise Business and Unlimited editions. That's enough to get a sense of what it's like. If you'd like to do that, you can sign up to use UX Enterprise for free by going to www.uxmarketplace.com.

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'We could have put UX objects onto eBay and saved about $2 million in development. But then you have completely ad hoc, unstructured content and no place to put it."

How is UX Enterprise related to UX Marketplace?

UX Marketplace is the place where people can buy and sell objects worldwide. The tool you use to create objects within UX Marketplace is UX Enterprise.

If you want to create a user profile, it makes no sense to have people each develop their own format and structure for user profiles. There would be no shared model or consistency. UX Enterprise provides the shared model. This gives us a predictable structure for user profiles, environments, and so on. While these types of UX objects can be uploaded as single files, it is far more powerful to use UX Enterprise to to create, edit, associate, and publish all of your objects to the UX Marketplace.

When you get an object from UX Marketplace, you can download it as a zip file with the object in a PDF. But, that's kind of silly. Soon, you'll have a stack of zip files on your desktop, and what will you do with them? You're much better off being able to put them into UX Enterprise, which maintains those objects and also allows you to easily update them, expand them, and copy them to create new objects.

This really ties in with your idea that good UX professionals do not work from scratch.

Correct. It's really something that even the craftsmen know they maintain a whole set of their past work, and they re-use it. This is great if it's just you and a few friends. But, when you scale up to a larger organization, it doesn't work. Then craftsmanship and informational sharing with friends has to be replaced by object-oriented UX.

It almost sounds like this is the eBay for UX professionals.

It is, but there's a difference. We could have just put UX objects onto eBay and that wouldn't be hard at all. That would have saved us about $2 million in development. But, then you have completely ad hoc, unstructured content and no place to put it. We needed to solve the issue of how we create things in a more consistent way, how we maintain them in our environments in a way that we can find them, link them, and work with them; and how we can update, manage, and grow them as a cloud of related objects. That's what UX Enterprise does.

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Can I sample UX Objects at the UX Marketplace?

Yes. There is a free object you can download from the home page. There are also free and low cost UX objects you can get and download. The objects you get will automatically appear in your free version of UX Enterprise.

So, if I'm looking for a group of personas for an X-ray room, UX Marketplace will be the place to look?

What I believe will happen in the future is, if we're working on a project in a new environment, we'll go to the UX Marketplace and purchase the closest set of ecosystem knowledge we can get and start with that. Whether we can actually get an Estonian banking teller, or if we have to settle for a generic banking teller and then insert Estonian cultural dimensions, we'll do the best we can from the marketplace. It's much better than using time and money to conduct basic research which has already been done.

It will be very powerful, having UX professionals from all over the world contributing their research to the marketplace. Are there opportunities for them? Do authors sell their UX objects?

Yes. Researchers and practitioners can sell their objects, and there is a rating system so that the community can give feedback on the value of the objects they author. We welcome everybody in the field to be authors of objects. We look forward to people around the world sharing their objects so that we can all benefit from them.

What about students?

I think professors will find that UX Marketplace and UX Enterprise are cool tools to help their students learn about the field. This allows you to give students a sense of what are the many objects in the UX space – there is an enormous amount of rich knowledge even in the structure of the baseline objects. If you're looking at cultural dimensions and the student isn't sure about what they are or why they matter, UX Enterprise gives them that context. To support educational institutions and students, we extend the free version of UX Enterprise by providing three collaboration seats so that teams of students can work together. Contact HFI for more information about the educational opportunity.

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Go to UX Marketplace – www.uxmarketplace.com

About Eric

Dr. Eric Schaffer
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 one hundred Fortune 500 clients, providing user experience design consulting and training. He has recently been traveling the world teaching HFI's course, How to Design for Persuasion, Emotion, and Trust.
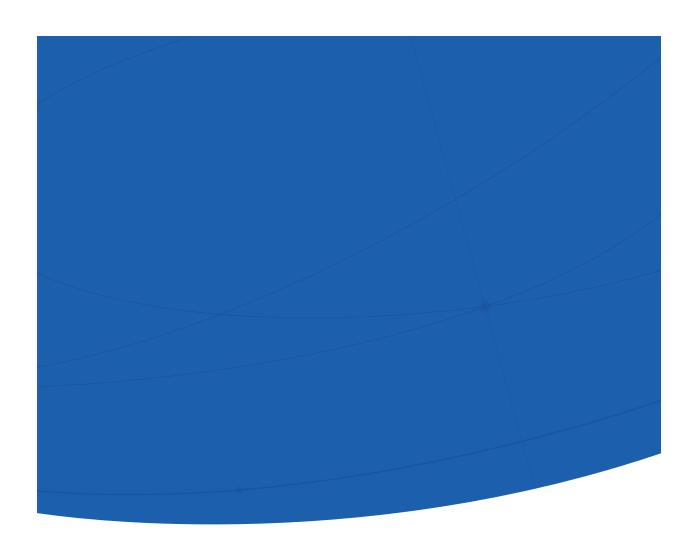
Dr. Schaffer is a member of the Human Factors and Ergonomics Society and a Certified Professional Ergonomist.

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