

## Meeting the Demand for Usability Expertise: An Offshore Model

White paper

Eric Schaffer, Ph.D., CUA, CPE  
Kath Straub, Ph.D., CUA  
Human Factors International

August 11, 2003

Human Factors International  
410 West Lowe  
PO Box 2020  
Fairfield, IA 52556  
800-242-4480  
hfi@humanfactors.com  
www.humanfactors.com

**Table of Contents**

About the Authors .....	3
Introduction .....	5
Prerequisites for Routine Usability .....	5
Adequate Staffing is a Challenge to Institutionalization .....	6
Recruiting Talented Usability Specialist is Not a New Problem .....	6
Learning from Software Integrators .....	7
Success Factors for Offshore Usability Engineering Teams .....	8
Can Usability be Done Remotely? .....	8
Global Usability Teams .....	9
Usability Without Borders: The HFI Case Study .....	10
Offshore Teams Need to be Integrally Involved .....	11
Remote Testing: The Next Best Thing to Being There .....	11
Prerequisites for Successful Remote Usability Engineering .....	12
Limits of Offshore Usability .....	13
Creating Sustained Usability Teams .....	13
The Future... Is it Now? .....	14
Appendix: Offshore Team Checklist: Critical Success Factors .....	15



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

### About the Authors

Dr. Schaffer has worked in the professional human factors field since 1977. He worked as a Human Factors Specialist with several different companies, as Principal, Executive Vice President and Chief of Technical Staff with Human Performance Associates in New Jersey. He worked as Co-Founder and President, then CEO and Chief of Technical Staff for Human Factors International, Inc.

He has completed projects for more than 100 Fortune 500 clients, providing extensive high-level systems analysis, design, integration, documentation and implementation consulting. He supervises human factors and other technical specialists and works actively with clients on the forefront of user-centered design.

He has extensive experience developing advanced Web, graphical, voice, and public access systems for clients in the financial, insurance, factory automation, and telecommunications industries. His experience includes: interface design, needs analysis, task flow analysis and design, forms design, documentation, training and all phases of online support. He regularly teaches human interfaces design courses throughout the United States. He has written over 400 major reports for various commercial clients, and authored flagship courses on Web and graphical interface design. Clients praise his teaching and consulting abilities.

Dr. Schaffer recently masterminded a new approach to designing Web sites, corporate Intranets and Internet-based applications, called User-Centered Solutions™. He has pioneered strategic alliances with some of the world's largest systems integration companies, to offer a complete end-to-end solution, from design through implementation and maintenance, based solely on enhancing the users' experience.



Kath Straub, Ph.D., CUA  
Chief Scientist  
Human Factors International

Kathleen A. Straub, Ph.D., CUA, is Chief Scientist at Human Factors International, Inc. She has seven years of experience in the design and evaluation of Web and multi-media interfaces, overlaid on 12 years in research design and scientific training. She has hands-on experience with both commercial and government clients. She is versed in user task analysis, information architecture, site standards, detailed interface design and iterative usability testing.

Kath has developed and presented instructional materials in both professional and academic/scientific training environments, most recently taking the lead in the revision of HFI's User Centered Analysis course. Students love her dynamic, interactive teaching style, and always comment on her depth of practical usability knowledge.

In addition, Kath actively collaborates with colleagues from several government agencies on the Democratization of Data Project, which focuses on developing effective guidelines for creating citizen-centric data mining interfaces (such as the Bureau of Justice Statistics Online Crime Data) that are reasonable for non-usability experts to implement and easy for citizens to use.

## Introduction

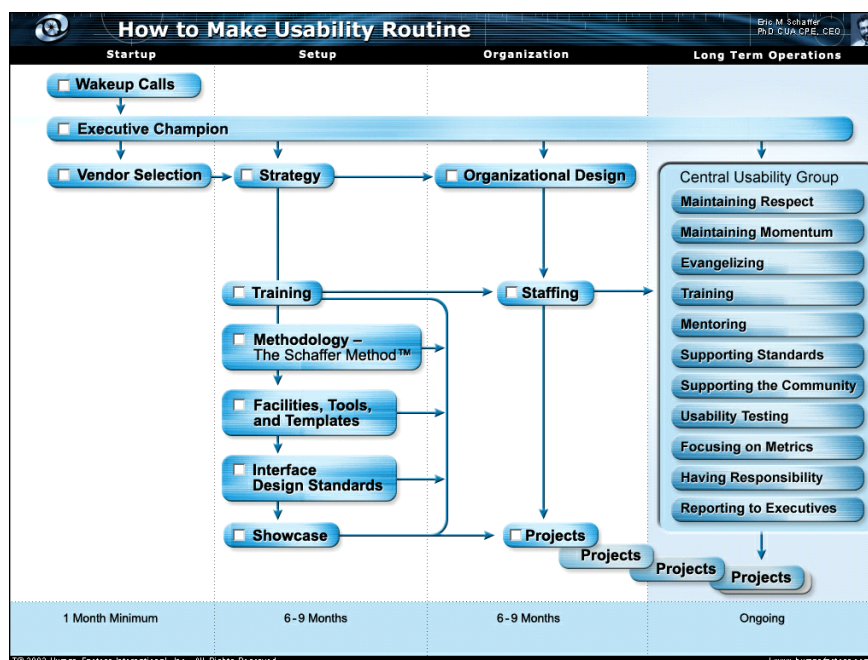
After 25 years, user-centered design is gaining wider appreciation. Retail organizations, banks, universities and the US government understand that usability contributes to the success of products and resources. Individuals now routinely consider the usability of both products and sales sites in their consumer decisions. However, while many organizations now employ user-centered design techniques for high profile or mission critical projects, only a few have capitalized on its full potential by institutionalizing usability or systematically embedding it into the development lifecycle for both customer and internal products, applications and resources.

While institutionalizing usability makes sense strategically, building the right team to do it presents serious challenges. One quick and cost effective approach is to develop an international usability team. HFI has been working to develop effective offshore usability engineering for nearly four years. In this paper, we explore some of the lessons learned and the criteria you should look for if you are considering a sustained offshore usability team.

## Prerequisites for Routine Usability

Organizations that are institutionalizing usability share several characteristics. First, each organization has an **executive champion**—a management leader who recognizes that usability can be a strategic differentiator.

Second, the design approach used by these organizations is a clearly defined and **systematic process**. As their process has matured,



### Adequate Staffing is a Challenge to Institutionalization

practitioners have created a set of **tools**, such as standard page templates. **Training** programs have been created to reinforce the appropriate use of the process and introduce tools. Individuals trained to use the design process often evolve into a community of practice.

A third similarity is that organizations institutionalizing usability often hit a staffing choke point. It is widely held that for usability to become part of the routine development lifecycle, **approximately 10% of the development community needs to focus on usability**. That means that in a company with 500 developers, 50 would be usability specialists.

Developing awareness of human factors starts with grassroots evangelism. Sustaining a mature human factors capability typically requires substantial capable staff. Without sufficient staffing, evangelizing usability is like building a factory without workers to run it. Yet, despite their increased awareness and appreciation for the strategic impact of usability, companies often dedicate 1% or less of their development staff to user-centered design issues.

The real challenge is this: Once the benefits of usability are understood, the spread of its use becomes viral. There is a rapid project-level increase in the desire to apply user-centered engineering practices. This increased interest puts additional pressure on the (typically over-committed) usability team. This is the choke point: Once an understanding of the strategic impact of usability emerges, the internal usability team typically cannot keep up with the demand for support. The model does not scale up easily.

This understaffing is because well-trained usability specialists are difficult to find or very expensive. Ramping up the expert internal staff required to meet the increasing demand can be prohibitive. Consulting companies provide support for strained internal staff, but the cost of using consultant-based support for routine and sustained usability activities is also prohibitive. The need, however, is critical. Without sufficient staff to *do* the usability work, the initiative will falter. Companies could continue to apply user-centered design principles to a small range of projects, but the lost opportunity cost of such a strategy is huge. There has to be a scalable solution.

### Recruiting Talented Usability Specialists is Not a New Problem

This challenge presented itself at HFI around 1999. Usability was still new enough that companies turned to highly specialized firms to do the work. Specialized firms, such as HFI, could barely keep up with the demand. Creating a mechanism to deliver usability work *in volume* but at reasonable cost was the challenge.

About this time, software integration firms also discovered usability. Return on Investment (ROI) calculations were showing that effective user-centered analysis could reduce development costs up to 80% by minimizing missed or misunderstood end-user requirements (Pressman, 1992, Martin & McClure, 1983). As a result, HFI met with many of the large Indian systems integrators (e.g., Cognizant, Infosys, Mahindra Telcom, Tata Infotech, and Wipro, among others). While teaching them about human factors, it became apparent that software integration had overcome similar scaling challenges by building offshore development teams.

### Learning from Software Integrators

Software and Usability Engineering are similar in many ways. They both hinge on domain knowledge and repeatable processes. Could the software integrator's off-shore model provide an escape from the staffing chokehold in usability?

Although offshore teams offered a quick and cost effective means of expanding the development staff, early off-shore software initiatives were beset by challenges. For instance, the basic infrastructure that American companies take for granted (e.g., uninterrupted power and phone connections) is far less reliable in places like the Phillipines.

More critically, the system integrators suffered frequent difficulties with project management. These problems were rooted in cultural mismatches. Disparate assumptions and expectations about time, interaction styles and workplace hierarchy caused miscommunication and frustration. Cross-cultural differences in international practices within project domains (such as banking, investment, communications, law, entertainment and telephony) caused misunderstanding about basic project details. This communication asynchrony proved to be the most significant challenge to success.

With over 20 years of experience, we find that the communication challenge distills down to establishing an organizational structure that can meet the four core requirements for project success when employing offshore resources. These requirements include:

- 1) effectively managing the remote resources (both people and technology),
- 2) ensuring an accurate and shared understanding of conventions, assumptions and project goals,
- 3) maintaining quality of work standards, and
- 4) delivering on schedule.

### Success Factors for Offshore Usability Engineering Teams

Today's off-shore models include components designed to help meet those requirements. Some of elements relate directly to the specific development process:

- A systematic, **trackable methodology** ensures that projects proceed smoothly.
- **Process-specific tools** reinforce correct use of the methodology.
- **Technical certification** through training ensures an understanding of the methodology and tools.

Factors not related to the specific development process are equally important:

- The **technical infrastructure** is secured independently of public resources (e.g., backup generators).
- Bi-directional **cross-cultural education** is designed to address both day-to-day interactions and critical escalation paths.

Communication between local and remote team members is improved when the project team includes:

- A **single state-side project contact point**.
- An **offshore project team leader** who is sensitized to American interaction styles

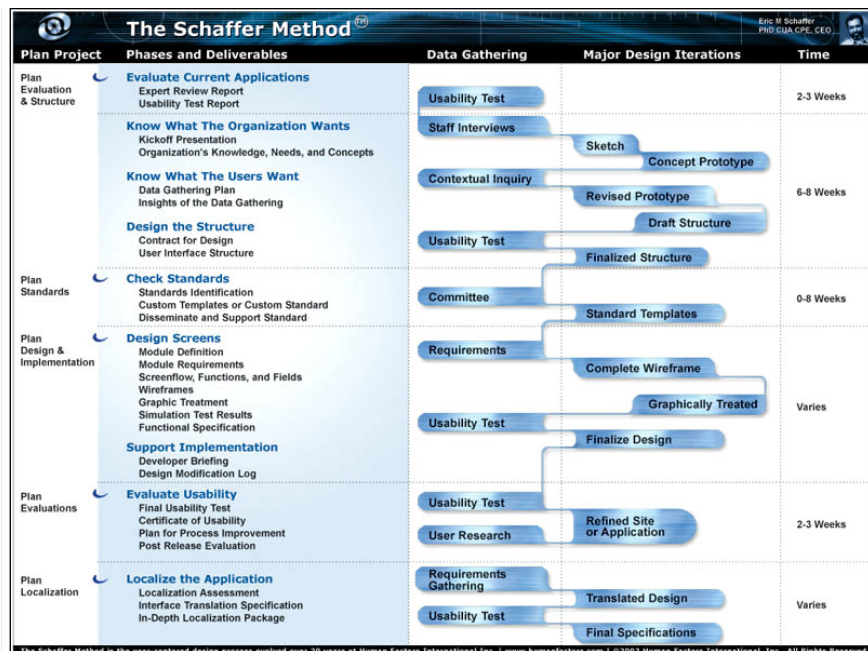
Communication between local and remote team members is *not* limited to interactions between these two individuals. However, they should be aware of all communications flowing back and forth between the various points of contact. This oversight ensures that collaboration is integrated and that the priorities and efforts of the remote team stay focused.

### Can Usability be Done Remotely?

Usability appears to have the same elements as software development (methodology, tools, certification) that are necessary to leverage the off shore model. HFI's Schaffer Method, shown below, offers a design process based on scientifically evaluated data collection methods. The process includes the full range of usability activities\* and has been iterated and refined through 25 years of use. A comprehensive training program that leads to examination-based certification provides the foundation for appropriate and consistent use. Although the Schaffer Method will continue to evolve to meet the design challenges of emerging technologies, it currently offers an ISO-certifiable process reinforced by work tools and templates.

\*The range of usability activities include user-centered analysis through navigation and information architecture design, prototype testing, detailed page design/layout, standards development and standards-based design propagation, and implementation, including localization strategies.





While there are similarities between software development and user-centered design, there are also differences. For example, while software can essentially be created in a vacuum, user-centered design requires that designers interact directly with the (typically American) user community. Can a global team interact effectively from a remote location? The answer was not clear.

### Global Usability Teams

Fortunately, the need for an answer was not immediate. HFI has an extensive American staff doing interaction design in the USA. Significant components of user-centered design do not hinge on direct interaction with the user community. Thus, a collaborative global team could be constructed to do the job. The remote team could complete usability activities that did not require direct contact with end users. These include:

- expert reviews
- user interface structure design
- prototype development
- graphical treatment
- detailed page design/layout
- graphic library development
- implementation/508 compliant coding

Integrating a well-trained and well-managed remote usability team would increase the productivity of the organization and would significantly increase the productivity of the organization as a whole. Furthermore, creating and training a remote usability team would provide a cost-effective escape for the staffing chokehold.

### Usability Without Borders: The HFI Case Study

In 1999, HFI established an office in Mumbai, India to support the American organization. The experiences of the software integrators directly informed the development of the remote team and the infrastructure that supports it. To ensure uninterrupted connectivity, each office has redundant internet service providers. There is an independently maintained generator large enough to sustain all operations.



Offshore usability specialists participate in comprehensive training program—taking courses in all aspects of The Schaffer Method™ of user-centered design, basic cognitive science, effective presentation and cross-cultural awareness and interaction training. They were originally tasked to support American project teams by collaborating on all activities that do not require direct user interaction.

To ensure the effectiveness of project management and communications, the offshore teams are structured around **a single team leader**. This individual is solely accountable for coordination and performance of the team. As such, s/he becomes part of all interactions and project planning, ensuring that communication is integrated even across multiple points of contact. To further ease the cross cultural exchange,

### Offshore Teams Need to be Integrally Involved

HFI's team leaders are carefully recruited. Most have a Masters degree in Human Factors, typically earned from an American university and American industry experience. In addition, they are HFI-Certified Usability Analysts.

As outlined above, usability and software engineering diverge on one critical parameter. In software development, the most challenging programming puzzles can often be worked out individually and remotely. In contrast, usability engineering's most central efforts lay in activities that hinge on face-to-face interactions with users. Despite the effectiveness of off shore usability model, it quickly became apparent that limiting the remote team to a support role was causing a critical disconnect. The highly-trained team felt their creativity and talent was being wasted. They became frustrated and bored with the role of support work.

HFI created this disconnect by recruiting offshore staff with credentials similar to the American consulting staff. By hiring only the best and the brightest individuals, we had created a group that expected to and was fully able to assume an active role in the core activities of user-centered engineering. To an extent, HFI could resolve the problem by adding specialized team members at varying levels of expertise. The staff selection process would continue to be rigorous, but in new ways.

Creating a more diverse team begged the question of how to motivate the original team. These individuals would assume the leadership roles. But, integrating remote usability staff directly into user and client interactions meant extrapolating from the off-shore model. Could any or all of the direct data gathering activities be conducted effectively from a distance? And if so, how? This is one of several practical tests of the scalable model.

### Remote Testing: The Next Best Thing to Being There

*One* major roadblock to a practical remote usability capability is effective remote testing. To create user-centered designs, it is necessary to be able to run tests with representative users remotely. In the 1970s, there was a serious effort to make picture-phones work. But the technology was expensive, awkward and impractical to use. In contrast, today's web conferencing can be effective and easy to use. Distant individuals can collaborative on images and documents and co-browse the web in real time. In essence, they can work shoulder-to-shoulder, virtually.

This technology resolves the problem of doing usability testing remotely. Previously, usability testing teams had to travel to the users' location. Now, by establishing usability workstations such as the one shown, we can remotely test users anywhere in the world where there is an office

with two networked PCs. Using internet video-phone protocols, the test moderator and participant interact though they are face-to-face. Observers can remotely watch and listen to the session as though they were in the next room.



To date, we have successfully used this approach to conduct usability tests that:

- Center on “talk aloud” protocols
- Explore brand perception and contrast
- Evaluate self-evidency

Although remote testing makes it possible to reach out anywhere in the world to gather usability testing data, there are limits. As with traditional usability testing, the impact and nuances of the findings can be lost if the central design team fails to observe the testing session.

### Prerequisites for Successful Remote Usability Engineering

A remote team is a great supplement to an American usability staff. But it is *not* a substitute. A remote team can work successfully in many roles. However, to be truly effective, the remote staff must be informed by usability specialists that are aligned with the culture of the customer. This can be achieved by outsourcing to a combined global team. Preferably, the remote team will be connected to an internal usability staff. Internal staff who understand the benefits of usability are crucial to keeping awareness of it alive. Further, internal staff are more closely connected to the development and user communities. Finally, internal staff provide the conduit for work for the remote team. The remote team provides internal staff greater productivity through increased,

## Limits of Offshore Usability

cost-effective manpower. The additional manpower allows the internal staff to prioritize and broaden their efforts, and apply sustained focus to continuing projects.

Although the remote team can complete a wide range of activities, there are some tasks that require either a local presence or a sharply-tuned cultural perspective. For instance, designing user interface structures and creating standards require face-to-face interactions. Communications technology simply does not support effective contextual inquiry. In these cases, core remote team members can travel to complete the contextual inquiry on-site or they can work in collaboration with an American specialist or internal team member.

In addition, some mission critical projects may need to be precisely tuned to the end user's perspective and culture. For these projects the remote team must become part of a larger, international team, receiving input and cultural guidance from an internal team member or an American usability specialist.

In either instance, the remote team will still play a significant and cost-effective role in efficiently developing and implementing the right user-centered solution.

## Creating Sustained Usability Teams

The transition to routine usability work is becoming a reality. In the early decades of human factors design, we tackled fragmented, high profile or high interest projects as early adopters of the emerging methodologies. Now, with the value of usability clearly established, forward-looking companies are beginning to exploit usability as a marketplace differentiator. To do that effectively, they must create sustained usability efforts. Remote usability teams are optimized for exactly these sustained efforts.

Creating a successful remote usability operation depends on coordinating a number of elements. Without these pieces in place it is likely to be a nightmare of miscommunication, frustration and inefficiency. However, with these pieces in place a remote team can be practical, effective, and rewarding. At a cost of less than half of one onsite practitioner, a dedicated remote team can quickly become an integral part of the organizations development process. This cost effective addition of manpower means that a broader range of projects—including internal projects (such as the intranet) that may otherwise be ignored—can be developed using user-centered design processes. There is no longer an excuse for creating unintelligible software or unusable Web sites due to high cost or lack of manpower.

### The Future... Is it Now?

In the future, usability will be a routine part of application, site and document development for every successful organization. How will it be done? It will *not* be done by a few good (and many not so good) people individually trying to design interfaces. It will be accomplished through a mature, systematic and repeatable process with trained and certified staff. The process will be reinforced with tools, templates, standards and training. Quality of work will be ensured through quality assurance systems and measured through well-known metrics.

The ultimate staffing for the teams conducting this work will vary by corporate culture and need. Some companies may maintain all their usability practitioners as an in-house resource. Other companies may decide to create leverage by integrating vendors and global resources into their usability systems. For organizations committed to making usability a routine part of the development cycle, a well-trained and managed remote team can provide the capacity to scale internal resources while establishing an institutionalized usability effort that is practical, successful and cost effective.

When you are looking at a remote usability operation there are a number of critical factors to consider. With these factors addressed, the addition of a remote team can provide cost-effective scaling of usability staff.

#### 1. Local and Remote Team

The remote team is a great supplement to internal usability staff. But it is *not* a substitute. Internal staff are crucial to keep usability awareness alive, have a closer connection with the development community, and are a conduit of work for the remote team. The remote team can work in many roles from a distance. But there are clearly tasks that require a local presence. There can be points in a project where the guidance of a senior American consultant is essential.

#### 2. Single Team Lead

The communication and project management is critical. There must be a single senior person leading each remote team. Because this person is ultimately responsible for success, he or she must be a part of all communication and project planning.

#### 3. Various Staff Types

As is the case with all usability groups, the remote teams need to include several different types of specialized staff: usability, graphics, editing, and prototyping. There should also be different levels of expertise.

#### 4. Systematic Process

Look for an ISO-Certified operation. That means that the organization has a systematic usability engineering process and follows it. It means that there is a continuous process for measuring and improving the remote organization's capabilities.

#### 5. Tools and Templates

In any location, the efficiency of usability work is very much a function of a proper set of tools, templates, and standards. A solid foundation of usability tools and templates will ensure this efficiency, which is especially important with remote sites.

#### 6. Training

After getting academic certification in usability, practitioners have a solid foundation in the field. There needs to be an additional training program that ensures a practical foundation in engineering psychology, and teaches how to do the various tasks of the usability practitioner. This means training in how to do expert reviews, remote testing, standards development, detailed design, etc.

#### 7. Infrastructure

To make the remote team effective, there needs to be a solid infrastructure. In the USA, we don't think much about this. But the power can go out in some remote countries, which can't be taken for granted.

Connectivity is lost more often than in the USA and it makes sense to have at least two separate connections with different providers. Overseas lines can be busy, and backup connections are a must. With good backups, work proceeds smoothly.

## 8. Communications

Today, Web conferencing does work. The remote team needs the ability to connect with the USA staff and clients, share documents, annotate images, and communicate seamlessly. Done right, it is almost like sitting side-by-side. The other essential element is a good Extranet connection. The Extranet coordinates the project schedules, staff calendars, and deliverable documents.

## 9. Cultural Synchronization

A foundation of English is required for a remote usability team to work. But beyond language, there are differences in expectation of time, communication styles, and hierarchy that must be considered. There is also a whole set of different conventions and expectations in domains like banking, investment, communications, law, entertainment, and telephony. There is no single measure that spans this cultural divide. It takes a holistic strategy, and it takes time. There needs to be training for the staff in American conventions and experience in the American domains.

## 10. Time Difference Synchronization

India is 10½ hours in front of US Central Time. This is both a great opportunity and a challenge. There is real power in the offset. In effect, you can work 16 hours each day on a project. The downside of the time difference is problems with coordination. Unless special measures are taken, you may have no overlap of working hours.

## 11. Dedicated and Sustained Staffing

Imagine you had one day of design work to do. The overhead of communicating the context is huge. You might spend most of the day explaining about the business strategy, users, tasks, environment, technical limitations, and organizational conventions. Efficiency of communication is paramount, and being there in person is best. The remote team really becomes practical for sustained efforts. In these cases, the team can learn the environment. This will take a bit longer than a local team. But the cost of that learning is spread over a long period.

## 12. Quality

Most importantly, the success of the remote team is a function of the quality of the work. This includes communication and project management. But most essentially it includes the quality of the user experience and the performance of the resulting applications.