



As director of the User Experience Group, Paul Boyd oversees and helps create all usability design improvements to Phase Forward's clinical data management and safety solutions.

Meeting the Needs of Today's EDC User: Applying the Latest Usability Design Concepts

*A Conversation with Paul Boyd
Director, User Experience Group*

In 2007, Phase Forward™ formed the User Experience Group with a mandate to apply the latest in usability design principles to enhance the end-user experience across all its product lines. Phase Forward's User Experience Group is one of the only exclusive usability design teams in the industry and has been instrumental in advancing the capabilities of its users while minimizing product complexity.

Since electronic data capture (EDC) technology has become the industry standard for managing clinical trial data, how have usability needs evolved?

Clinical trials have substantially changed over the last several years. They're longer than they used to be. They are more complex and hence require more information. And the number of automated data validations on a form continues to grow. That means, more subjects, more sites, more visits, more forms, more items, more queries and more easily overwhelmed users, despite their increasing adeptness with the technology. EDC products, therefore, must scale their interfaces to these increasing demands, but still need to be efficient.

What has Phase Forward done to ease the increasing burden on EDC users?

Now that users are very comfortable with EDC technology, and our society in general with the proliferation of the Internet and home computers has become increasingly tech savvy, we were able to rethink how our users actually interact with the InForm™ application. We have completely redesigned the user interface for our industry-leading InForm EDC solution to help users make quicker decisions, reduce errors and simplify navigation. With this advanced user knowledge-base in mind, we believe the new user interface for the latest version of the InForm solution—InForm GTM—has set a new standard in capabilities and efficiency.

Whom did you think about when working on the design for InForm GTM?

We targeted three key InForm user groups: clinical research coordinators (CRCs), clinical research associates (CRAs) and data managers. We then launched what we called the "Input Wanted" program to conduct research with each of these groups before we even started to think about the design of the InForm GTM user interface. We wanted to hear directly from users what they wanted from the InForm solution. Over 150 participants from pharmaceutical companies, contract research organizations (CROs), medical research sites and hospitals in six countries contributed to our research. We took those results and focused on some key usability and user efficiency issues that we learned about.

What did you learn from site users?

We learned just how sophisticated they really are. CRCs have a million things up in the air; use EDC across multiple trials and multiple sponsors. Truly, their challenge is staying on top of what needs to be done across multiple trials, each with different processes and expectations. When a patient arrives for an appointment, they need to know what trial they're participating in; what data needs to be collected; whether they are in their visit window; and once the data is entered, whether there were any queries on it.

What sets Phase Forward apart?

- Size and diversity of customer base
- Comprehensive, industry-leading solutions
- Proven global services expertise and scale
- Long-term approach to eClinical

About Paul Boyd:

Paul Boyd has been in charge of the User Experience Group at Phase Forward, including the user experience lab and user experience program, for the last two years.

Mr. Boyd has spent most of his design career facilitating collaboration through technology at companies such as Groove Networks, Microsoft and Nortel Networks.

Mr. Boyd graduated from Carleton University in Ottawa, Canada with a degree in cognitive psychology with a focus on psychological research and statistics.

What did you learn from sponsors?

CRA's are looking across wide swaths of data and need to be able to quickly see what requires attention—not just what has been done. What needs to be frozen or verified is, in some ways, more interesting than what has been frozen or verified. In addition, not all sites are the same and it makes sense for CRA's to visit some sites more often than others. The monitor module that has been a key component of InForm from the very beginning was cited as a great boon for managing site visits.

Data managers work with the largest sets of data of all these roles. For them, getting a view of the status of the trial across all sites and subjects is integral. Providing project-style progress reports is often a key part of this role. Being able to gracefully stroll through huge amounts of data and viscerally understand what is happening in a trial and what has changed is very valuable.

Once you completed your research, what usability design principles did you apply to meet the needs of the more competent users?

There are three basic guidelines that we applied to the new design: Information Proximity, Signal-to-Noise Ratio and Streamlined Workflow.

Information proximity deals with ensuring that where the user needs a set of information to complete a task it is grouped together in a useful and meaningful way. Many of the improvements to navigation and “click-counts” are achieved not by making the navigation better, but by putting the destinations beside each other. This allows users to make extremely fast conclusions about what is happening, reduces errors and all but eliminates the need to navigate in the first place.

Signal-to-noise ratio is a concept that is borrowed from my time in telecommunications and from my time studying human perception. It basically means that in any given message, there's signal (what you want to hear) and noise (background distraction from the signal). When dealing with large sets of information, we wanted to make sure that the important information (signal) stood out from areas of the user interface that weren't conveying any information (noise).

Streamlining workflow is simplifying the progression of documents and forms, as well as task delegation, from employee to employee or from sponsor to site.

So what does the new InForm GTM interface offer users?

Succinctly, updated icons make follow-up actions quicker to recognize; new controls make it easier to navigate and filter; improved query workflow simplifies response exchange—speeding query resolution; and the friendly page layout allows for more information to be viewed per page without scrolling. We also added some new functionality, including a Time and Events “Visit View” to help focus activities and provide milestone metrics; the ability to drill down to the form level; and a query age field to better prioritize tasks.

What type of feedback have you received on the new interface?

Whenever we make changes to how a user works with a computer we need to be worried about their first day with the new version. It almost always happens that we see users struggle as they hunt for the functionality that they used to find in a given place. We thought about that from day one. We made sure we only changed things if we felt it would offer the user significant value, and then we made sure that we left enough familiarity so that they could easily and quickly understand what we did.

Once we had a prototype of the new design, we invited five site users to our headquarters and asked them to perform their typical tasks with the prototype in an open label, Phase 2, 3 cohort randomized crossover study. It wasn't perfect, but they were able to accomplish their tasks, so we knew we were on the right track. We went back into design mode for another couple of months before we thought we had a solid design. We then kicked off a huge research program. We went to three continents to find users from different backgrounds and ways of working. The results were even better than we had hoped. 96% of users preferred the InForm GTM interface after using it for less than an hour. All in all, we feel that the InForm GTM solution will be immediately easier for existing users, new users and users with a variety of visual acuity profiles.

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