TRIGENT

Ensure Great User Experience for your Software Product

Dwaipayan Chowdhury
Vice President-BI and Mobility

Introduction

Our main goal for this paper is to provide guidelines to the readers on basic principles of interaction designs that ensure a quality user experience (UX). A good user interface is like an electric light: when it works, nobody notices it. A good user interface seems obvious, but what is not obvious is how to look for certain elements in development of a product which will facilitate a good user experience. Thus, this paper addresses what constitutes a positive user experience and some of the processes by which it can be ensured.

Interaction has a New Meaning Now

Computing has gone well beyond desktop and laptop computers, well beyond graphical user interfaces and the Web; computing has become far more ubiquitous (Weiser, 1991).

Computer systems are being worn by people and embedded within appliances, homes, offices, stereos and entertainment systems, vehicles, and roads. Thus, this paper addresses product development approaches that facilitate a good user experience. Sitting in front of a desktop or laptop usually conveys a feeling of "doing computing" to users. Users are aware of interacting with a computer and interaction is purposeful: for exchanging information, for getting work done, for learning, for playing or entertaining, or just for exploring.

Perhaps the most notable and most recognizable (by the public) example of interaction away from the desktop is seen in mobile communications. With an obvious enormous market potential, mobile communications is perhaps the fastest growing area of ubiquitous computing with personal devices; it also represents one of the most intense areas of designing for a quality user experience (Clubb, 2007; Kangas & Kinnunen, 2005; Macdonald, 2004; Venkatesh, Ramesh, & Massey, 2003).

> **User Experience**
>
> User experience is the totality of the effect or effects felt by a user as a result of interaction with, and the usage context of, a system, device, or product, including the influence of usability, usefulness, and emotional impact during interaction, and savoring the memory after interaction. "Interaction with" is broad and embraces seeing, touching, and thinking about the system or product, including admiring it and its presentation before any physical interaction.

From Usability to User Experience

Usability includes characteristics such as ease of use, productivity, efficiency, effectiveness, learnability, retainability, and user satisfaction (ISO 9241-11, 1997).

Usability
- ❑ Is not "Dummy Proofing"
- ❑ Is not equivalent to being "user-friendly."
- ❑ While visual design is an integral and important part of usability, it is not the only part of interaction design

> **User Experience Includes**
>
> ✓ Effects experienced due to usability factors
> ✓ Effects experienced due to usefulness factors
> ✓ Effects experienced due to emotional impact

The field of interaction design has grown slowly, and our concept of what constitutes quality in our designs has expanded from an engineering focus on user performance under the aegis of usability into what is now widely known as user experience.

To users, the interaction experience is the system. Users have an effort threshold beyond which they give up and are not able to access the desired functionality. All other things being equal, a product that affords a better user experience often outsells ones with even more functionality.

Visitor Experience

- ❑ **Utility -** The utility of a website refers to the usefulness, importance, or interest of the site content (i.e., the information, products, or services offered by the site) to the visitor.
- ❑ **Functional integrity –** A website's functional integrity is simply the extent to which it works as intended. Dead links, freezes, and browser non-compatibility reduce the integrity of a site.
- ❑ **Usability -** Usability refers to how easy it is to learn (for both first time and infrequent visitors) and use (for frequent visitors) a website. A site can have high utility and high functional integrity and still be very difficult to learn or inefficient and tedious to use.
- ❑ **Persuasiveness -** Persuasiveness refers to the extent to which the experience visitors have encourages and promotes specific behaviors, often referred to as "conversions."
- ❑ **Graphic design -** Finally, the look and feel of a website can have a significant impact on the visitor experience. The graphic design of a website - primarily the ways colors, images, and other media are used - invoke emotional reactions in visitors that may or may not contribute to the site's goals.

Trigent ■ 2 Willow Street, Suite 201, Southborough, MA 01745 ■ 1-877-387-4436 ■ www.trigent.com

Trigent Software, Inc. All trademarks, marked and unmarked, are the property of their respective owners.

3

A UX Process Life-Cycle

In this lifecycle, specific to a UX process, analysis translates to understanding user work and needs. Design translates to creating conceptual design along with determining interaction behavior and look and feel. Implementation translates to prototyping, and evaluation translates to ways to see if the design is on track to meet user needs and requirements.
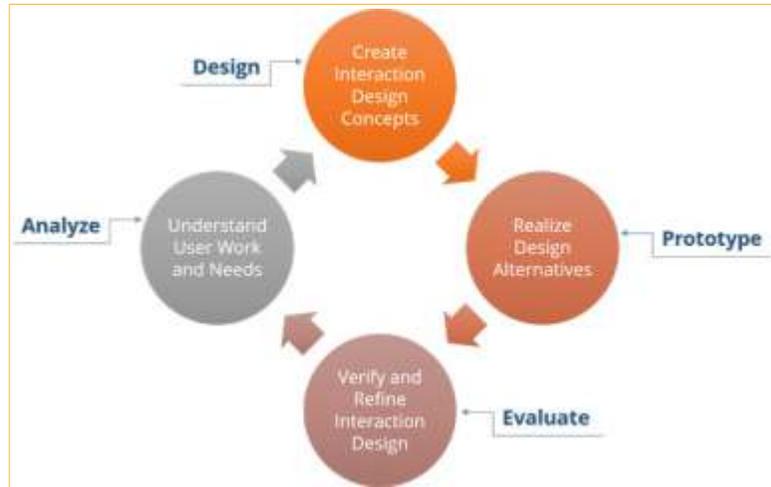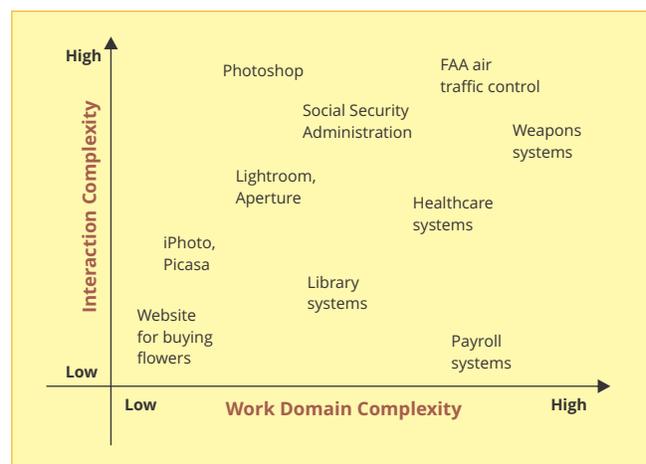

The entire lifecycle, especially the prototyping and evaluation activities, is supplemented and guided by UX goals, metrics, and targets.

Choosing a Process

The lifecycle diagram accommodates the need for many different kinds of UX processes. Because it is a template, one must instantiate the process for each project by choosing the parts that best suit the project parameters. To support each activity, the team can pick from a variety of sub-activities, methods, techniques, and level of rigor with which these activities are carried out. The resulting instantiation can range from a heavyweight, rigorous, and complete process to a lightweight, rapid, and "just enough" process.

Among the many possible factors you could consider in choosing a process to instantiate the lifecycle template are:

❑ Project Goals
❑ Project Resources
❑ Risk Tolerance
❑ Type of System Being Designed
❑ Development Organizational Culture

The interaction and work domain complexity should be considered when choosing a process.

Trigent ■ 2 Willow Street, Suite 201, Southborough, MA 01745 ■ 1-877-387-4436 ■ www.trigent.com
Trigent Software, Inc. All trademarks, marked and unmarked, are the property of their respective owners.

4

UX Goals and Metrics

A UX target table (as presented by Whiteside, Bennett, and Holtzblatt [1988]) gives a good starting point to measure UX goals and metrics. A spreadsheet is an obvious way to implement these tables.

Work Role: User Class	UX Goal	UX Measure	Measuring Instrument	UX Metric	Baseline Level	Target Level

Because UX targets are aimed at specific work roles, each UX target is associated to a work role since different roles in the user models perform different tasks.

Within a UX target, the UX measure is the general user experience characteristic to be measured with respect to usage of the interaction design.

Within a UX target, the measuring instrument is a description of the method for providing values for the particular UX measure. The measuring instrument is how data are generated; it is the vehicle through which values are measured for the UX measure.

A UX metric describes the kind of value to be obtained for a UX measure. It states what is being measured. There can be more than one metric for a given measure. The baseline level is the benchmark level of the UX metric; it is the "talking point" level against which other levels are compared. It is often the level that has been measured for the current version of the system (automated or manual).

The target level for a UX metric is the value indicating attainment of user experience success. It is a quantification of the UX goal for each specific UX measure and UX metric.

UX Methods for Agile Development

A rigorous UX process is probably the most effective path to ensuring a quality user experience for systems with complex work domains and complex interaction. However the predominant methodology for today's development world is Agile and the UX process needs to adjust to that. In Nielsen's words (http://www.useit.com/alertbox/agile-user-experience.html), the key things are to "separate design and development, and have the user interface team progress one step ahead of the implementation team" and to "maintain a coherent vision of the user interface architecture. Create the initial vision during a 'sprint zero' period-before any implementation has started-and maintain it through annual (or semi-annual) design vision sprints".

Trigent ■ 2 Willow Street, Suite 201, Southborough, MA 01745 ■ 1-877-387-4436 ■ www.trigent.com
Trigent Software, Inc. All trademarks, marked and unmarked, are the property of their respective owners.

5

One of the ways to manage the UX process is to introduce a parallel sprint with the UX person and customer as shown in the diagram below.
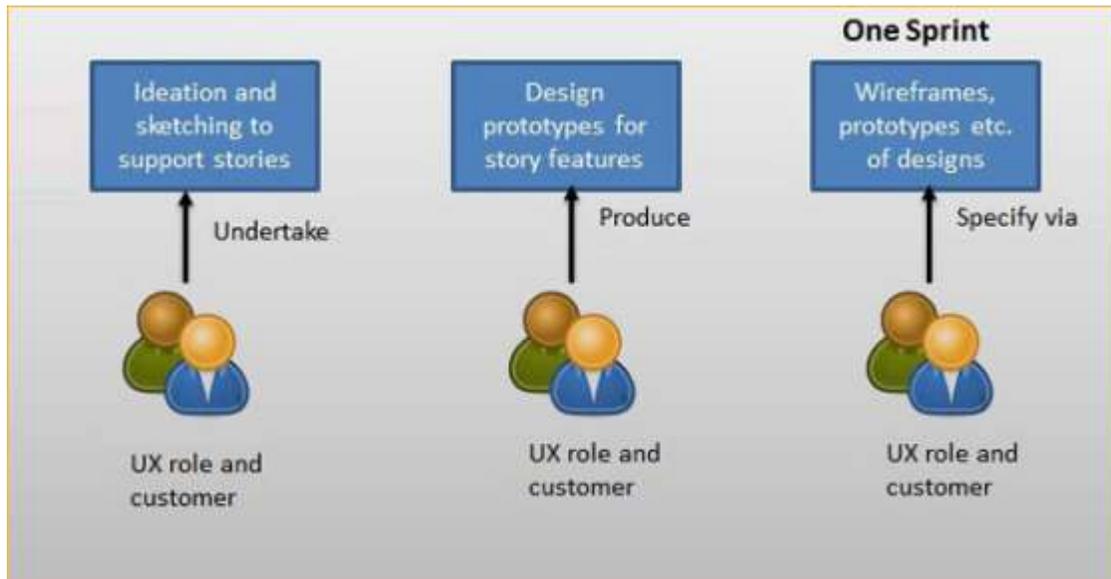
In conclusion to be competitive only features is not enough; a good user experience is equally important.

References

❑ The UX Book Process and guidelines for Ensuring a Quality User Experience by REX HARTSON and PARDHA S. PYLA

❑ Dr. Deborah J. Mayhew, Consultant, Deborah J. Mayhew & Associates CEO, The Online User experience Institute

❑ UX alliance

❑ Peepaldesign

Trigent ■ 2 Willow Street, Suite 201, Southborough, MA 01745 ■ 1-877-387-4436 ■ www.trigent.com

Trigent Software, Inc. All trademarks, marked and unmarked, are the property of their respective owners.

6

TRIGENT

About the Author

Dwaipayan Chowdhury (DC) is the practice leader for Analytics and Mobility practice of Trigent. He is a Certified Scrum master and helped companies to adopt agile practices without compromising user experience. He has more than twenty years of experience in the high-tech industry, developing leading-edge solutions in the areas of product development and analytics. He can be reached at dwaipayan_c@trigent.com.

About Trigent Software Inc.

Trigent is a privately held, professional IT services company and a Microsoft Gold Partner with its U.S. headquarters in the greater Boston area and its Indian headquarters in Bangalore. We provide consulting services in various technologies including Microsoft Solutions. Our operating model is to conduct sales, customer relationships and front-end consulting (e.g., business case, requirements, architecture) onsite with our clients and perform the detail design, development, integration, testing and quality assurance offshore at our world class development and support center in Bangalore. We are a SEI CMM Level 4 company and is ISO 9001:2000 TickIT certified organization.

For sales contact sales@trigent.com or call 508-490-6000.

Trigent ■ 2 Willow Street, Suite 201, Southborough, MA 01745 ■ 1-877-387-4436 ■ www.trigent.com
Trigent Software, Inc. All trademarks, marked and unmarked, are the property of their respective owners.

7