Reactivity

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David *is an interaction designer at Reactivity Austin. Before joining Reactivity, he worked in the HCI Group at Trilogy Software, Inc. and in research at Rockwell Collins. David holds a Masters Degree in Human Computer Interaction from Carnegie Mellon University.*

Maria *is an interaction designer at Reactivity Silicon Valley. She has done interaction design work at Apple Computer's Advanced Technology Group, Lockheed Artificial Intelligence Center, and Immersion Corp. Maria holds a Ph.D. in Mechanical Engineering, Design Division from Stanford University.*

Reactivity *is a technology venture accelerator. It combines the talents of preeminent design and engineering teams to provide Startup Services for early stage ventures, and to foster Startup Creation of its own new ventures. Through this model, Reactivity not only affirms a commitment to turning new technologies into practical, market-altering innovations, but also positions itself at the forefront of launching the next technological breakthrough.*

Philosophy of Design

Reactivity's design philosophy balances user-centered design, cutting edge technology, and entrepreneurship. This breadth of skill and understanding of new venture creation allows Reactivity to provide a unique combination of interaction design and software engineering for our clients and spinout companies. Because no two ventures are the same, we custom tailor our service offerings according to a project's growth and team evolution.

Interaction design at Reactivity is recognized as its own discipline. It is understood that the experience of using a product can determine its success or failure, particularly for early stage ventures, and that good interaction design is critical to that experience. We strive to design interfaces that are not only are usable, but are engaging, informative, and satisfying to users. Our designers have backgrounds ranging from cognitive ergonomics to visual and communications design to computer science, but all take a user-centered perspective on design. However, as we grow as an organization, there will be an increasing need for specialization in the areas of product management, visual design, and interface development/ production work.

Design Process

At Reactivity, we take an integrated approach to design and engineering. Rather than focus on bits and pieces of a problem, we aim to understand the broader context of a product so that the solution

will perform at every level. We accomplish this through user-centered design combined with thoughtful engineering.

Our design process consists of the phases below. It should be noted, however, that the process itself is flexible, and is adapted to individual client and project needs:

Discovery

Every project begins with a period of discovery. In this phase, information about the product vision, target users and their needs, the usage context, competitors, and markets is gathered and analyzed. The intent is to thoroughly understand, and sometimes define, the product.

Design and Prototyping

Once the product space is apparent, an initial conceptual design is developed. The particular execution of this initial design varies depending on the project, from rough paper-based sketches and storyboards to HTML prototypes. The rule is to use the fastest prototyping method to appropriately convey the salient features and interactions. In parallel, a technical architecture and approach to engineering are developed.

Rapid iteration

The initial prototype serves as a starting point for multiple stages of user testing, feedback and iteration. Visual design also begins at this juncture. The goal of this stage of the process is to refine and flesh out the design as well as integrate it with visual design and back-end technology.

Each project involves multidisciplinary teams of interaction designers, visual designers, computer scientists, and software engineers. Interaction design is a specialized role at Reactivity. However, just as many of our interaction and visual designers understand technology, many engineers at Reactivity have a sensitivity for design, so there is much crossing of boundaries. Both designers and engineers at Reactivity achieve recognition through successful client engagements and venture investigations.

Reactivity is committed to providing enduring value to our clients and spinouts, helping them grow in to thriving, sustainable enterprises. This requires that we continually evaluate and refine our own design and development processes. We encourage the introduction of new ideas and techniques to improve the process.

As technology changes and evolves, the ability to learn quickly is necessary for good interaction design. In general, we have found that the combination of hands-on design experience and design theory prepare designers best for the type of design work we do. While the tools we use continually change, the techniques of understanding, visualizing, and creating new solutions remain the basis of our design process. We find that one way to gain exposure to new techniques, methodologies and solutions is to stay involved in the interaction design community. Internally, Reactivity uses informal lunchtime seminars, brainstorms, and the like to continually introduce and encourage designers, engineers and entrepreneurs to learn and grow as individuals and as a team.

We look for interaction designers with experience in designing and prototyping new software products. This usually includes experience with prototyping tools, experience in the software design process, and the ability to work collaboratively in a diverse team environment. At Reactivity, interaction designers work with clients to shape their business propositions in to product features and functionality. This demands that our designers have practical problem solving and great think-ahead skills. We look for people who are articulate in discussing their work and are open to input and creative collaboration.

Design Project Example

The Reactivity Startup Creation process led to the development of Reactivity's first spinout company, Zaplet, Inc. (www.zaplet.com). The Zaplet Platform (Figure 1) enables a new breed of lightweight, collaborative applications that combine email, the Web, and instant messaging. Companies such as USATODAY.com and ZDNet use Zaplet technology to dynamically join people, processes, and applications in a

shared, active workspace.

Zaplet began as an exploration of how to better meet user needs and expectations for communication on the Internet. Reactivity's goal was to invent the next generation of technologies that would improve this experience. Observing that email, the Web, and instant messaging are the three technologies most often used on the Internet, Reactivity set out to converge them into a single, seamless platform that allowed users to see live web pages in their email.

The Zaplet Startup Creation process included a great deal of investigation, prototyping, testing, and revision. During this period, the Reactivity team defined and re-defined the idea, explored its viability, surveyed the competitive landscape, and examined the feasibility of implementation. In the case of a broad, market-altering technology such as the Zaplet Platform, the design process involved iterative cycles of:

- Imagining detailed use scenarios
- Creating paper and electronic mockups of screens for these scenarios
- Conducting user testing of mockups
- Building proof-of-concept prototypes to determine what was technically possible

To develop the Zaplet technology and design, a multi-disciplinary team of designers and engineers worked in concert with an Entrepreneur-in-Residence (EIR). An EIR combines product, marketing, and business development skills to drive the spinout creation process. The outcome of the process was the Zaplet technology, interface, and business and marketing plans. The process and issues involved in creating Zaplet were in most ways the same as for our client engagements, except for the length of the engagement. While client engagements occur over the space of one to three months, Reactivity spinouts take nine or

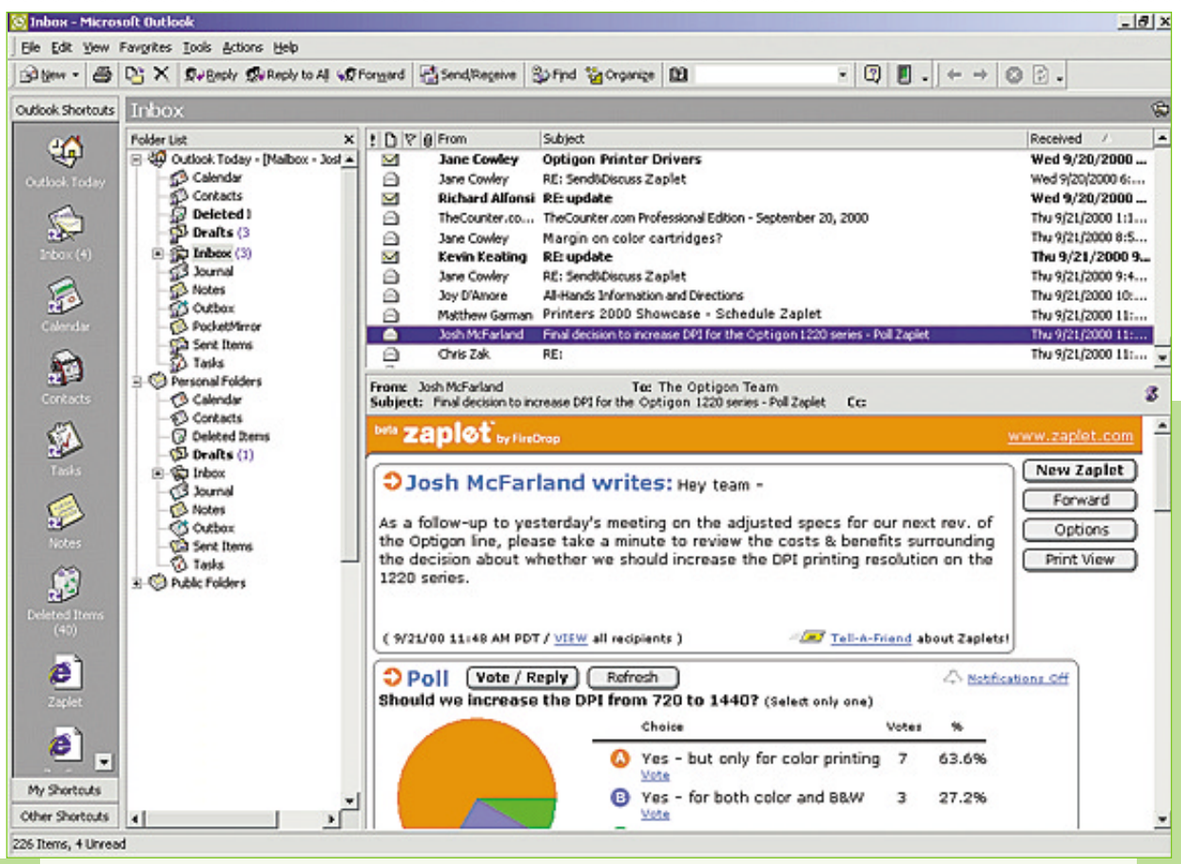

Figure 1. A Zaplet Message. The Zaplet message shows the live, updated results of a poll in a user's inbox.

more months from idea to spinout.

In addition, we drew upon the expertise of an external Advisory Board, our network of venture capitalists, and industry veterans for feedback. After thorough review, Zaplet's founding team pitched the idea and secured funding from a top-tier venture capital firm to continue the design and development efforts of the Zaplet technology. Reactivity continued to work with Zaplet to provide support through technology services, strategic advice, recruitment qualification, technology implementation, and product and interaction design.

Job Titles for Design and Usability Positions:
Interaction designer

Qualifications:
Applicants should have a bachelor's degree or higher with experience in human-computer interaction, visual design, computer science and/or other related fields; or equivalent industry experience.

Number Employed in Design and Usability:
Reactivity currently employs approximately a dozen designers with backgrounds ranging from visual design to computer science.

PRACTITIONER'S WORKBENCH

Favorite Publications:

1. Nielsen, J. *Usability Engineering.* Academic Press, Boston, MA, 1993.
2. Hackos, J. and Redish, J. *User and Task Analysis for Interface Design.* John Wiley and Sons, 1998.
3. Winograd, T., et al. *Bringing Design to Software.* Addison-Wesley Publishing Company, 1996.
4. Tufte, E. *Envisioning Information.* Graphics Press, 1990.

ID Magazine, Communication Arts, Communications of the ACM, Interactions, Red Herring, Business 2.0, The Industry Standard, and *Wired.*

Tools:
Reactivity's designers use a variety of prototyping and design tools and are encouraged to employ whatever approaches makes them most productive. We typically begin sketching using pencil and paper, then move onto digital tools such as Adobe Photoshop, Illustrator, or Macromedia Fireworks to make static layouts, or Macromedia Flash for interactive wireframes. Later stage prototypes are made in HTML and Javascript.

Favorite Quote:
"When a subject becomes totally obsolete, we make it a required course."--Peter Drucker.

Sources of Inspiration:
Dan Boyarksi, Brenda Laurel, Bruce Tognazzini