

pdma

VISIONS

PDMA's quarterly magazine for Product Development professionals

Insights into Innovation™



How IBM innovates

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- Making robust launch decisions
- Primer on “open innovation”
- What is “concept-to-cash?”
- Resource management
- PDMA goes global

Henry Chesbrough on myths about “open innovation”

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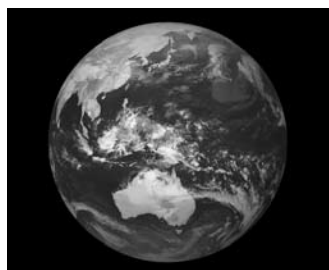
COVER PHOTO: This IBM MP3 player concept was custom-designed for a client in Asia. For more on how IBM responds to customer needs developing new products read the cover article pages 9 to 12.



Examining the myths of "open innovation." Page 18

Project Name	Priority	Done Total	2006						
			Jan	Feb	Mar	Apr	May	Jun	Jul
1 Cedar	1	100%	100%	100%	100%	100%	100%	100%	100%
2 Full PLC Model	1	100%	100%	100%	100%	100%	100%	100%	100%
3 Pine	1	100%	98%	100%	100%	100%	100%	100%	100%
4 Bartados	2	99%	100%	99%	99%	97%	97%	100%	100%
5 St Thomas	2	100%							100%
6 Cancun	4	95%	98%					88%	100%
7 St Cruz	4	98%	97%	93%	94%	96%	98%	100%	100%
8 Wilson	4	100%	100%	100%	100%	100%	95%	100%	100%
9 Goodidge	5	95%						88%	100%
10 Jamaica	7	99%			100%	100%	100%	100%	99%
11 Aruba	11	100%							100%
12 Antigua	20	100%	100%	100%	100%	100%	100%	100%	100%
13 East Track	20	100%	100%	100%	100%	100%	100%	100%	100%
14 Bahama	32	100%							100%
15 Wilcox	45	100%							100%
16 Madison	51	100%							100%
17 K-cement	100	100%						99%	100%
18 Grant	100	99%							100%
19 Adams	999	100%							100%
20 Birch	999	100%							100%
21 Elm	999	100%							100%

Improving resource management. Page 20



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The concept-to-cash cycle in Product Development. Page 26

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Kevin Clark



Ron Smith

IBM Case History

Designing offerings that continue to meet and exceed customer expectations

by Kevin A. Clark, Program Director, Brand and Client Experience Design, IBM (clarkk@us.ibm.com); and Ron A. Smith, Senior Strategic Designer, Customer Experience Design, IBM (designr@us.ibm.com)

Despite a plethora of techniques, it is not always easy for companies to ferret out and/or anticipate customer needs. In this article, the authors share some of the ways IBM has used customer data and experience as a keystone in developing its new products, and made sure that data is reflected in the continuing customer experience.

Observing is better than asking. Case in point: Creating a new handheld device based on the daily experience of floor traders for the world's largest equities market. (See Exhibit 1 on this page.)

The New York Stock Exchange (NYSE) trades an average of 1.4 billion shares every day. Even with the introduction of online transactions, 80 percent of the over one billion trades each day are still handled by 1,000 brokers on the floor of the exchange.

Increasing trading volume made it useful for the exchange to install a wireless computer network a few years ago. Using custom software, brokers could access the network with a tablet computer or PDA and also take phone orders in booths at the periphery of the trading floor. From these wireless devices, they can also access real-time price information and confidential tracking information from their company databases.

Replacing paper in a high-tech way

This new wireless system offers significant benefits over the old paper slip system, yet is still based on off-the-shelf devices that are less than optimal for the trading floor environment. Even with real-time market data, trade execution capability, and other information, many traders continue to rely on the traditional and more familiar paper slip system. The exchange now wants more traders moving to the automated system with its inherent speed and efficiency.

When IBM first engaged with the exchange, they had a list of requirements for the new trading floor device: a big screen, all day battery life and the ability to handle all activities wherever the trader was in the exchange.

Exhibit 1: Trading device photo—New York Stock Exchange



After conducting observational research, IBM created a New York Stock Exchange floor trader device that perfectly blends with the work patterns of exchange trading professionals.

We prototyped it as requested. (See Exhibit 2 on this page.)

The floor traders found the first prototype too large and too heavy.

We gained permission from the exchange to go out on the trading floor and actually see how the place works. We wanted to fully understand the daily work experience and environment of the traders who would be using this new handheld device.

This observational research turned out to be pivotal in getting the requirements right for this project—and fully satisfying the needs of the stock traders.

First, it was immediately apparent that these professionals worked in about one-and-a-half to two-hour blocks of time. A device with a three hour battery life would be more than enough for a single work session—and at breaks and lunch, they could do a swap at a convenient “battery bar” we designed for easy exchange.

After several new prototypes and iterations, we made the final floor trading device with a rounded back to cradle securely in your hand and light enough to carry for hours at a time. The screen takes up almost the entire surface of the flat face of the handheld, and the curved back is enhanced with a back wrist strap. (See Exhibit 3 on page 10.) This design, still in production and in use today, is being considered for use in other industry applications.

Fulfilling additional needs

We also discovered that when the traders were off the trading floor, they wanted to disconnect from the work day. It's high-pressure work and having the device and data interaction follow them off the floor was undesirable. So the wireless infrastructure only needed to cover the trading floor—simplifying logistics, installation, maintenance, and wireless data security considerations.

The lesson we've learned time and again at IBM in designing experiences for customers: “Observing is better than asking.”

The IBM Client Experience Design Method

IBM has a long history of meeting the design opportunities presented by the experience of ownership. Using the *IBM Client Experience Design*

Exhibit 2:

Prototype harness device—New York Stock Exchange



The first wireless device prototyped for the New York Stock Exchange based on asking the floor broker what was needed for trading.

Method, as shown in Exhibit 4 on this page, a great deal of attention is spent at the Front-end of client engagements to ensure the Voice of the Customer is heard—and the actions of the customer are observed to discover unexpressed wants and needs.

Rather than accepting what customers say, we actively encourage and engage in research that observes *what customers do*, also known as *ethnographic research*. “Ethnography represents a synthesis of several social science disciplines and its practitioners should be good students of human behavior,” says Hy Miriampolski, author of *Ethnography for Marketers*. “The structure of people’s self-image, self-presentation, and interpersonal communication—in other words, how people express themselves and interact with others—should be part of the ethnographer’s vocabulary.”

Cultural research and inspirations

IBM Design Consulting Services (DCS) uses the Client Experience Design Method both across the company and with external customers. Collaboration for clients with IBM Business Consulting Services (BCS) strategists and IBM Engineering and Technology Services (E&TS) engineers provides rich sources of inspiration for design ideas and iteration that lead to distinctive offerings that deliver competitive advantage.

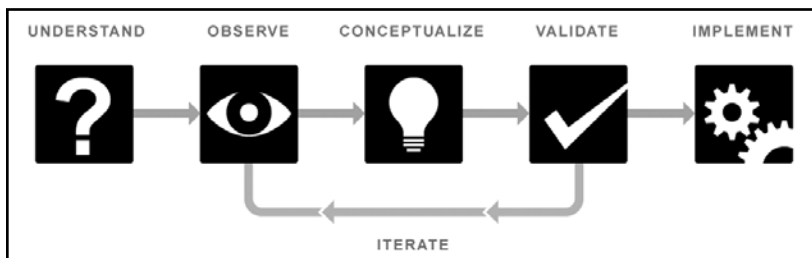
In one design styling study for an external IBM client, for instance, the Design Consulting Services team offered a series of designs influenced by specific cultures, lifestyles, and demographics. The product was an MP3 player that would be sold worldwide². Our goal was to break through the myriad of consumer choices in the personal music player category and move upscale to attract the affluent sector of the marketplace with move exclusive product offerings. We wanted to connect on the global stage and create brand loyalty with customers. Exhibit 5 on page 11 shows some of the information we examined.

The key concept driving these new MP3 designs was “elegant.” But what is an “elegant design?” Or more importantly, what was an “elegant mobile sound reproduction *experience*?” That was what we had to determine.

The concept vocabulary for this customer experience innovation exercise included terms, such as simple forms, rich material, intuitive operation, high quality tactile interaction, reliability, absence of irritations, and pride of ownership.

We selected China as the focus country to create emotional bonds with owners as explained in Exhibit 7 on page 12. Emotional bonds are an important consideration for a successful customer experience design.

Exhibit 4: IBM Client Experience Design Method



The IBM Client Experience Design Method emphasizes the use of observational and ethnographic research to discover the unspoken needs of customers to drive design ideation.

Exhibit 3: Exchange floor photo—New York Stock Exchange



Floor traders at the New York Stock Exchange rate the experience of this IBM-designed handheld wireless trading device a 10 out of 10 in user satisfaction.

We observed Chinese people in many cases looking to the West for the latest trends and styles. We chose to turn the tables and look into the rich Chinese culture to find inspiration. We found two metaphors—a meditation stone and a rice bowl—that would be subconsciously familiar to the Chinese and refreshingly new to international markets. (See Exhibit 5 on page 11.)

Much of the innovation in these designs came in finding ways to simplify the experience of using these products and reflect that simplicity through visual expression.

For instance, rather than connecting cables, we created a charging bowl where the player gently drops or slides in a “river stone” form to rest perfectly centered and naturally aligned to the charging contacts.

We used a pendant as a reference that would appeal to young women as jewelry (as shown in Exhibit 6 on page 11), and a carabineer hook and metal case to imply rugged equipment to men. We chose rich materials—polished black or white, real metals (not plated plastics) and minimized visible controls to demonstrate the owner’s appreciation for finely crafted objects.

We also explored the best way to prevent inadvertent actuation of controls when carrying the device in a pocket or bag. We found from our research that the “lock switch” solution used by many players was an after-thought implementation and did not satisfy the need for an easy and recognizable way to lock the controls (see exhibit 7). In this solution, the cover rotates the bottom third of the product 180 degrees to disable the switches and create the elegant appearance desired with a natural reminder that the controls are inactive (they are on the back).

By picking up on a familiar metaphor of the rotating motion of a dead-bolt door lock, we discovered a way to bring surprise and interaction that is useful, but more important, memorable—a key attribute to attract future consideration for the next purchase cycle.

A “sense layering” engagement

In another assignment, we conducted a “sense layering”³ engagement for a retail banking client briefing facility called “The Merlin Center,” jointly operated by the John Ryan Company and IBM. Essentially what we did is go in and assess what the center looked like, sounded like, and felt like, in order to, as chef Emeril Lagasse would say, “Kick it up a notch”—experientially speaking. We even spent time thinking about what Merlin smelled like and tasted like—invoking all of the five human senses.

Exhibit 5: Culturally-inspired MP3 Player



Inspired by the culture of China, this prototype MP3 player uses the metaphor of a meditation stone for the device and a rice bowl for the charger/download base.

Exhibit 6: MP3 pendant



MP3 jewelry-inspired pendant.

Merlin functions as an immersive briefing center, prototyping what the art of the possible is and will be in retail banking in three dimensions. “Beneath the whimsy and playfulness of the set is a deliberate layout meant to optimize the visitor experience,” says Samar Farah in her article “Experience Preferred” in *CMO Magazine*.⁴ “You might say it’s a theme park for banking executives, an interactive, experiential playground used to tell the future of retail banking” on a 6500-square foot canvas.

“The sugar and spice of baked treats greets visitors,” continues Farah, at the entrance of the center. “Inside the warmly lit lobby, a Pottery Barn-style couch beckons and a kitchenette serves up coffee and a plate of fresh biscotti.” Many of the improvements made to the center and what’s inside are considered proprietary. But it is interesting to note we collaborated during this sense layering engagement with visual designers, industrial designers, audio branding professionals—even a flavors and fragrance house.

“The lesson we’ve learned time and again at IBM in designing experiences for customers: ‘Observing is better than asking.’”

Driving innovation with client experience

Customers now have vast amounts of information to make better purchase decisions, driving unheard of levels of product performance and service engagement expectations. Product and service experiences infused with emotion disrupt the “better features this year” arms race.

Experience engineering and strategy are asserting themselves in offering design and delivery. In an age where the rules of mass production and mass deployment no longer hold firm economic sway over offering selection and purchase behavior, strategic customer experience design

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Exhibit 7: Second MP3 player concept



IBM Design Consulting Services chose the culture of China to inform these new MP3 designs – familiar metaphors to customers in China, refreshing and new forms for global markets.

becomes a foundational element of competitive advantage.

To be fully effective, organizations must engage and collaborate with the user throughout the awareness, consideration, purchase, ownership, and disposal phases of offering interaction to fully capture the customer experience. We believe that “a well-informed business strategy leads to design of truly useful and innovative offerings for users.” At IBM, “we listen to the desires of people in their minds and hearts around the world and consider their desires along with our original designs and development inspirations to lead in the marketplace.”⁵

Delivering a superior ownership experience is no longer a luxury; it is an increasing imperative. This places a new challenge on the shoulders of Product Development professionals.

Here is the challenge in a nutshell: Products not only have to meet the

requirements of making a great first impression, but must also continue to delight the customer throughout the ownership experience. Designing offerings that continue to deliver on customer expectations after purchase requires designing product experiences for customers in order to anticipate ways to continue delighting your customers over time.

Kevin Clark is Program Director, Brand and Client Experience Design for IBM. He is also the author of *Brandscendence: Three Essential Elements of Enduring Brands*. Ron Smith is Senior Strategic Designer, Customer Experience Design, part of IBM corporate marketing.

Endnotes

- 1 Kevin A. Clark, *Brandscendence: Three Essential Elements of Enduring Brands*, Dearborn Trade Publishing/Kaplan, 2004, pg. 103.
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- 3 Kevin A. Clark, *Brandscendence: Three Essential Elements of Enduring Brands*, Dearborn Trade Publishing/Kaplan, 2004, pg. 81.
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- 5 Kazuhiko Yamazaki and Kevin Clark, IBM Corporation, “Listening and Leading in User-Focused Design,” *Proceedings: ICSID 2001 Seoul, Exploring Emerging Design Paradigm*, Oullim, Internal Council of Societies of Industrial Design, 2001, pg. 382.

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October 2006 Research Forum Call for Papers

Research Forum Dates: October 21-22, 2006
Coordinating with PDMA's 2006 International Conference Atlanta, GA

PDMA's October Research Forum is the only academic conference devoted entirely to innovation. Consider submitting a paper. The conference coordinates with PDMA's annual International Conference (PDMA 2006). This year's theme is “Creating and Appropriating Value in Innovation Management.” Papers using any of the acceptable research methodologies such as surveys, case studies, modeling, and others and using data from all corners of the globe are welcome. We welcome competitive empirical and conceptual manuscripts for three broadly defined tracks in innovation management:

Check the PDMA Web site for further information on each track and submission guidelines. Awards will be given for the Outstanding Paper, as well as Best Paper for each of the Three Conference Tracks. The Outstanding Paper award includes a monetary award and a complimentary registration to the 2006 PDMA International Conference. Doctoral students are particularly encouraged to submit papers for this conference. An outstanding Student Best Paper award will be given. We are also looking for Reviewers. And will be giving an award to the most outstanding reviewer based on the timeliness and quality of reviews will be given.—Kwaku Atuahene-Gima, *Conference Chair, Professor of Marketing and Innovation Management, China Europe International Business school, Shanghai, China (kwasku@ceibs.edu)*