

Executive Tek Report

September 18, 2001

Gadgets: Making technology appealing

Executive Summary -- More than just toys for adults, gadgets are entry devices for new technologies. A good gadget performs its advertised functions, appeals to the senses and is easy to use. Often, it provides a pleasant surprise to the user. Today, increasingly, the context -- where it is used, by whom and with what -- has become important. The attributes of a good gadget can be used to indicate not just how hardware might be made more appealing, but how services can be made more attractive and might be more easily adopted.

Introduction

We live in the golden age of gadgets, with MP3 players, PDAs, digital camcorders, pagers, cell phones, electronic books and handheld game players -- each updated often -- vying for our attention and our money. While no good gadget appeals to everyone (perhaps necessarily), there are common attributes. Understanding what makes these devices attractive -- and how the attributes are changing as technology becomes more pervasive -- can provide some clues to making technology in other forms, especially emerging service offerings, more attractive. As diverse as these (and many other) devices are, they tend to have certain things in common. Most good gadgets provide useful functions (but not too many functions), fit their contexts, are easy to use, appeal to the senses and surprise us. Let's investigate each of these attributes in detail.

Useful function -- Most gadgets do something interesting nearly flawlessly. (There's an apocryphal story that the original gadgets were models of the Statue of Liberty bearing the name of the maker, M. Gaget. These did nothing but look cool. However, the true origin of the word is "gachette," meaning a small piece of a lock or hooking mechanism.) Some gadgets have multiple uses, but there seems to be an upper limit. In fact, a recent Yankelovich Partner survey that found that 53 percent of people would prefer to carry several separate devices than an all-in-one PDA/cell phone/MP3 player/you-name-it device. To anyone who has

tried to decrypt an all-in-one remote control, this is not a surprising finding.

Fit to context -- A portable CD player includes antishock as a feature. A car's power door lock fob fits on your key chain. Many cell phones now offer an unobtrusive vibrate option. Allied to a sensitivity of where a gadget is used is a focus on who the user is. A PDA with a dual band VHF handheld ham transceiver might not appeal to all, but it is the gadget of the year for some users.

Ease-of-use -- The more intuitive a device is, the more it will be accepted. Some universal design principles that contribute to ease-of-use are:

- Eliminate unnecessary complexity
- Be consistent with user expectations
- Accommodate a wide range of literacy and language skills
- Arrange information consistent with its importance
- Provide effective prompting and feedback during and after task completion.

There is a whole discipline behind ease-of-use. Don Norman's *The Design of Everyday Things* offers a good entry point.

Appeal to the senses -- The click of a button, the color of a case, the drag of a stylus and the feel of the device in your hand are integral to how it is received. The last is especially true, with small size -- in particular the ability to hold

Executive Tek Report

September 18, 2001

the device in your hand -- almost becoming part of the definition of gadget. This goes beyond mere ease-of-use. Gadgets have an intimate quality, so aesthetics can drive their adoption.

Surprise -- Favorite devices are more than meets the eye, providing something extra. For instance, imagine a PDA that has a silent alert; a laser pointer that can cast an image in the shape of a fox; and a portable CD player that can interpret MP3 files on a recordable CD for twenty hours of nonstop tunes. The best surprises are those that imply, "You *think* you know what this gadget is (a CD player, GPS receiver, video camera, etc.) but you don't."

Of course, gadgets can have many positive attributes and still repel users. As useful as cell phones are, their complexity has made them unappealing to many users, and their problems with cultural context (ringing in theaters, sending inattentive drivers careening down the road) have led to limits on their use in certain areas. Though there will always will be a minority of gadget freaks who accept severely compromised devices, most potentially "cool" gadgets with major flaws are not appealing. In fact, the flaws are likely to kill the product.

Since gadgets can provide a connection point with customers, they may have something to say about how new service offerings might get a foothold. Translating gadget attributes into both customer and employee solutions could make the difference between success and failure. Let's explore how these attributes can be applied to knowledge management, for instance.

An example: Knowledge management and gadgets

As e-business dramatically increases the amount of information within and across businesses, effective knowledge management (KM) leverages the information to fuel innovation, responsiveness and efficiency.

Knowledge management (KM) is often, weighed down with theory, functionality and buzz. Luckily,

the KM space is filled with gadgets. Chances are that instant messaging, e-mail, team rooms and/or online meetings are already being enthusiastically used within an organization.

Functions - While any of these can be overloaded with features, where they are widely adopted and loved, the functions used are probably few and the culture to make them valuable is probably already in place. These existing KM functions can be enhanced just the way functions in successful gadgets are enhanced. For instance, expanding chat to online interviews, adding a ticker that provides awareness of team room additions and facilitating prioritization of e-mail.

Fit to the context - KM can be fit to the context by using it to nurture existing communities or by making functions available to mobile users (with fast downloads). Context also includes adjusting for the applications the community already uses. Data transparency and easy access are required.

Ease-of-use is straightforward, but difficult for KM. Testing often must be done with a variety of communities. Retrofitting established technologies might be necessary. However, a KM system that jumps past this requirement may be doomed. After all, engaging people is what KM is all about.

Appeal to the senses - Page layout, the use of color and elegant visualization, sound enhanced features (such as the crisp sound of a page being turned) and movement (e.g., cursor tracking, page transitions or life-like animations can all be used to enhance the *appeal to the senses* of KM.

Surprise is tied to expectations and may simply be achieved by demonstrating a standard KM benefit that the user does not associate with KM. However, drilling deeper on a KM gadget is more likely to provide a pleasant surprise. For example, you think you know what instant messaging is (quick Q&A or social time with colleagues), but it is more important than that (because it's also online interviews, back

Executive Tek Report

September 18, 2001

channel communication, a means to capture ideas in realtime, etc.).

Gadgets in an e-business world

When is the last time you thought a calculator was cool? Or a digital watch? The élan of a good gadget goes away with time. The best gadgets (like calculators and wristwatches) become a feature in another gadget, such as instant messaging on pagers. Gadgets without a stronghold, like walkie-talkies or night-vision goggles, fade away or hide in a niche, waiting for the next cycle of fads. In an e-business world, the evolution of gadgets continues, but at a much faster pace. There is less opportunity for a gadget to establish itself, and, until it does so, its *functions* and *surprises* must be constantly updated.

With all this change, gadgets are likely to disappoint if they don't have backward compatibility. A new PDA quickly loses its appeal if all the data from the old PDA must be reentered by hand. Similarly, they must fit into the *context* of other popular gadgets and applications, adhering to industry standards.

Perhaps the most significant challenge is pervasive computing. More and more, it will be assumed that a good gadget will interact seamlessly and wirelessly with the intelligent devices in its environment.

One *ease-of-use* challenge for gadgets in the e-business world is dealing with the proliferation of platforms. The disappointing growth of wireless access to the Web can be explained, in part, by the attempt to put content that was designed for a laptop onto a tiny screen. Each new medium deserves designs and communications that have been "re-imagined" just for it.

Finally, familiarity breeds contempt. A cell phone squeaking out chords from Beethoven's Fifth does not *appeal to the senses* anymore on the fiftieth hearing. The pressure to update the aesthetics of gadgets is constant.

Accelerating innovation using the gadget approach -- where products and services

become part of larger, established solutions -- may become more important as change accelerates. For new products, the appeal should be obvious to the user and the product should provide the broadest sort of connectivity possible.

References

Hoffman, Russell. (June, 1995.) *Interview with Donald Norman*. Retrieved August 23, 2001 from the World Wide Web: <http://www.animatedsoftware.com/hightech/donaIdno.htm>

Norman, Don. (June, 1995.) *The Design of Everyday Things*. Retrieved August 23, 2001 from the World Wide Web: http://www.amazon.com/exec/obidos/ASIN/0385267746/o/qid=989446285/sr=8-1/ref=aps_sr_b_1_1/102-4576731-0031301

Various, (March, 2001.) Poll: Americans Want Multiple Devices. *allNetDevices.com*. Retrieved August 23, 2001 from the World Wide Web: http://www.allnetdevices.com/wireless/news/2001/03/07/poll_americans.html

Various. (April, 1997.) Principals of Universal Design. *The Center for Universal Design NC State University*. Retrieved August 23, 2001 from the World Wide Web: http://www.design.ncsu.edu:8120/cud/univ_design/princ_overview.htm#princ

Various. (August, 2001.) IBM Ease-of-Use Web Site. *IBM Corporation*. Retrieved August 23, 2001 from the World Wide Web: http://www-3.ibm.com/ibm/easy/eou_ext.nsf/publish/558

Various. (August, 2001.) IBM User-Centered Design. *IBM Corporation*. Retrieved August 23, 2001 from the World Wide Web: http://www-3.ibm.com/ibm/easy/eou_ext.nsf/publish/570

Quinion, Michael. (August, 1996.) Investigating international English from a British viewpoint. *World Wide Words*. Retrieved August 23, 2001



Executive Tek Report

September 18, 2001

from the World Wide Web:

<http://classiclit.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fwww.worldwidewords.org%2F>

Other sites of interest

Handspring, Inc.

<http://handspring.com/>

About this publication

Executive Tek Report is a monthly publication intended as a heads-up on emerging technologies and business ideas. All the technological initiatives covered in *Executive Tek Report* have been extensively analyzed using a proprietary IBM methodology. This involves not only rating the technologies based on their functions and maturity, but doing quantitative analysis of the social, user and business factors that are just as important to its ultimate adoption. From these data, the timing and importance of emerging technologies are determined. Barriers to adoption and hidden value are often revealed, and what is learned is viewed within the context of five technical themes that are driving change:

Knowledge Management: capturing a company's collective expertise wherever it resides -- databases on paper, in people's heads -- and distributing it to where it can produce the big payoffs

Pervasive Computing: combining communications technologies and an array of computing devices (including PDAs, laptops, pagers and servers) to allow users continual access to the data, communications and information services

Realtime: "a sense of ultracompressed time and foreshortened horizons, [a result of technology] compressing to zero the time it takes to get and use information, to learn, to make decisions, to initiate action, to deploy resources, to innovate" (Regis McKenna, *Real Time*, Harvard Business School Publishing, 1997.)

Ease-of-Use: using user-centric design to make the experience with IT intuitive, less painful and possibly fun

Deep Computing: using unprecedented processing power, advanced software and sophisticated algorithms to solve complex problems, and derive knowledge from vast amounts of data

This analysis is used to form the explanations, projections and discussions in each *Executive Tek Report* issue so that you not only find out *what* technologies are emerging, but *how* and *why* they'll make a difference to your business. If

resources for business executives, please visit:
www.ibm.com/services/insights

Executive Tek Report is written by Peter Andrews, an IBM emerging technology analyst, and is published as a service of IBM Corporation.

Copyright ©1999-2001 IBM Corporation. All rights reserved.

IBM and the e-business logo are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both.

Other company, product and service names may be trademarks or service marks of others.

References in this publication to IBM products and services do not imply that IBM intends to make them available in all countries in which IBM operates.

you would like to explore how IBM can help **you** take advantage of these new concepts and ideas, please contact us at insights@us.ibm.com. To browse through other

G510-1626-00