



What is Convergence?

The concept of convergence has been applied in multiple and sometimes confusing ways to brands, business models, financial systems, as well as networks and other enabling technologies. Focusing on the convergence of consumer technologies, we define convergence as the *synergistic combination of formerly discrete technologies*. This definition emphasizes the intent behind converged products—to offer complementary capabilities that, together, meet consumers' needs better than those of any dedicated or single-function product.

Overview

Once the province of science-fiction, technology convergence—the synergistic combination of formerly discrete technologies—is finally here in force. Three basic prerequisites for technology convergence have been met in recent years:

- A solid majority of U.S. households have broadband Internet access and among them, a critical mass have home networks that allow for a persistent Web connection to a variety of devices.
- The market has coalesced around a series of enabling technologies like IP-based networks, and increasingly popular communication protocols like Z-Wave, ZigBee, and DLNA.
- Advances in consumer technology have made possible a host of converged products, such as cell phones that allow users to communicate *via* voice, text, email, and more, and to enjoy a wide range of stored or streamed media entertainment.

Still, the ideal of communicating and consuming media anytime, anywhere is beyond the reach of most mainstream consumers. On the supply side, barriers include the lack of interoperability between devices and systems, high prices, and unresolved issues around digital rights management. On the demand side, barriers run the gamut from low consumer awareness of solutions and little sense of compelling need, to price sensitivity and widespread concerns over ease-of-use. These barriers are hardly insurmountable, as market phenomena like the iPhone and the Xbox 360 suggest. But the fact is many converged solutions, especially those outside the field of media entertainment, are known only to leading-edge consumers.



What will it take to get past this point, and begin realizing the promise suggested by latent consumer interest in converged products? That's the question at the heart of Zanthus' Consumer Technology Convergence Study, a Web survey of 1,001 U.S. online consumers aged 15 and older. This article presents the first publicly-available findings from this self-funded project.

Theory of Basic Consumer Needs & Wants

When it comes to product adoption, we believe there are five basic consumer needs that drive purchase decisions. Much like Abraham Maslow's classic hierarchy, these fundamental and unchanging needs range from simple needs for safety and survival to complex needs for growth and fulfillment. These basic needs encompass consumers' personal and inter-personal needs that can be met, in part, by technology products. They consist of needs for autonomy, affiliation, information, entertainment and achievement. As in the classical definition of needs, they are the same for everyone, though individuals don't express them to the same degree.

Table 1. Consumer Trade-Off Matrix*

	Soft (Emotional)	Hard (Functional)
Benefits	<ul style="list-style-type: none"> Enhances image or status Brings aesthetic enjoyment Expands expressive or creative opportunities Improves sense of control Enhances sense of connection with others 	<ul style="list-style-type: none"> Makes a qualitative difference in meeting needs Better than alternatives Compatible with lifestyle Benefits clear & demonstrable Reduces time, effort and/or dollar cost associated with activity
Costs	<ul style="list-style-type: none"> Challenges associated with adoption Usability issues & effort associated with learning How to use the product Emotional cost (frustration/anger) 	<ul style="list-style-type: none"> Price (absolute & opportunity cost) Time, effort and/or dollar cost associated with product substitution (new for current)

* Adapted from a matrix developed by Mercator Partners.

The most important aspect of this hierarchy is that consumers' needs don't change. The only thing that changes is the products available to help meet those needs. The cell phone, for example, may be considered one of the latest products to meet consumers' communication needs, following the cordless phone, the rotary dial phone, the telegraph, and other, previous communication technologies.

The overriding consumer need is for achievement—what's called 'self-actualization' in Maslow's scheme. This need tops the list of higher order needs. Products that help consumers achieve, whatever that may entail, invariably inspire the greatest loyalty and accordingly, foster lasting psychological and emotional attachments.

Wants are essentially different than needs. They vary substantially among consumers, and in the context of the market, may be seen as purely instrumental—as the means to meeting one or more basic needs. In other words, consumers want products they perceive will help them achieve their need priorities.

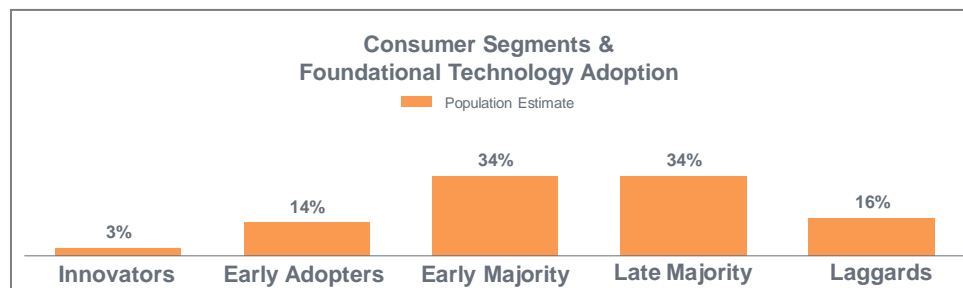
Wants are discretionary provided the market offers competitive and substitutable products. By 'substitutable,' we mean products that can be used to perform the same job(s). For instance, a consumer may buy a cell phone to help meet various interaction needs. She may consider email via a PC, messages via a social networking site and other forms of communication viable substitutes. If the product in question is deemed suitable for the job for which it's intended, then the purchase decision is largely determined by emotional considerations.

Theory of Needs & Wants re: Converged Products

To best determine the factors that influence the adoption of converged products, we joined our understanding of consumer behavior with Everett Rogers' diffusion of innovations theory. This theory, first articulated in Diffusion of Innovations (1962), rests on the idea that 'innovativeness' is a personal trait that is normally distributed among the population as are weight, height, intelligence and other characteristics.

Rogers also argues that attributes of the specific innovations themselves affect adoption. According to studies conducted by Rogers, most of the variance in the rate of product adoption is explained by five attributes. The attribute deemed the best single predictor of in-market success, for instance, is ‘relative advantage’—the degree to which an innovation is perceived as being better than existing products. Our research on converged products bears out the predictive power of Rogers’ proposed variables, though emotional benefits appear to play a greater role than Rogers intimated.

In *Crossing the Chasm* (1991), Geoffrey Moore uses Rogers’ model as a reference, emphasizing the ‘chasm’ between ‘early adopters’ and the ‘early majority,’ that is, between those with a predisposition to acquire new products and the initial wave of mainstream consumers. The chasm is attributed to different motivations for adoption—early adopters use new technologies to make radical changes from old systems to new ones (mainly to gain competitive advantage), while members of the early majority adopt new technologies to make incremental improvements.



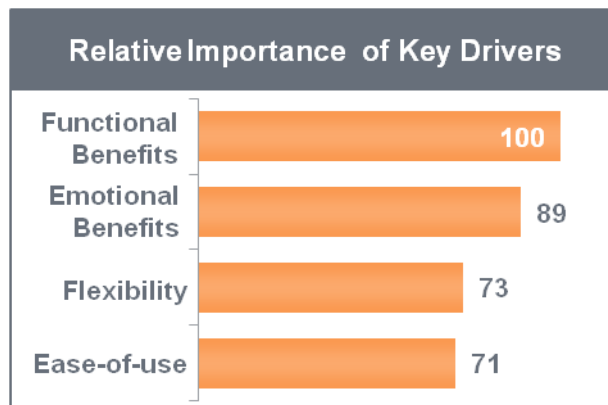
Early adopters represent the group that must be won over in order for a product to have any chance of crossing Moore’s infamous chasm. Innovations diffuse through the market serially, moving from one group of adopters to another. Once the early majority begins to adopt a new product or service, market penetration is generally in the 16% to 20% range, which is the commonly accepted threshold for ‘mass market penetration.’

However, because each adopter segment has different needs, innovations do not diffuse in a continuous and smooth process. If a new product is presented to a new group in the same way it was presented to the previous group, the new group may have difficulty accepting the message. This implies that providers need to employ a moving target approach to marketing to accelerate the adoption process.

As diffusion continues through time, the basis of competition shifts predictably, starting with functionality and ending with price, according to Harvard Business School professor Clayton Christensen, author of *The Innovator's Dilemma* (1998). The factor that drives the transition from one basis of competition to another is consumers' over-satisfaction. As soon as companies overshoot in providing what is necessary on any one dimension, the basis of competition shifts to the next. Once consumers' demand for functionality has been fulfilled, for instance, then the basis of competition shifts to reliability. As product performance improves to the point where it exceeds consumers' demands, then the basis for competition becomes convenience and customization. Finally, signaling the technology's status as a commodity, price becomes the remaining competitive dimension. This pattern applies to technology products in general and converged products in particular.

Zanthus Convergence Study Findings re: Consumer Needs & Wants

We've long used a modified version of Rogers' key product attributes to estimate demand. For this study, we supplemented our usual attribute battery to assess the influence of attributes that might prove especially relevant and/or unique to converged products. All told, we examined the relative influence of 19 separate attributes on demand. The results are remarkably consistent with the prevailing theories just described; other, similar research we've conducted; and our leading hypotheses about the nature of converged products.



Using a combination of factor and discriminant analyses, we've crafted a robust hierarchy of adoption drivers. At the top of the hierarchy is what we call **'functional benefits'**—the practical benefits that stand to make a qualitative difference in the everyday lives of consumers. As we know from previous studies, the main functional benefits consist of saving time, effort or money. These benefits facilitate consumers' achieving their goals by freeing up resources—material or otherwise—they can utilize to further their personal growth. The functional benefits factor includes one of the key product attributes identified by Rogers—relative advantage—and a few others, including helpfulness, usefulness and what might be called 'maximum fit.' This latter term refers to the extent to which a product can 'do everything' consumers need it to.

The second-most influential adoption driver is the associated **'emotional benefits.'** These benefits are derived from a combination of the functional benefits and other, less feature-focused considerations, such as aesthetics. The

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product attributes captured by this driver include Rogers' compatibility attribute, plus several others, notably, likeability, the extent to which consumers predict they will enjoy using the product and the degree of predicted emotional attachment. Perhaps the best example here is the iPhone, which has won over consumers with its functional and aesthetic elegance. This adoption driver is

only about 10% less important to consumers' decision-making than the top-ranked functional benefits. In markets characterized by many functionally equivalent products, such as cell phones, purchase decisions are made predominantly on the basis of anticipated emotional benefits. Succinctly put, this adoption driver may be considered the 'cool factor.' It appears from the first iteration of our study that converged products have a greater capacity than dedicated products to deliver compelling emotional benefits—a topic we'll undoubtedly return to in the next wave of the study.

Flexibility is the next most important adoption driver. This term refers to a combination of product attributes especially integral to converged products. These attributes include the extent to which a product can be customized, as well as used wherever and whenever it's desired. Comparatively speaking, flexibility is about as important as ease-of-use and both are about 30% less important than functional benefits in the purchase decision process. Teens tend to give flexibility greater weight than adults, probably due to the adolescent penchant for personalizing everything from clothing to computers. Teens expect to be delighted by converged products.

The last adoption driver to emerge from our analysis is **ease-of-use**. As seen in this and other studies, perceived usefulness and ease-of-use are highly correlated with purchase intent. In fact, these two attributes are the main predictors of purchase intent in the Technology Acceptance Model (TAM), a widespread theory of diffusion found to account for up to 40% of the variance in adoption. In our study, ease-of-use signifies product use will be relatively effortless. More specifically, it's made up of a number of related product attributes, namely, the clarity of product benefits, the degree to which the product seems simple and the perceived amount of effort required to use the product. Ease-of-use is more critical to members of the early and late majorities—consumers who follow the trends established by innovators and early adopters.

Together, these four adoption drivers—functional benefits, emotional benefits, flexibility and ease-of-use — accurately predict the (self-reported) purchase of converged products about 80% of the time. Again, functional benefits have the greatest influence, especially among innovators and early adopters, who are habitually geared to look for technologies that stand to make a qualitative difference in their lives. Emotional benefits are important secondary drivers, particularly among teens and young adults who have grown up amidst technological splendor and have a passion for high-performing new technologies. And lastly, flexibility and ease-of-use constitute influential threshold factors. These distinct product attributes are consistent with other leading theories of product diffusion and our own research on a wide variety of converged products.

What's Next

The next article in this series will explore consumers' preferences regarding various multimedia hub concepts in light of these and other discriminating product attributes. The findings have serious implications for product design and marketing in the highly-competitive multimedia hub space.



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About This Study

The main purpose of the Zanthus Consumer Technology Convergence Study was to identify the most critical consumer requirements for converged technologies. The study consisted of 1,001 online surveys among online U.S. consumers aged 15 and older. The study was conducted April 24 – May 5, 2009. To best ensure representativeness, quotas were imposed based on age, gender, income, race/ethnicity, children in home, and region of the


country. The total results have a margin of error of +/- 3.1% at the 95% confidence level in the most conservative case. This means the results come within plus or minus 3.1% of the results that would have been obtained given a census of all qualified individuals.

Among this sample, we surveyed 877 adults and 124 teens aged 15 to 17. These sample sizes have associated margins of error of +/- 3.3% and +/- 8.8%, respectively, at the 95% confidence level in the most conservative case. The total results have been weighted to represent adults and teens in their proper proportions. Please note that some questions involve smaller sample sizes; accordingly, the results are associated with correspondingly larger margins of error.

Questions?

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