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# Emerging Signals

*There's really no such thing as "thinking outside the box." But we can select a different box to think in. Your box is your business model, your world view, your paradigm. It is the framework of the metaphor that you use to make sense of the world around you.*

—Roy Williams, author and marketing consultant

## Opportunities in Plain Sight

Every day we are surrounded by information that may reveal a new signal, a new speck on the horizon. We need to open our eyes not only to the words that we read in newspaper headlines, but to the possibilities they sometimes represent.

I once read that every second of every day, two Barbies are sold somewhere in the world. Is there a new possibility in this, any opportunity? How long before the Barbie population overtakes the human population of the planet? A conservative calculation shows that by 2050, there will be more Barbie dolls on the planet than people. That seems significant on various levels. Mattel is the fourth largest textile manufacturer in the United States, largely from making dresses for Barbie. How will the company rank in textile manufacturing in 2050? Calculate how many Barbies have sold since you started reading this book and you will be training your mind to seek new opportunities.

"Calculate how many Barbies have sold since you started reading this book and you will be training your mind to seek new opportunities."

Imagine you are a communications company and you want to create the most powerful antenna on the planet. Could you use the Barbie grid to do this? Could a Data-Barbie vest incorporate a receiver/transmitter that allows for the creation of the largest ad-hoc network ever devised?

In this chapter, we will look at the way signals like these are recognized—or not—by individuals and organizations, and how, when subjected to the right imaginative questions, they can shape our future.

## Signals in Latent Needs

Mark Burnett's idea for the TV show "Survivor" was rejected by ABC, NBC, CBS, and UPN before CBS gave it another chance. The first episode of "Survivor: Borneo" aired on May 31, 2000. Together with ABC's "Who Wants To Be a Millionaire?" it started the reality-television revolution, a genre that now accounts for 56 percent of all TV shows on American television screens, according to Nielsen Media Research. *This revolution was, literally, televised.*

The show that propelled the revolution is about humans in tribes, stranded in a remote location, competing against each other for survival. Survival

means endurance, the ability to solve problems, teamwork, personal dexterity, and will. Survival means being seen as strong and essential to the success and survival of the tribe, in an atmosphere of continual challenge and reward. The rewards: spices, flint or fire, warm blankets. Nothing a city dweller would sacrifice any effort for, but all that mattered for a Robinson Crusoe or even our ancestors not too far back. So we are here at the present being in our past, but a past actualized by new technology. We can now see how we were, how we could be in that situation of despair. It speaks to us—our past as tribal beings, as a tribal council that has the power to extinguish one human's torch, emerges in us. And we do it, by voting in secret and with pleasure. And we watch it, with pleasure.

*"The tribe has spoken."*

"We are tribe members, apprentices, bachelors and bachelorettes, contenders, the next top model, and American idols once we have allowed our latent behavior to emerge."

## THE CHOREOGRAPHY OF LATENT NEEDS

The latent needs emerge slowly, painfully, and through all the trials that we, as spectators, feel we are put through. Our most primeval emotions are in play here, as well as our need to be part of one or another tribe. We feel that we would know what to do, if only placed there now. But we are not there, so we have to live with engaging ourselves intellectually rather than physically. Is this intellectual engagement as powerful, and as compelling, as the actual physical engagement in the affairs of the tribe? Remember, more than half of all TV shows watched in the United States are reality shows.

We are tribe members, apprentices, bachelors and bachelorettes, contenders, the next top model, and American idols once we have allowed our latent behavior to emerge.

## TALKING TO MYSELF

A few months ago, I was in Chicago O'Hare Airport, waiting for a connection from Miami to Toronto. I had a few hours between flights, so I decided to experiment a little with people's notions of "normal" behavior. For about two hours, I walked the corridors of the airport talking to myself. I would look at a display in Brookstone and clearly articulate, "No, I am not talking to you. I am with a salesperson at Brookstone." Or, in line at a fast-food counter, I'd suddenly say, "No, it was OK, they understood everything and we are meeting again in September. See you soon." Did people look at me as if I had some kind of a problem? Just for a moment, until they would

spot a yellow and black rubber band wrapped around my right ear. I was also using my right hand to cover my ear as I was speaking, as if I had reception trouble.

"Talking to yourself has become common behavior as long as you have anything attached to your ear. It is a very powerful illustration of how fast behavior can change, and what was once "deviant" becomes "normal.""

The yellow rubber band looked very impressive—it was actually a real component of a wraparound earpiece from an old cell phone hands-free headset. In fact, it was impressive enough that most people did not question my mental stability, and three were so intrigued as to ask me, "Where did you get this?" To say, essentially, "I want it. I want to walk around airports talking to myself. It is OK, as long as a wire of some sort protrudes from my ears."

Talking to yourself has become common behavior as long as you have anything attached to your ear. Try this some day. It is a very powerful illustration of how fast behavior can change, and what was once "deviant" becomes "normal." How long before we start talking into the wall or to a carton of orange juice? And why not? Communication is not about one cell phone talking to another cell phone, but about people talking to people through the means at hand. So why not the wall, or any object closest to you, as the means? How and who will mediate our conversations in Dataspace?

"What is currently missing in corporate culture for that moment of clarity—the moment when the company that is involved in music understands what people really want to listen to and how they want to do it?"

There are any number of inventions, disruptions, and signals in plain sight right now that are real and will influence your future, my future, and everybody's future.

In a 1965 interview with the *New York Times*, John Diebold, the pioneer of automated technology applications, said:

> *"Today's machines, even more than the devices of the Industrial Revolution, are creating a whole new environment for mankind and a whole new way of life. Today's machines deal with the very core of human society—with information and its communication and use. Top management must make it their business to see the opportunities inherent in changes in the social environment and technology. "*

What is currently missing in corporate culture for that moment of clarity—the moment when the company that is involved in music understands what people really want to listen to and how they want to do it? The moment when Salomon invents snowboarding and Microsoft rolls out Skype?

In a presentation in 2005 entitled "Scanning Technology Horizons," Bob Johansen—pioneer futurologist and president of the Institute for the Future, a strategic research group—expressed his belief that "it is possible to have a bad forecast and still make a good decision" on the basis of that forecast. In Johansen's view, the key is to devise an enlightened approach to making projections, looking at potential threats or fault lines as opportunities for growth or restructuring. And with the rapid convergence of multiple technologies and the appearance of cross-disciplines, the scope of a company's search needs to be wider; it now needs to monitor events in areas that were not previously considered important or part of its business sector.

### WHO IN YOUR ORGANIZATION IS KEEPING TRACK?

Who is monitoring all the specks on the horizon, trying to make new meaning for the business you are now involved in? Who in your organization is transforming convergence into a new possibility and economic driver? And how seriously does your organization take the question "What if toothbrushes could speak?"

Johansen gives a few examples of convergent technologies in the field of health care:

- Tools for monitoring health, such as biosensors, implants, and imaging
- New materials for treatment and prevention, including smart textiles, organic/inorganic interfaces, implants, and very small-scale batteries

So how big is the opportunity that could be revealed by answers to the question "What if toothbrushes could speak?"

## Signals and the Corporation

At his 2003 lecture "Peripheral Vision: Sensing and Acting on Weak Signals," at the Wharton School of the University of Pennsylvania, George Day, professor of marketing and codirector of the Mack Center for Technological Innovation at Wharton, challenged companies to make sense of the tremendous flow of data that surrounds them and to identify signals that might or will affect their businesses. He suggested they might start by asking, "Where is the periphery of my business?" As Day noted, "One person's periphery is another person's core."

In their 2001 book *Creative Destruction: Why Companies That Are Built to Last Underperform in the Market and How to Successfully Transform Them*, Richard Foster and Sarah Kaplan defined the periphery as "the edge of the vortex of creative destruction. In this vortex, attacking companies occupy the periphery while the defenders occupy the core of the vortex, focusing on the evolutionary improvement of the existing business."

"Effective peripheral vision is more an art than a science. And the art is partly in defining its scope: How far and where one looks can redefine both the "core" and the "periphery" of one's business."

Effective peripheral vision is more an art than a science. It involves interpretation, insight, intuition, and adaptive adjustments that reshape the process as new insights are gained. And the art is partly in defining its scope: How far and where one looks can redefine both the "core" and the "periphery" of one's business.

Robert K. Logan, a senior fellow at the Beal Institute for Strategic Creativity, believes that in the Information Age, the core and the periphery are now connected:

> "*We know that new levels of order emerge at the periphery, far from the organized equilibrium in the center. At the same time, the distinction between the center and the margin begins to dissipate with the flow of information, ultimately disappearing. With the accelerated increase and exchange of digital information, our specialized and fragmented civilization of center-periphery structure is suddenly experiencing an instantaneous reassembling. All its mechanized bits are merging into an organic whole. This is the new world of the global village.*"

As Logan proposes, alternative forms of organization emerge on the periphery of a mass culture—whether as small startups that are a response to large-scale multinationals or as remix to counter the homogeneity of mass culture. With the advent of digital exchange, these self-organized disruptions merge fluently with their sources, creating a cohesive discussion rather than a one-sided dialogue.

The challenge for a large corporation is to distribute the intelligence gathered from scanning current trends and data, segmenting data into the various business units. Each unit collects and analyzes data pertinent to its activities, which are highly specialized and demand a narrow set of data. But with no cohesive big picture in place, no one function has the role and capability of combining and analyzing sets of diverse data—of defining signals and their meaning. In effect, no action takes place. As philosopher Paul Ricoeur (1991) put it, "Without imagination, there is no action."

George Day adds, "There are thousands of events and trends that are at the periphery; in most organizations, someone knows these trends, but it is hard to pull them into a cohesive picture." In his lecture, Day offered two examples of companies that successfully used this process to become leaders in sectors that used to be peripheral to their core:

- FedEx: "It traditionally defined its core business as the overnight delivery of small packages, but it expanded its vision by studying the impact of electronic commerce on global sourcing," Day said of the company's rise to organizing and coordinating every aspect of the supply chain. "As a result, FedEx now acts as the leading end-to-end logistics supplier."
- Pitney Bowes: "It traditionally defined its core as postage meters and mail handling, but it expanded its vision to take in a wide range of related back-office market trends. Pitney Bowes now makes systems that require sophisticated back-office equipment."

## Cultivating Effective Peripheral Vision

How can strategists learn to effectively interpret signals at the periphery?

In an article in the June 2003 issue of *Knowledge@Wharton*, Wharton School's online business publication, George Day and Paul Schoemaker provided a checklist of questions for strategists to ask:

- How do our mental models filter or distort the signals we take in?
- How should we interpret the patterns in the flow of weak signals?
- What role should we assign to outsiders? To war gaming? To other scenarios?
- How can we integrate findings we derive from the periphery with other valuable sources of data, such as our analysis of competitors? With insights from our customers? With our studies of technological possibilities?

When it comes to acting on the signals, Day and Schoemaker suggested more questions:

- What resources are we devoting to the periphery? With what results? And what resources should we be devoting to the periphery instead?
- Who is accountable in our organization for taking action? Who should be accountable?
- When might it be better to watch and wait, rather than take action on signals from the periphery? When might it be better to position ourselves to learn from outside experts and partners?

## DATA SIGNALS AND BUSINESS INTELLIGENCE: A CASE STUDY

*Business intelligence* is the umbrella term for many overlapping and interdependent fields that are related to competitive strategies in business, including market research and industry analysis. Its primary functions are to assess and understand the specific environment surrounding particular business-gathering data and information applicable to the scope of investigation, and to monitor how information flows both inside and outside a company, as well as how it is perceived by the company's market and competition. More than anything, business intelligence attempts to detect "weak signals" in the environment and to construct a framework to accommodate any information relevant to the scope of a particular signal.

### Business as Usual

Until recently, most analysis dealt primarily with structured data—data garnered from sources such as databases and statistics. However, this is akin to gathering information from focus groups—it reveals very little about the true motivations of an individual or company, and prevents any kind of holistic communication. An organization hears only what it expects to hear. If it is only looking for and able to understand a limited sliver of its position in a market, and the information that generates this understanding is myopic, it is likely to discard the emergence of anything unanticipated or irregular.

When an organization filters this prefiltered and structured information through a framework it has constructed, it reinforces its existing context, gathering information that supports a predefined goal or idea. This process preserves order and equilibrium within a business, *promoting business as usual*, but at the same time makes the business impervious to any subtle disruption or change in the environment.

Discarding unstructured information can place a business at a distinct disadvantage. Subtle changes in how the business is perceived and received can go undetected until they accumulate into catastrophic change, and the business is rendered obsolete.

Yet it is information that is not accommodated by a structured framework that has the greatest potential to disrupt, inspire, or foster growth. Unstructured information—such as blog entries, user reviews and opinions, and community portals—has a spontaneous authenticity and highly subjective perspective, reflecting the beliefs, history, and cultural context

"The only way of discovering the limits of the possible is to venture a little way past them into the impossible."

—Arthur C. Clarke

of whoever is writing. The language is natural and conversational—more *human*—than that which is constrained by the expectations of business.

Discarding unstructured information can place a business at a distinct disadvantage. Subtle changes in how the business is perceived and received—what its users and stakeholders may actually think—can go undetected until they accumulate into catastrophic change, and the business is rendered obsolete. If a company has the capability to process both quantitative (structured) and qualitative (unstructured) information, it can construct a more accurate and holistic "presence" and gain a more complete sense of the landscape. Unstructured analysis allows an organization to expand its possibilities, discovering new meaning from previously inaccessible content and enriching its strategic knowledge base.

# Signals and Predictions

A common response to technological innovation is to predict where it might lead. This is usually done in a logical fashion, in what we have called common manifest behavior mode, and with the premise that every innovation is a solution to a problem. But as we have seen, forecasting in this mode is bound to fall short of seeing the big picture for the future.

In *Profiles of the Future*, Arthur C. Clarke wrote: "The real future is not logically foreseeable." Clarke made the case that the inventions of the modern world can be divided into two classes: the expected and the unexpected. The expected is a group of inventions that could have been foreseen by the thinkers of the past; inventions that were logical in their progression through material and technology invention—the automobile, airplane, submarine, telephone, teleportation, and robot, among others. The unexpected inventions, which would have made no sense to an Edison or Da Vinci, include X-rays, nuclear energy, sound recording, quantum mechanics, transistors, lasers, dating the past (carbon 14), and relativity. Clarke's book was written in 1962. Imagine the size of the unexpected list in 2006.

In the book, Clarke also stated his "Three Laws." The second of them calls for a perspective that emphasizes the importance of a temporary play space, in order to stretch the boundaries of what's possible: "The only way of discovering the limits of the possible is to venture a little way past them into the impossible."

## THE TELEVISION SIGNAL

When the electronic television was first demonstrated to the public by Philo Farnsworth in 1934, it was recognized as a technology that would fundamentally change communication, although perceptions of the extent

and depth of the signal varied from critic to critic. In a 2005 *New York Times* article called "Confounding Machines: How the Future Looked," Peter Edidin compiled some revealing reactions to the introduction of television, a technology that we now take for granted.

Some are expectedly short sighted, such as editor Rex Lambert's 1936 prediction in *The Listener:* "Television won't matter in your lifetime or mine." And a *New York Times* editorial a few years later made this confident, if dead wrong, analysis:

> "*The problem with television is that people must sit and keep their eyes glued to the screen; the average American family hasn't time for it. Therefore the showmen are convinced that for this reason, if no other, television will never be a serious competitor of [radio] broadcasting.*"

Yet some of the predictions show the astonishing capacity of some astute observers to unfold the signal of television in its full complexity and impact. Writer and social historian J. C. Furnas wrote in *The Next Hundred Years:*

> "*It is my hope, and I see no reason why it should not be realized, to be able to go to an ordinary movie theater when some great national event is taking place across the country and see on the screen the sharp image of the action reproduced—at the same instant it occurs. This waiting for the newsreels to come out is a bit tiresome for the 20th century. Some time later I hope to be able to take my inaugurals, prize fights and football games at home. I expect to do it satisfactorily and cheaply.*"

RCA Chairman David Sarnoff foreshadowed Marshall McLuhan's notion of the "global village" when he told a crowd of curious viewers at the 1939 opening of the RCA Pavilion at the World's Fair in New York:

> "*It is with a feeling of humbleness that I come to this moment of announcing the birth, in this country, of a new art so important in its implications that it is bound to affect all society. It is an art which shines like a torch of hope in the troubled world. It is a creative force which we must learn to utilize for the benefit of all mankind. This miracle of engineering skill which one day will bring the world to the home…will become an important factor in American economic life.*"

And finally, in *Here Is Television, Your Window on the World*, Thomas Hutchinson wrote in 1946:

> "*Television means the world is your home and in the homes of all the people of the world. It is the greatest means of communication ever developed by the mind of man. It should do more to develop friendly neighbors, and to bring understanding and peace on earth, than any other single material force in the world today.*"

Hutchinson missed one signal that Marshall McLuhan later articulated: the notion that every technology brings both service and disservice. TV images can also inflame hatreds. This was illustrated not too long ago when televised shots of the misconduct of American and British soldiers in Iraq served as fodder for increased insurgent attacks.

## MCLUHAN'S TOOL FOR EMERGING SIGNALS

In the *The Global Village: Transformations in World Life and Media in the 21st Century,* McLuhan and Bruce Powers proposed a new "right brain" creative model of communication. This model demonstrates the dynamic and synchronic nature of change, which is triggered by the creation of a new artifact, and the "all-at-oneness character" of that transformation—as illustrated by the positive and negative consequences of television's impact on mass culture. The authors contended that any new technology will emphasize some of our senses and functions while at the same time obsolescing others, even if temporarily. In this process, a person retrieves his or her latent behavior, namely the will *"to worship extensions of himself as a form of divinity."*

"McLuhan believed that all media forms are extensions of our senses, bodies, and psyches, in the way that a hammer is an extension of our hand and a book is an extension of our memory and ideas. As such, they intensify one thing in a culture while obsolescing something else."

In *Law of Media: the New Science,* McLuhan had created the concept of the "tetrad"—a tool that could predict what society might do with a new invention and whether it would accept or reject the artifact's future effects. In his view, our capability to focus awareness gives rise to the behavior of looking at the present twice: as an environment to be perfected and as a task to be studied, discussed, and analyzed in order to see clearly where it might lead. In this discussion, the present is subjected to a series of questions that result in experimental and alternative shapes of the future. The questions are:

1. What does any artifact enlarge or enhance?
2. What does it erode or obsolesce?
3. What does it retrieve that had been earlier obsolesced?
4. What does it reverse or flip into when pushed to the limits of its potential?

These questions are a reflection of McLuhan's belief that all media forms are extensions of our senses, bodies, and psyches, in the way that a hammer is an extension of our hand and a book is an extension of our memory and ideas. As such, they intensify one thing in a culture while obsolescing something else. They also retrieve a phase or factor long ago pushed aside and undergo a modification when extended beyond the limits of their potential, often times flipping into their opposite or complementary form. For example, the cell phone intensifies the capability of one person's voice reaching another's at any time, and in time will obsolesce location-bound telephones and landlines. At the same time, the cell phone reverses our freedom from location by shackling us with perpetual accessibility, and it retrieves the fundamental desire of "Can you hear me?"

McLuhan wrote:

> "*The tetrad, taken as a whole, is a manifestation of human thinking processes. As an exploratory probe, tetrads do not rest on a theory but a set of questions; they rely on empirical observation and are thus testable. When applied to new technologies or artifacts, they afford the user predictive power; in this sense as well, they may be viewed as a scientific instrument. Once again, insofar as the tetrads are a means of focusing awareness of hidden or unobserved qualities in our culture and its technologies, they act phenomenologically.*"

McLuhan's tetrad acts as a lens through which to analyze the deeper meaning and impact of a signal—foreseeing what it may mean in the future by recognizing its past and present implications.

## Disruptions as Signals

Clayton Christensen first introduced the term *disruptive innovation* in the book *The Innovator's Dilemma* in 1997. The *disruptive* aspect of the innovation comes not from its superior quality or performance, but from its ability to offer the same benefit in a different way. Snowboarding. The iPod. The compact disc. The personal computer. Every disruptive innovation is a new variable in the problem space of market leaders, a variable that requires a full behavior mode of inquiry.

**DISRUPTIVE INNOVATION:**

any innovation in products or services entering a field in which a dominant technology already exists.

Christensen recognizes two types of disruption: A "low end" disruption is marketed to users who do not require high performance; who will be satisfied by any new technology that improves upon the products or services offered by the market leaders. A "new market" disruption is targeted at users not previously served by the market leader. In both cases, the disruption is welcomed by users. While disruptions are in plain sight, however, they tend to be ignored by market leaders, as their initial markets are seen as small and of little economic significance to the larger market scope of the leader, according to Christensen.

Some recent disruptions? Think 1995 and Yahoo, Netscape, and Amazon. Think 1998 and Google. Think 1999 and Napster. Think 2001 and the iPod.

"The World Wide Web had one of the highest rates of acceptance of any technology while solving a problem no one thought they had."

Or think Tuesday, August 6, 1991, the date that Tim Berners-Lee e-mailed this "short summary of the World Wide Web project" to "Groups: alt.hypertext":

> "*The WWW project merges the techniques of information retrieval and hypertext to make an easy but powerful global information system. The project started with the philosophy that much academic information should be freely available to anyone. It aims to allow information sharing within internationally dispersed teams, and the dissemination of information by support groups.*"
>
> "*The WWW world consists of documents, and links. Indexes are special documents which, rather than being read, may be searched. The result of such a search is another ("virtual") document containing links to the documents found. A simple protocol ("HTTP") is used to allow a browser program to request a keyword search by a remote information server."*

For the market leaders of the time, the key question was pretty simple: What is the problem for which the World Wide Web is a solution? Failing to identify a problem that had a wide market need for a tactical solution, however, they lived for a few years with the illusion that nothing much would change. After all, there was no money in the WWW and no users identified outside the group of hypertext enthusiasts. The old value chain did not fit this "new thing" because there was no need for it.

But what if they had asked: What is the question for which the WWW is the answer?

What would they have discovered? The hunger to play? Maybe. The hunger to explore and learn and continue asking questions? Clearly. The hunger to communicate one's ideas, articles, artistic creations, and experiences. The hunger to reach out to others of a like mind or with similar interests. The hunger for community and fellowship. The hunger to collaborate globally without geographic barriers.

*All of these*, because the Web is the ultimate sandbox. It became a social phenomenon because it brought out our latent behavior of nosiness, curiosity, and continual search for new things to explore. Our instinct for play was now made possible by a new technology with the capability to create the experience most conducive to emerge our latent behavior.

The World Wide Web had one of the highest rates of acceptance of any technology while solving a problem no one thought they had.

## No Weak Signals

A weak signal is only weak from an unimaginative perspective. This is an example of the imagination gap. It is our ability to perceive that is weak, even if the signal is strong. From the right point of view, the signal is always strong.

In order to predict change, we must be able to anticipate the path of change. The reference frame from which we observe a signal determines how strongly we perceive the signal. It is through imagination that this perspective can be changed.

The Impressionist style of painting was technically possible thousands of years ago. It was not an innovation in painting techniques that made this art possible; it was a shift in the perception of the cultural moment that revealed the opportunity to use them. The earth had been round for billions of years when Pythagoras (or at least one of his followers) proposed that since the sun was a sphere and the moon was a sphere, the earth might also be a sphere. This extrapolation from observation to a hypothetical paradigm required the ability to deny the obvious interpretation of the empirical evidence and use imagination to allow for new deductive parameters.

So innovation potential is a two-part process limited by people's *sense of the possible* within the actual *realm of the possible*. It is not technology that allows a new possibility; it is our readiness to receive it. Was the potential for Google, blogging, and eBay predictable when the first computers were networked? Was TiVo or YouTube predictable with the first

television transmission? Of course, had the *motivating benefit* of the network and TV been recognized.

For example, the motivating benefit of networking computers was to achieve an efficient method of sharing the information that people wanted to share. The essential question required to bridge the imagination gap might have been: If every person or business was networking any data, what information would they want to share? Introduced at the International Council for Computer Communication (ICCC) in 1972, electronic mail was the first obvious signal that the networking of all computers would have widespread immediate benefit.

The complex interplay between social, economic, and political ecosystems makes the notion of exactly predicting the future absurd. But applying behavior-centered questions to a weak signal reveals its possibility. For example, the behavior observation that people want to buy and sell merchandise could have revealed the opportunity for creating a virtual auction. This question does not rely on knowing when the requisite technology will be available; it relies purely on an observed recognition of the direction that the technology development is taking. This observation yields the opportunity to ask, *"If this technology happens, then what will people want to do with it?"*

"A weak signal is only weak from an unimaginative perspective. It is our ability to perceive that is weak, even if the signal is strong. From the right point of view, the signal is always strong."