

# Are There Content Models for the Wireless World?

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Wireless is an exciting, hot topic. Wireless is old news.

Both statements are accurate. Wireless is indeed an exciting topic, for users as well as for providers. First cordless telephones liberated us from sitting by a desk or standing in the kitchen to speak on the telephone. Then cellular telephones freed us to speak and receive calls from almost anywhere. Hundreds of millions of subscribers signed up in the last decade. Newer technologies, under the labels 3G and Wi-Fi are delivering the same untethering of data as the previous technologies provided for voice.

My assignment here was not technology, but *content models*. That is short hand for asking, "How can content providers make money delivering their wares via a wireless process that goes beyond their known business models?" This is where wireless is old news. Radio and television have been delivered via a wireless format for decades. Nearly a century for radio. The business models for these processes are well known: some advertiser supported, some government supported, some in the form of direct user funding. So we indeed know the parameters of several content models for wireless.

Nonetheless, that would be the cheap way out of this assignment. I know that behind the overt question posed to me for this paper were more complex ones: "How will the wireless telecom providers and the providers of content take advantage of the mobility afforded by the new wireless networks to generate greater revenue?" "How will the revenue generated be split between service and content providers?" Or "Assuming the technologies and economics come together sometime soon -- and they will -- what opportunities does wireless hold for those with content to sell?"

If history can be helpful, the lessons drawn from the first wireless services should be instructive. It was not obvious to the early radio broadcasters what the successful models for the radio business would be. Broadcasters in the 1920s in the U.S. tried asking listeners to subscribe or send in payments on a voluntary basis. Westinghouse, which had a stake in the equipment business, supported its own station, as did AT&T. Only gradually did the advertiser supported model gain adherents. And that model was so-called sustaining programming. That is, the sponsor owned and created the program. In the U.S. this model carried over into the early days of television. Gradually the model evolved into networks and unaffiliated production companies creating the programming, with advertisers generally buying individual commercial slots rather than sponsorship.

The major alternative model for the form of wireless we call broadcasting was the public service model. In this case, taxpayers, directly or indirectly, funded the content. In Great Britain, a license fee on television households effectively created a user-supported system. In the U.S., a public service network was partially taxpayer supported, with the balance provided by voluntary viewer contributions and corporate “underwriting” of specific programs.

All this is to illustrate to two points about wireless models (and print as well): First, business models do not necessarily spring up mature and full blown. They often evolve. Various models may hold promise but give way to others that better fit a culture, an economy, or the usage patterns of consumers. Second, there may be no single model that works. Rather, there may be several models that may be adapted simultaneously. At least these are the lessons of the development of the previous generation of wireless content provision.

There are, then, models we know about and will work for some providers, some of the time. There are other models subject to speculation which may or may not work: we would only learn if someone tried them. Indeed, the so-called “dot com” bubble was a wonderful era of experimentation. Private investors risked their capital with the hope -- in retrospect perhaps blind hope -- that they would be part of a successful business model. Some were, in fact, successful: eBay found a business as the intermediary for auctions, taking a small percentage of each sale. PayPal grew in response to the success of eBay, providing a payment mechanism for individual and small merchants. *The Wall Street Journal* found that their brand name and the type of content they provided could attract paying customers and advertisers interested in reaching a to a large, online *paying* audience.

Many others, of course, learned that neither advertisers nor consumers were willing to pay enough to cover their costs of gathering, creating and publishing their content online. Still others found online a useful adjunct to their business, either for promotion or direct sales. Some sellers, Amazon the most visible, created direct sales organization totally based on access of consumers on the Internet.

Out of this still ongoing experimentation with business models we have learned that in the Internet world there is not even a handful of models that can be applied as a template. Nor does a model that works for one provider, e.g., *The Wall Street Journal*, necessary work well for any, e.g., *Slate*. Thus, it should not come as a surprise that models for what may work for content in a wireless world will be no more or less definitive and predictable.

For example, the i-Mode platform of Japan’s DoCoMo wireless system is widely considered the one successful mass audience wireless system with a substantial content provider component. In 2002 there were more than 33 million i-Mode subscribers, two-fifths of whom had Java-enabled hand sets. There does seem to be a content market in Japan. However, in the Netherlands, where wireless carrier KPN has rolled out the i-mode service, the majority of wireless customers use prepaid plans. I-mode depends on

subscriptions with monthly billing. In that case KPN will need to overcome two high hurdles: convincing its users that it needs a content service and that they should abandoned their prepaid plans.

### **The Tyranny of the Unk-Unks**

It is difficult enough trying to settle on a business model when technologies are developing and morphing rapidly. There are countless uncertainties which need to be factored in to plans and contingencies. These are the simple unknowns. In these cases at least planners can anticipate and articulate what is unknown (e.g., “What happens to our model if reliable data compression jumps from the current x to z instead of y within five years?”) But what is far scarier for potential players are the ”unk-unks,” the unknown unknowns: those uncertainties that they didn’t even know to consider in their evaluations.

Perhaps one of the most extreme examples of the role of unk-unks is what happened to the U.S. automotive industry in the 1970s. At the time the Big 3 auto makers had a well established model for building and pricing cars. What was not in their models was the effect that massive political instability in the Middle East would have on oil prices. When the price of a gallon of gasoline was \$.30, they viewed 10 or 12 miles per gallon a non issue. When the price of oil doubled in a short time, the Detroit automakers were stuck with low mileage cars while the nascent Japanese imports got 50% better mileage. It took a decade or more until the U.S. makers could fully respond throughout their car lines, by which time their Japanese rivals made inroads that have never been reversed.

What are the unk-unks in wireless? Of course, by definition if they could be identified they would not be unk-unks. One example of a now-known surprise for a sector of the wireless industry is the blossoming of the 802.11 devices. There was nothing secret about the development of this protocol. But I have no doubt that the engineers and strategists at the wireless telephone enterprises did not give it two seconds thought when developing their business models and financial plans for 3G spectrum. However, almost coincident with the 3G auctions around the world some entrepreneurs, experimenters, and free spirits were finding that they could provide many of the same data services that the telecom providers were hoping to sell using 3G. And with far less investment. Seemingly out of nowhere –the very insidious commonality of unk-unks – various “Freenets” and *ad hoc* networks of 802.11 systems rose to compete with the still developing 3G business model.

At this point it is not a certainty that 802.11 networks will in fact substantially compete with plans for 3G services. But at the least it is the kind of “surprise” that can undo or undermine plans and strategies despite models that include contingency options for the simple unknowns.

Another source of unk-unks is unexpected government regulation. Usually the direction of regulation is predictable within some range of responses. But not always. For example, the accounting profession in the United States faced unanticipated scrutiny in

2002 in after a series of headline events involving the financial statements of, among others, Enron, Worldcom and Qwest created such a political uproar that politicians were tripping over each other to introduce stern new laws and regulations.

A bit less dramatic was an event in 2001 that surprised several wireless providers in the U.S. The Federal Communications Commission re-auctioned some spectrum after the original bidder had defaulted on its payments for the original licenses. The winning bidders were making plans to use their sorely needed new spectrum when, to the surprise of many, a court ruled that the FCC had no authority to take the spectrum from the original bidder because it was in the midst of bankruptcy proceedings. While the FCC as well as the planners for the wireless providers knew that such a suit and finding were a possibility – and thus not a true unk-unk – they seem to have given it low probability and were blindsided by the court's finding.

Of course, one of the biggest unk-unks that hit almost everyone was the Internet itself. The Internet hit the popular conscious in 1994. That was when Netscape introduced the first widely available version of the graphical browser that turned the World Wide Web into a mass audience medium. There was a small community of academics and military contractors who had used the Internet since its inception in 1968. Yet in the wider world, there was virtually no recognition of the Internet as an alternative or a rival to the numerous attempts at developing a consumer online service. These began in the later 1970s with the British Post Office's Prestel. In the U.S, AT&T and the Knight Ridder newspaper group tried a system called Viewtron. The French government-owned telephone provider launched Minitel, a massive proprietary system. Back in the U.S., some character-based on-line services, such as the Source and CompuServe started in the 1980s. Prodigy and America Online began slugging it out for the graphics-intensive services in the early 1990s. As late as 1994, both AT&T, with its Interchange services, and Microsoft, with its launch of Microsoft Network, were still thinking "proprietary network." All offered e-mail, but only for others subscribing to the same service. All of the smart people designing, funding and marketing these services missed the potential of the Internet under their noses. (Or they didn't want to see it because they couldn't control it the way they could a successful proprietary system).

Thus, business models can be undone not only by the many uncertainties that are known about the opportunities presented by a developing communications technology, but may be undermined by the uncertainties they didn't even know they had to have on the radar screen.

### **The Media Model: Content, Process and Format**

While I can't tell you what the models will be, I can give you some tools. To aid in conceptualizing the intersection of wireless technology and content it is useful to utilize an analytical model first presented in 1979, introducing a framework of *content*, *process* and *format*.

*Content.* These are a multitude of ways in which we can express information content. Content may be data, knowledge, news, intelligence, or any number of other colloquial and specialized denotations and connotations that can be lumped under the general rubric of "information." Content is what fills up the papers in books, is captured on film, is sent bovver radio waves.

*Process.* This is the application of instruments, such as typewriters, computers, printing presses, the human brain, telephone wires, or delivery trucks to the creation, manipulation, storage and transmission/distribution of content in some intermediate or final format. For example, a traditional newspaper relies on processes including entering thoughts of a reporter into a computer by manipulating a keyboard of a video display terminal with storage in the computer, and the eventual creation of a printing plate and distribution to consumers via trucks. Wireless is a another process – one option to getting bits or sine waves from point A to point B.

"Print" or "audio" are essentially examples of formats in which some content can be displayed or otherwise manipulated by users. Words can come as speech or as squiggles. And those squiggles can be gouges carved in rock, toe marks in the sand, ink deposited paper, or glowing phosphors on a screen.

The value of this framework is that it helps separate technologies from content and appliances from transport. "Television" is a good example. In its early years that term was used to refer to an appliance (the television set) to an industry and to the medium that we came to know as images on a cathode ray tube integrated with sound from a speaker. When the only process for getting the content to the appliance was terrestrial broadcasting, then there was no real problem in using the term television to this entire chain: content (producer)-to broadcaster (process)-to video appliance (format).

In 2002 – and long before – television is no longer a very accurate descriptor. The processes we use to watch and listen to the video box may involve terrestrial analog broadcasting or digital broadcasting. It may be delivered by a coaxial or fiber optic cable. It may be transmitted over microwave frequencies or by satellite. We can watch "television" from a DVD disk or videocassette. Or the process may involve a TCP/IP stream brought by what would have once been considered a simple telephone line. Thus, while content may not be all that different from 20 years ago and the appliance may still be called a television set, the processes have multiplied, with implications for regulators, content providers as well as users.

One critical question which needs to be examined in determining content models for wireless is the value added by content to the newer wireless processes. If it remains speculative to declare what are workable models for wireless content providers, there are ways of strategically thinking about what might work. The top level guidepost is this:

*How does mobility add value to content?*

While wireless network operators may be seeking new revenue streams by selling content, and content providers may hope for new markets by being able to sell to users on the move, there is also reason to ask when or whether third-party produced content will be a driver of wireless services. It has not up to now.

There is no great epiphany in observing that mobility is very different than being tethered. Radios in automobiles, carried to the beach, taken on jogs greatly changed how people used radio compared to the early days when the family gathered around the radio receiver in the living room to listen to specific show, in much the same way television is still used today.

Perhaps one of the toughest realities for publishers and other content providers to admit is that, so far, wireless devices have proliferated on what is essentially user-created content: primarily what we have to say to each other. Japan's NTT DoCoMo's M-stage services let Japanese consumers receive content audio and video formats on their mobile phones. In its first year it signed up barely 100,000 users. Contrast this to its launch of its person-to-person short message service i-Mode mobile Internet services three years ago, which needed only six months to sign up 1 million users.

In fact, it's somewhat paradoxical that the telecommunication industry is looking to generating revenue from content as a way of paying for the data-intensive infrastructure it is rolling out. In Europe consumers spent about €101 billion in 1999 on non-content communications, primarily fixed and mobile telephony. This compares to €89 on all forms of content – publications, video, music. Moreover spending on communications services has been growing 12 times faster than on media, so the gap by 2002 is even greater.

This observation may suggest why the *media* industry could be desperate for a silver bullet to boost its modest fortunes. But it does not provide much encouragement that consumers are ready to spend big dollars to get content via wireless that they can now get through other, more traditional means.

There are, to be sure, opportunities for providers of content. But given the poor track record of selling content services over the Internet it may well be that the content will come from unexpected and nontraditional sources besides the vast pool of user-generated content. For example, many airlines with long distance flights these days are providing passengers with video screens of real time information on the position of the plane: distance from the start, to the destination, altitude, airspeed. Auto manufacturers have been looking at adding GPS and other “telematics” to their cars. These are example of wireless content, though they are not provided by traditional types of content providers.

Thus, wireless content may be provided by traditional content providers, such as publishers and producers, but may come from many other sources as well: real time data on position, *ad hoc* results from a data base search, talk and text, photos or video created and sent peer to peer.

Besides the many different forms of content, determining successful models is most certainly a function of local cultures as well. I have already noted that wireless itself comes in many flavors, each with its own technology and regulatory baggage: microwave, 3G, 802.11x, AM, FM, UHF, VHF to name only a few by their popular labels.

Moreover, there are many variables that make comparisons and expectations different from region to region. For example, VCR adoption in the 1980s was faster in Western Europe than in the U.S. While there may have been multiple explanations, one is that viewers in the U.S. already had more choices of programming – and a more consumer-driven television system – than most of Europe. There, most television was still controlled by government broadcast authorities and programming was often driven by public service rather than market place concerns. Often there were only two channels, versus four national networks and in larger cities additional local stations. Furthermore, by the mid-1980s much of the U.S. had already been wired for cable, with 12 or 20 additional viewing options, including premium movie channels. Thus, VCRs, which gave most Europeans their first opportunity to go out and rent the programming they preferred, was more broadly appealing than in the U.S., where more viewers had more options without rentals..

Similarly, cellular telephone penetration in Europe has continued to outpace North America. The reasons may again be seen in the different conditions:

- Telephone pricing in Europe has traditionally been measured by the call and/or minute. In the U.S., most local residential service was flat rate. Cellular service is a measured service – no big leap for European customs but more foreign to the residential American tradition.
- European residential phone rates have also tended to be higher than a typical U.S. rates. Thus the relatively high monthly cost of cell service was not as great a differential from what Europeans were already paying.
- European nations agreed to a common technical standard for their second generation digital services, allowing connectivity across borders. U.S. cellular providers went their own ways, with a least three different incompatible systems. With service being more seamless in Europe, Japan and almost everywhere else cellular was available, the value of cellular to customers was more obvious.

All this is again to underline how difficult it is to extrapolate from here or there on what the model or models should be.

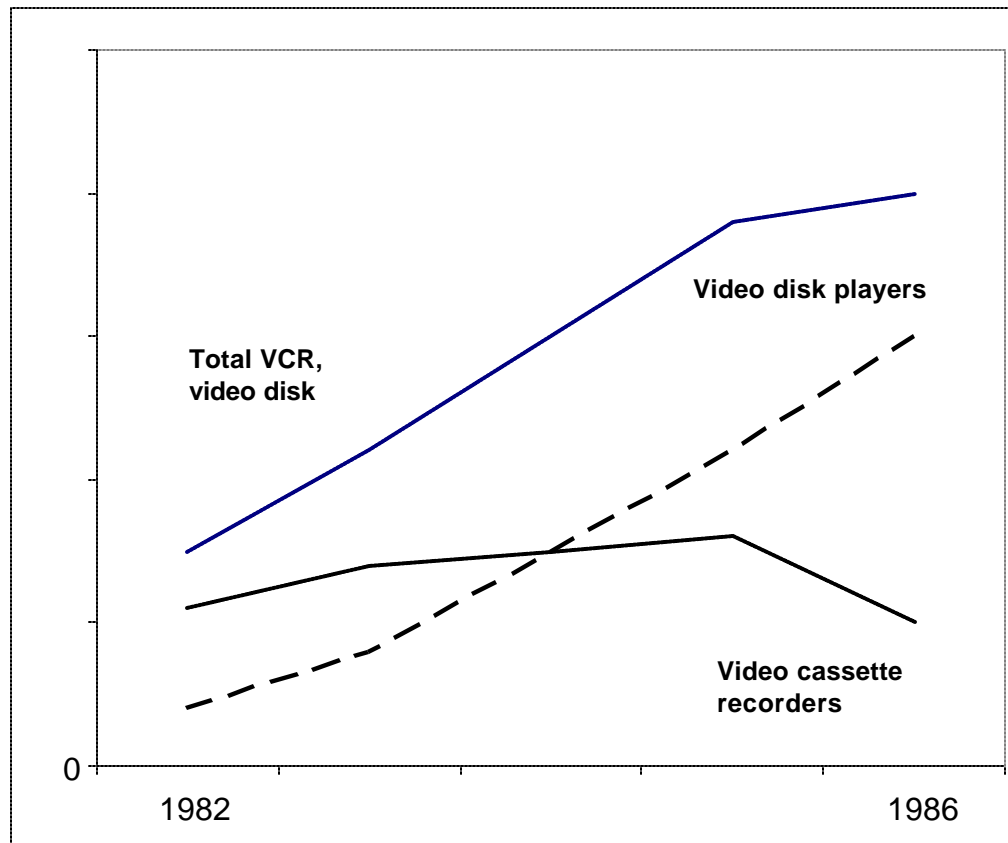
### **Predicting is a Hazardous Occupation...Especially When it Deal with the Future**

There is a wonderful book, *Megamistakes*, by Steven Schnaars. It chronicles many famous modern projections and predictions and how they went wrong. It's useful to relive projections made by seemingly well-informed and authoritative sources:

- There is IBM's early 1950s estimate that the worldwide market for digital computers would be about 15.
- RCA's 1966 estimate of 220,000 computers in the world by 2000.
- At the other extreme, AT&T frequently botched its analysis of the Picturephone market, forecasting 10 million in use by 1980.

And if the nature of the projection is meant to help with a business decision, the devil could be in the details. There is the case of a market analysis company called Predicasts, which in about 1981 did a study of the market for home video playback appliances. In particular they looked at the young videocassette and the nascent video disk segments, projecting the number of units likely to be sold annually for the ensuing five years. As I recall, their summary projection looked something like Figure 1. The top line is the total number of units to be sold each year (this is just representative here, not the original chart or its numbers). Looking back, the total number of video playing devices sold in 1986 was almost precisely what was projected in 1981. But Predicasts' analysis was that the dotted line, which represented video disk players, would outpace the lower solid line, representing video cassette recorders. In fact, video disk players turned out to be almost invisible through the 1980s, while VCRs became ubiquitous. Any manufacturer that made their plans based on the Predicasts model, or any programmer who struck deals for video disk licenses at the expense of the cassette format, would have missed a important market. So even when a prediction is right in the aggregate, it may be a disaster underneath.

**Figure 1: Generalization of Predicasts Projection for Home Video Devices, c. 1981**



Indeed, closer to our time, there are lessons to be learned about predictions of workable models from the Internet, particularly the dot com bubble. The end of the 1990s was a period of the explosive growth of the Internet. It was a tremendously useful and productive, through short era. The initial dot com bubble was right out of Mao: let a 1000 flowers bloom.

Although much attention has been focused on the bust side of the era, quite a few of the 1000 – or 10,000 – sites found successful formulas. None, however, were automatically able to be duplicated. As noted previously, eBay showed that there could be a model based on owning nothing and selling nothing, but taking a small piece of the transaction. PayPal thrived by finding a way to service the huge population using eBay. The Wall Street Journal Online provided evidence some hundreds of thousands of consumers would pay a significant sum for content – even content that they got as part of the newspaper many were already paying for.

Then there is Amazon, which found that there was a market for selling branded goods without having a physical retail presence anywhere. Travelocity, Expedia, Orbitz, and Priceline all found that consumers could do for themselves what they had been depending on travel agents to do for them – and save airline, hotels, and car rental agencies money in the process. And brokers learned that many investors would be quite happy to place their own trades – and many more of them -- if they saved 90% of what it cost them to do the trade by speaking to a live order taker.

Some of these models may have been predictable. Booking for travel has been part of the mantra of expected online services since the days of videotext in the early 1980s. To the surprise of many prognosticators, on the other hand, the apparent success of *The Wall Street Journal* as a subscription model stands almost alone among mass audience news and information services. The advance predictors had expected that consumers would be far more forthcoming in providing a revenue stream for news than has proven to be the case. Also both predictable and subsequently profitable have been the many sites offering content featuring overt sex. Porn was also an early driver of videocassette rental. Unseemly to some, but nonetheless a model that has proven robust across every format.

On the other hand I do not recall any predictions of an eBay-like service. Although some initial models suggested that transaction-based income could be attractive, it was generally described in a context of payment services or consignments, not a matching service.

Another observation from the Internet as a lesson for wireless or other more nascent processes is that many of the breakthroughs were not initiated by the established players. Expedia, the first of the booking services, was created by Microsoft – not an airline or travel industry player. Priceline was also the creation of a nonindustry player. EBay was not invented by Christie's auction house. The major online classified ad sites, Monster.com and Hotjobs.com, did not emanate from either the newspaper business nor the executive search industry.

There is actually something of a pattern in this. Entrenched incumbents tend to fear that new processes will undermine their existing businesses and either ignore, try to bury, or circle the wagons when technologies open the door to a new type of process or format that threatens their content franchise. Newspapers, for example, were largely protected from new competitors in their markets due to the high start-up costs and reluctance of merchants to spread their advertising budgets over multiple newspapers. The Internet undermined that, especially when the most profitable revenue stream of the publishers – classified advertising – could be cherry-picked – while bypassing the cost of producing the editorial content that surrounded it in the print newspaper.

Similarly, it was a cable company, owned by publisher Time Inc., not a movie studio, that created Home Box Office to broaden the appeal of subscribing to cable. It was an aerospace electronics company, Hughes Electronics, not a broadcaster or cable company, that launched the first consumer DBS service. Today, we see that the 802.11 phenomenon was not initiated by a telecoms player but by individuals at the grassroots level, egged on by some “anti-big guy” rebels and abetted by the manufacturers like Linksys, which make the wireless routers and receivers that broaden their markets beyond the traditional wired local area network market of enterprises.

### **Is Content King?**

We might expect that, in a time of proliferating processes for moving bits that content providers should be the king of the mountain. There's great logic there: whether by a roll of celluloid or bits on a DVD, a theatrical "film" can be sold to an audience sitting in a movie theater or in their family room. A newspaper publisher houses a vast database of content, much of it updated hourly: report on a fire here, on a city council vote there. Sell it as ink smeared on paper or as bits transferred to a screen on my desk or a screen on my PDA – whatever works.

And yet it is not so simple. No newspaper ever went out of business for its lack of content. No Web site ever died for its inability to fill screens. Nor, as discussed previously, does content necessarily mean packaged by someone else, Telephone conversations, VCR time shift (content someone wanted, but not now), fax, Internet instant messaging and e-mail are all example of content that is user created.

On other hand, not all content is created equal. The movie "Spider Man" grossed \$114 million in the U.S. its first week in release. The second place film only brought in \$10 million. So content is important, not necessarily determinant. Good content, unique content, and the right combination of content with process and format are all factors that create value. "Spider Man" offered by a high speed wireless connection to the screen of a PDA might be worth less to most users than "Spider Man" on a large screen with stereo sound. On the other hand, the value of a stock price on that same PDA to a trader stuck in traffic may be worth the cost of a service that is several times the price of a movie ticket.

This gets back to my earlier question: *How does mobility add value to content?*

Millions of consumers worldwide are paying more per month for a wireless telephone service than they pay for wired telephone service. The content of both is virtually the same: chats with friends and parents, a child checking in, setting up a business meeting. It is the capability of doing that from the parking lot of the shopping mall, the traffic tie-up on the freeway, the park or the airport that adds value to the content. Traditional providers of content –the kind that someone might be expected to pay for -- will have to learn how their content becomes worth something to someone on the move.

One recommendation in that direction is what Forrester Research calls "conversational content." This is a label for the observation that user-generated content has been the driving force of wireless and much of the Internet. Drawing from the reality that customers have shown a greater willingness to pay for communication than for third party content, the generalized model for wireless is to seek opportunities for providing low value content with high value mobile communication.

In Japan, DoCoMo's struggling M-stage services only offer broadcasted content that must compete with richer alternatives like TV, radio, and CDs. It does not enable any type of peer-to-peer communication at all. On the other hand, 4.4 million consumers use J-PHONE's sha-mail service, which allows them to take pictures with their mobile phones and send them to friends, family, colleagues, or customers -- enabling them to communicate through content they create themselves.

Clearly there are wireless models for content providers that work today. The notion of conversational content is as close to a formula that has been offered. It is consistent with recent history of the Internet and communications services. And other than niche services such as financial data, the near term models for content are likely to fall into this realm.

I feel safe in making the rather safe prediction that there is a wonderful future for wireless. I know we will all effortlessly use wireless devices to do things we now rely on wired, paper or other mechanical means to do. And that there are goods and services that don't exist that ubiquitous wireless connectivity will make possible. Key is to stay focused on the question: How does mobility add value to content?

For those looking for more profound insights, I can't help there. It is rare for social or economic change overnight. And even then the outcome of the application of technologies are even more unfathomable than the models. Libraries were created before printing so that the few books could be collected in a centralized place. Yet as steam driven presses helped lower the cost of books and as more people bought books for their personal collections, central libraries continued to grow. Television was expected to have a profound impact on the education process, enabling distance education. It has not happened, even as more students are coming from greater distances to attend traditional universities.

Finally, as we live day by day through the change brought on by technology, we often may not be aware of what *is* different. Change is incremental, but may look awesome if we take a historical perspective. Much of what we take for granted today was talk in 1950s, in the labs in 1960 and 70s, expensive, early innovator stuff in 1980s. Last year I dropped my daughter at the airport for a flight to visit her grandparents. My daughter, now 12, called me from a plane. "What's wrong?" I asked. "Nothing, just wanted to tell you we got off ok." The voice on the call was clear as if from a wired phone next door. Thinking of the marvel of my technology-challenged wife placing this call from her seat on a plane at 30,000 feet and 500 mph I replied, "Isn't this amazing?" "What is?" my daughter asked.

She had never flown on a plane without a telephone.