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## Are There Content Models for the Wireless World?

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### 1 Introduction

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, send, and receive calls from almost anywhere. Hundreds of millions of subscribers signed up in the last decade. Newer technologies, under the labels 3G and WiFi, are delivering the same untethering of data as the previous technologies provided for voice.

My focus here is not technology, but *content models*. This is another name for a business model that reflects the revenue created by content in the value chain. This is different than models dealing with the equipment or the sales of wireless network services themselves (e.g., monthly cellular subscription fees). The question is therefore: “How can content providers make money delivering their wares via a wireless process that goes beyond their known business models?”

The old news is that radio and television have been delivered via a wireless format for decades. The business models for these processes are well known: some advertiser, 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 easy way out of this. This chapter will go beyond the traditional wireless models of broadcast to consider 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?”

In short, “How can mobility add value to content?”

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. Some broadcasters in the 1920s in the U.S. tried asking listeners to subscribe or send in payments on a voluntary basis.<sup>1</sup> 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 often 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 or listeners, directly or indirectly, funded the content. In Great Britain, a license fee on radio and television sets effectively created a user-supported system. In the U.S., a public service TV network was partly taxpayer supported, with the balance provided by voluntary viewer contributions and corporate “underwriting” of specific programs.

All this is to illustrate 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, a regulatory structure, or the usage patterns of consumers. Second, there may be no single model that always works. Rather, several models may be adopted simultaneously.

There are, then, models we know about that 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 as well as advertisers interested in reaching them.<sup>2</sup>

Many others, however, 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 a direct sales organization entirely 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 are few models that are proven templates. A model that works for one provider, e.g., *The Wall Street Journal*, does not necessarily work well for another, e.g., *Slate*. Thus, it should not come as a surprise that models for what may work for content in a mobile wireless world will not be definitive and predictable.

For example, the i-Mode platform of Japan's DoCoMo wireless system is widely considered to be the only 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 handsets (Anonymous, 2002, p. 23). A content market seems to exist in Japan. However, in the Netherlands, where the wireless carrier KPN has rolled out an i-mode service, the majority of wireless customers use prepaid plans for their wireless service. I-mode depends on subscriptions with monthly billing. Therefore, KPN must overcome two high hurdles: convincing user potential that they need a content service, and that they should abandon their prepaid plans.

## 2 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 into plans and contingencies. But these are the simple unknowns. In these cases planners can at least 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 (Compaine & McLaughlin, 1987).

What are the unk-unks in wireless? By definition if they could be identified they would not be unk-unks. A now-known surprise for the wireless industry was the blossoming of the 802.11 devices (Sandvig, 2004). 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 a second's thought when developing their 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 planned 3G services. But at the least it is the kind of surprise that can undo or undermine plans and strategies.

Another source of unk-unks is unexpected government regulation. For example, the accounting profession in the United States faced unanticipated scrutiny after 2002 when a series of headline events involving the financial statements of, among others, Enron, Worldcom, and Qwest. They created such an uproar that politicians were tripping over each other to introduce stern new laws and regulations.

Of course, perhaps the biggest unk-unks was the Internet. 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 text-based on-line services, such as the Source and CompuServe started in the 1980s. Prodigy and America Online began slugging it out for a 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 in terms of a proprietary network (Compaine & Gomery, 2000, p. 438). 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 which was right under their noses.

Thus, business models can be undone not only by the many known uncertainties by a developing communications technology, but may also be undone by the unexpected uncertainties that were not even on the radar screen.

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

While one cannot predict the models, one can provide some tools for analysis. 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* (Compaine, 1984).

*Content.* There 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 over 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 another process—one option to getting bits or sine waves from point A to point B.

*Format.* “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 on 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).

Today, 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, and 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 wire-

less 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 until now.

There is no great epiphany in observing that mobility is very different from being tethered. Radios in automobiles, or carried to the beach, or 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 shows, in much the same way television is still used today.

Up to now wireless devices have proliferated on essentially user-created content: primarily what we have to say to each other. In the forefront of testing content value-added, 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 previously, which needed only six months to sign up 1 million users (de Lussanet et al., 2002, p. 5).

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 such as real time securities prices, talk and text, photos or video created and sent peer to peer.

Besides the many different forms of content, determining successful models is 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, and VHF to name only a few.

## 4 Predicting is a Hazardous Occupation ... Especially When It Deals with the Future

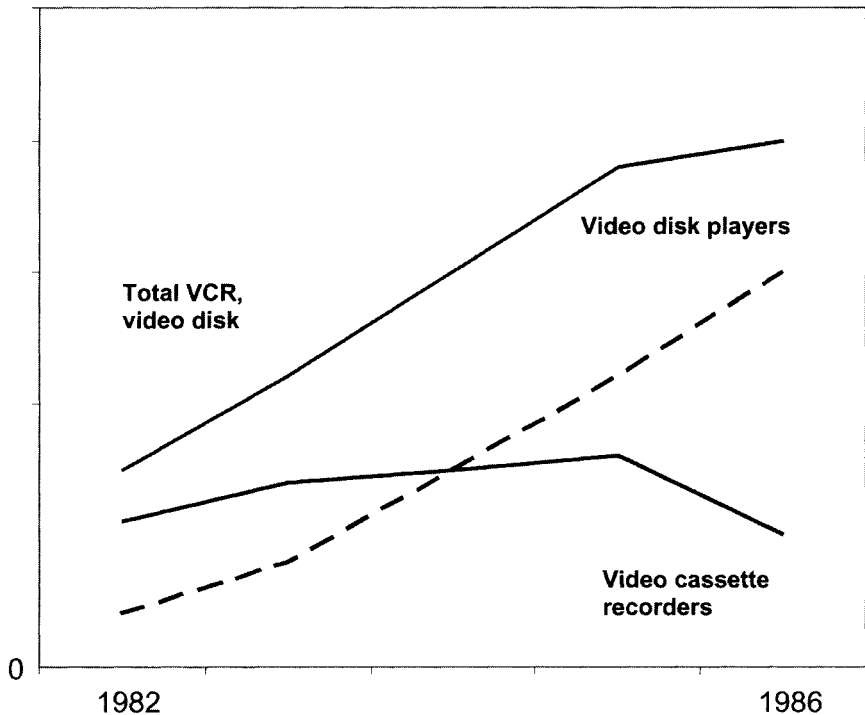
There is a wonderful book called *Megamistakes*. It chronicles many famous modern projections and predictions and how they went wrong (Schnaars, 1989). It is useful to relive projections made by seemingly well-informed and authoritative sources:

- 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 predicted the Picturephone market to have over 10 million users 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 an important market. So even when a prediction is right in the aggregate, it may be a disaster underneath.

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, though 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 find-



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

ing a way to serve 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 video-text 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 mod-



el 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 a creation of Christie's auction house. The major online classified ad sites, Monster.com, and Hot-jobs.com, did not emanate from either the newspaper business nor the executive search industry.

There is 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.

## 5 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 is 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

smear 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 examples of content that is user created.

On one hand, not all content is created equal. The movie “Spider Man” grossed \$114 million in the U.S. its first week of release. The second placed film only brought in \$10 million. While content is important, it is not necessarily determinative of success. 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 questions: *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 a 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” (de Lussanet et al., 2002, p. 7). 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 broadcast 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 (de Lussanet et al., 2002, p. 7).

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 the 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.

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 1970s, expensive, early innovator stuff in 1980s. A few years ago I dropped my daughter at the airport for a flight to visit her grandparents. My daughter, then 11, 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.

## Endnotes

- <sup>1</sup> For history of radio broadcasting in the U.S. see Christopher H. Sterling & John Michael Kittross, *Stay Tuned* (Lawrence Erlbaum Associates: Mahwah, NJ, 2002).
- <sup>2</sup> Dow Jones reported that The Wall Street Journal Online had 646,000 paying subscribers in October, 2002. See “*The Wall Street Journal Online Wins Two Top Honors in 2002 WebArward Competition*,” Business Wire at <http://www.businesswire.com/webbox/bw.100302/22276385.htm>, Oct. 3, 2002.

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