

# Keynote Address

---

Dan Hesse

Unlike interest rates, the wireless industry is growing. In fact, it is amazing how the industry has grown. It has basically gone from a standing start 26 years ago. That is when the very first wireless call was made in the city of Chicago—it started here in the United States—to today with almost 4 billion users on a planet of just under 7 billion people. As a matter of fact, there are more cell phones in service being used than the total of televisions, PCs, and cars in the world.

To give you a feeling for the facts, mobile is clearly the most rapidly adopted technology from basically not even being around 26 years ago. Its lead on other industries is growing. There are 10 cell phones produced each day for every baby born. So, cell phones are catching up. Now obviously, people get new phones and what have you, so it's not all going into wireless penetration, but wireless penetration is growing at a very, very rapid rate. Seventy-three percent of people who have cell phones use their cell phone as their primary source of time, rather than a watch.

I carry a Samsung Moment, which is an Android-based device. It has an 800-megahertz processor, which is basically a PC. But the typical smart phone is more powerful, in terms of processing power, than what was labeled the supercomputer 20 years ago.

It's a huge industry. It has grown to be an industry in excess of \$800 billion, and very soon it will be one of five trillion-dollar industries in the world. That is hard for me to say. It is not hard for congressmen to say that, but it is hard for me to say "trillion." Those other trillion-dollar industries are military, auto, tourism, food, and soon wireless.

All revenue growth in the U.S. wireless market going forward will come from what we call data. There are voice and data. And we use a broad term for data. Data are everything that is not voice, so it could be text, surfing, GPS, watching

television, and downloading music—all those things. Voice minutes will continue to grow, but voice revenues will be flat. So revenue growth in this industry will all come from these additional applications beyond just voice, which was the initial great application for wireless.

I'll talk about 26 years ago when wireless started, up to today, when you are watching television and see this G effect—3G and 4G and then what have you. So what does it stand for? 1G is first generation, and that was analog. The killer app in analog wireless was the car phone—this big thing that was so heavy you had to put it in the trunk of your car, and it usually weighed about 25 pounds. Basically, individuals didn't have them. Your company paid for them if you had one. They were pretty darn expensive, big devices.

Then digital came along in the early 1990s. That was 2G. With digital, you had improved economics and roughly a half-order magnitude improvement in terms of efficiency. Prices got much lower, as well. You could offer, if you were a wireless carrier, roughly five times as many minutes in a bucket for the same price. That is when you began to see not only text and digital forms of communications, but in Europe, things like Short Message Service (SMS) started to take off. The main thing you saw was larger buckets of minutes come along in the wireless world. Wireless, up to that point, had been growing organically. Then, cross-elasticity with landline became important.

All of a sudden the second-generation people started thinking, "This might be my only phone." It is inexpensive enough in terms of its packets of minutes that it can be that only device, particularly for travel-related applications.

When I was CEO at AT&T Wireless back in 1988, we launched something called Digital One Rate. With that, you began also to see wireless beginning to take money away from other industries to fuel its growth. It really began to take over landline travel communications.

So think about a decade ago, when you went to an airport. There were pay phones as far as the eye could see and lines behind each one. Good luck even finding a pay phone today. And calling cards were used from your hotel room. If you went to that hotel room, you used that calling card. People really don't bother anymore; they make cell phone calls. You are beginning to see the tangential effect on other industries.

Now, of course, you have 3G coming, which is another half-order of magnitude of improvement in efficiency. By the way, other industries are being affected; there are lots of them—there's GPS and there are cameras. There are more cell phones produced with cameras than all stand-alone cameras ever manufactured in history—digital and film. To put it in perspective, Nokia is by far the largest camera maker in the world. It is beginning to impact other industries as well.

So you see a lot of ads for 3G, and 3G basically means faster data speeds. More gigabytes of data usage per user were given out per month than 2G could provide.

With 3G you are beginning to see music downloads, videos, mobile banking, and what have you—lots of new apps.

But the true desktop experience, as good as 3G is, is really not there yet. That is why 4G is so important. And 4G is not tomorrow, but 4G is today. It is operating right now for us at Sprint, and about 13 million people in the United States have 4G service. We will have about 25 million users by the end of this year, and about 120 million, including Kansas City, by the end of next year. There again, you have that half-order magnitude of improvement in cost and efficiency. So it is not only five times faster. It's like cable modem speeds on a mobile device. But from a price and cost point of view, this gets to substitution. I can get five times as many gigabytes per month on my monthly data plan as I can with 3G because it is much less expensive to produce it. In the same way that 2G accelerated landline voice replacement, 4G will accelerate the cutting of the data cord, because with 4G, you get those same kinds of speeds and get lots of capacity. A lot of people will want both, but you will see a lot more substitution going forward with 4G.

In terms of major markets that are up already in 4G this year, you have Las Vegas, Atlanta, and Philadelphia. And next year, you will have a lot of big major markets, including Kansas City.

What slows the adoption of each generation of wireless technology as it comes forward are the devices. So it doesn't do much good to have a 3G network if you only have a 2G phone. You can't take advantage of it. It will take awhile for 4G devices to be out there, and people have a lot of 3G devices.

What will really speed up the adoption of 4G is the wireless standard we all know very well, which is WiFi. There are about 450 million WiFi devices that are active right now. They can all become mobile devices today. I carry around a MiFi card. It is a WiFi router, so I can have as many as five WiFi devices. I can put it in the car, put it in my briefcase, or what have you, and be connected to the Internet all the time—anything from my laptop to my netbook to an MP3 player to a gaming device to a phone. Let's say you have an iPhone and you don't like AT&T's network and you want to use a good one, you can use WiFi, and a lot of people do. A lot of people use it for a better 3G experience, as well.

What is coming is the 4G/3G version of this. So you have this device. It will be a little bit bigger, not a whole lot, but a little bit bigger. So I can get 4G speeds connecting all of my WiFi devices, so that my mobile hotspot in terms of true WiFi speeds, multi-megabyte speeds, is no longer the size of my apartment or my home or my office. It is the size of a city; everything is taken with you.

So we believe the world is ready for 4G now, because you have all these WiFi devices that are 4G devices, as long as you just carry one of these around. It is for you, the whole family, your friends, your colleagues, or what have you. It will make a big difference again, because of the ubiquity of the WiFi standard. It is in cameras. A lot of people have great multi-megapixel cameras. They have WiFi chips built

in, but they don't take pictures and upload them right away, because even at 3G, working with WiFi is pretty slow unless you are in a location with a high-capacity WiFi network. With 4G, you can upload those pictures to whomever you want to share them with very, very quickly, as well. So there are a lot of great apps with 4G.

Faster networks, more powerful phones, simple pricing plans—they will all be very important elements of rolling out mobile banking. The Internet has created, if you will, the *anytime* culture, and wireless is creating the *anywhere* expectation and culture out there in terms of doing business. Twenty-five percent of the people who use mobile banking access their financial accounts while running errands, hopefully when they are either parked or in the passenger seat. Nine percent do so while on vacation, and 8 percent do so on business travel. So it is a great extension to their financial and banking capabilities. At the moment, though, only 4 percent of banks and credit unions in the United States offer mobile banking. This is expected to grow to 50 percent in the next couple years.

Bank of America, for example, has about 2 million users, which is 10 percent of their online banking customers. Mobile banking is currently the most advanced in the Far East, but it is also being trialed and we are moving things forward in North America and in Europe. In the United States, it is estimated that mobile banking usage will grow from 10 million active users today to 53 million in 2013, about a 51 percent compounded annual growth rate. In China, they are using mobile devices to pay for bus rides, subway tickets, tickets to amusement parks, and payments for restaurants. The technology they are using is what we call NFC, or near field communication. It is a short-range wireless technology that goes about four inches. What it allows you to do is if you will swipe with the reader—not a physical swipe—as long as you are within four inches, it can read a wireless chip that is embedded in your phone. That is how the transactions occur.

Europe is trialing NFC, and Sprint in the United States has recently conducted a trial with the San Francisco Bay Area Rapid Transit System for the subways, so it is like a virtual ticket. You take your phone with you and you swipe it at a little station near the turnstile and it lets you in. It's like a debit card. You can use the same NFC capabilities there in San Francisco, for example, at Jack-in-the-Box.

The trials so far have yielded positive results, but more work is needed, and particularly, like anything else, what is really needed is a business case. That will take awhile to work its way through. We have a lot of players here—you have carriers, you have costs that go into these phones, you have costs with respect to the readers or the terminals, you have the banks, you have the credit card companies. There are sophisticated models, if you will, that need to be implemented, because there is a lot of investment required to bring these capabilities to market.

At Sprint today, our customers conduct mobile banking similarly to online banking by using the phone's browser to download a specific capability the bank might provide their customers at their bank's website. But they can also check their

PayPal accounts and send peer-to-peer payments to other registered PayPal users, which is now on the agenda.

Sprint customers can also download standalone apps for their individual banks, as I mentioned, pretty much to their smart phones. Smart devices are now accounting for roughly half the phones we sell. So they are becoming much more ubiquitous.

Sprint customers have been involved in mobile transactions for a long time. They have been downloading ringtones, buying music, buying other kinds of content via their mobile phones, and using websites to make purchases with their mobile device.

If managed properly, mobile commerce can improve customer protection, as well. Think about when you lose your mobile device or you don't have your mobile phone, most customers know about it in minutes. Where sometimes if they don't have their wallet, it could take a day. So, from a security point of view, people really do know where that mobile phone is. We are very focused on security at Sprint. We will only develop applications and capabilities that provide customers with complete confidence that all their personal information will remain secure. We also offer the highest levels of advanced encryption.

In fact, mobile networks today offer enhanced security in mobile devices and can offer user and device authentication that is much more sophisticated than what is available on plastic cards. For example, now for some card transactions you need to have that code on the back. Well, you can look at the back of the card if you have it and you can see what that is, versus a PIN, which is something you have to know. So there are other kinds of authentication on mobile devices.

The combination of power-on passwords and mobile safeguards from the banks can make cell phone banking just as safe as it is convenient. Business customers, one of the nation's largest banks, this organization, and a number of very top government agencies use the Sprint wireline and wireless networks for very secure transactions.

In addition to providing enhanced security, mobile commerce can also impact the environment, because by its very nature it is paperless. It is environmentally friendly. *Newsweek*, as you may have seen, did the most extensive survey of green companies ever. There is a huge detailed survey on what they call the top-500 greenest companies in America. Sprint came in at No. 15, and we are the only telecom or wireless carrier in the top 100, so we are very proud of that.

Mobile applications have to be very simple to use, priced affordably, and priced very simply if they are going to take off and really be ubiquitous. The No. 1 returned electronic device typically after each Christmas season is the smart phone, or the PDA. That is because they are too complicated for a lot of users. "Just give me that phone with 10 digits on the front—zero through nine—and that is good enough for me."

So about a year ago we implemented something called ReadyNow, where with each customer we will provide individualized training on every device—one on one. You don't have to come in to go to a class or whatever. We will set it up for you. We'll put the applications you want on the first screen. If you don't know how to pair your Bluetooth earbud to the phone, we'll do that for you. That, I believe, will make a difference for a lot of these new applications, teaching people how to use them for the very first time. We are not doing it because we are altruistic. We see a much lower return rate and a much lower churn rate of customers who have been through this particular program.

In conclusion, Americans and their mobile devices are becoming inseparable. Adding mobile banking to these Swiss Army Knives, which really do everything—take pictures, provide GPS, serve as your communicator, ring during presentations—they are capable of lots of things. But mobile banking, we believe, is just a very natural part of the evolution of these devices. They will be secure. They are highly personal; customers can take them with them everywhere. We think it's going to be a terrific business opportunity for a lot of us in the room going forward.

And so we are very committed to mobile banking and all sorts of electronic and mobile commerce. It is a very important part of our planning process going forward.

# General Discussion

## Keynote Address

---

*Mr. Frankel:* Are there any technical impediments to creating a digital wallet hosted on one of your phones so that all of a consumer's card accounts could be accessed from a single device?

*Mr. Hesse:* There are no technical obstacles at all. The real key is having the standards that make that possible. There is nothing technically that would keep the phone from becoming that digital wallet. Standards are going to be important. Having open standards is going to be crucial, not only for the phone device, but very much for the terminals. Retailers are not going to want multiple terminals.

That is why, in terms of these applications, we are approaching standards via the CTIA, which is the wireless industry association that we all belong to—Verizon, AT&T, T-Mobile, Sprint, everybody—so that we in essence solve the issue of standards one way. These devices are supercomputers. They can do just about anything. The technical limitations are almost zilch.

*Mr. Van Dyke:* My question is about the importance of business models between telecommunications companies and financial providers, whether those are banks, payments processors, networks, or whatever. What we hear often is there isn't a lot of coming together at the table, so to speak, between banks, telcos, and payments firms. I wonder what your thoughts are about potential viable business models for making mobile payments, specifically, come to reality.

*Mr. Hesse:* I don't have all the answers, but the net of it is that you have a lot of vested interests that are already involved in this industry. The chips to put in phones with those capabilities cost money; new terminals for retailers and merchants cost money; so there has to be some way of figuring out if there is enough money to pay for new infrastructure to make that happen.

I think there definitely will be solutions that are created, because the potential is so great. And most importantly, end users would want to do it this way. You do what customers want. There will be some interesting discussions and negotiations on how pies are divided to make sure there is a return on the investment for every player, because the investment to do this up front is fairly significant.

*Ms. Allen:* Playing off that same question, one of the issues is liability and the legal framework. Right now, telcos do not carry any liability or responsibility if there is a dropped transmission, if a transaction didn't take place, or if it is a fraudulent transaction. That is one of the areas where there needs to be dialog between the telcos, regulators, and the financial industry. We have been working with the fraud group within the telecommunications world, trying to look at common areas of fraud. As you well know, it is crime organized on the Internet. Do you have any thoughts on this?

*Mr. Hesse:* Usually it's a good clue when the customer's name is Mickey Mouse, which we see every once in awhile. With some other creative ones we go, "Hmmm."

*Ms. Allen:* And I think there's going to need to be this really public-private coalition between the regulators, the financial institutions, the telcos, the device manufacturers, and law enforcement to go after organized crime. What is going to get the players to the table on that? What specifically will get the telcos to the table on that?

*Mr. Hesse:* I am not aware that the telcos haven't been at the table with all these discussions. It is a fairly complex issue and, of course, fraud affects all of our industries. There is a lot of fraud in the wireless industry, the telecom industry, and on the Internet. One of the issues we are working on with the Federal Communications Commission (FCC) in Washington is that of net neutrality. In net neutrality, the intentions are very good around, "Let's just make sure."

The Internet is very open today. New technologies have the potential of making it less open. Things like deep-packet inspection and things that are good for cyber security in preventing fraud, where you can find out early on who it is, where they are, where they came from, all this information has privacy issues associated with it. Again, it would give an awful lot of information to the wireless and telecom carriers about users, but it is very important if you want to truly have a bulletproof system. So how do you work your way through that? Those discussions are ongoing right now in Washington.

I am not aware of any table that exists in dealing with any of these issues at which the telecom industry is not a full participant. We're very open with respect to both the pluses and the minuses from a security perspective, as well as anything else using our networks. So that is why we work with the military and lots of government agencies on providing their communications in a very secure way.

Now, what do we need to do to provide that same level of security, if it's required, when we get to mobile commerce? Today there is a tremendous amount of security. I buy many things on a mobile phone today. On a bank's website, I can do my banking, I can transfer between accounts, or what have you. But there is still an opportunity to take this to the next level.

There clearly are security issues and security concerns. People here may know something that I don't, but I'm not aware of anybody in our industry not participating in any discussion on these issues. They are issues we recognize to be both strengths and weaknesses of our technology and also what the government, for a very good reason, is willing to or not willing to let us use and exercise, because of the balance between openness and security with respect to information usage. What is possible and would make things more secure also has some privacy concerns.