Foreword

Prepare to be astonished!

When you enter into the *Encyclopedia of Mobile Phone Behavior* you will be immersing yourself into a body of research that defines the most important technological revolution in human history. This statement is not hyperbole. There are more mobile phones in use today in the world than there are people. But measuring quantity alone trivializes the importance of the mobile phone to the people whom it serves. Surveys have shown that people would rather eat less than give up their mobile phone. People who have forgotten their all phone at home will return to retrieve it but will elect to manage without their wallets. The U.S. Supreme Court has ruled that a mobile phone is an integral part of a person.

By far, the greatest contribution to society of the mobile phone at present is in improved productivity. People do things more efficiently when they are connected, especially so when they are connected *wherever* they are, *whenever* they wish to connect, and when they can connect to *everyone* else. In addition, the mobile phone is becoming a valuable tool that can entertain, educate, improve safety, and add convenience to people’s lives.

As with every disruptive technology, the mobile phone has negative attributes; the encyclopedia covers those as well as the benefits. Our first introduction to negative mobile phone-equipped human behavior was in a movie theater in 1989. While others were annoyed and perhaps angered by the sound of the phone’s ringer, we were dismayed. In our abiding belief in the potential of the mobile phone to make people’s lives better, we had neglected to anticipate the ways in which it could be antisocial. And ringing in a movie theater or concert hall was not the only annoyance.

The first commercial portable mobile phones were available in October 1983. Why did it take so long for us to discover their antisocial aspect? Initially, most mobile phones were wired into automobiles. The only handheld units, and we use the word “handheld” loosely, were Motorola DynaTACs, which weighed 2 ½ pounds and were, for obvious reasons, called “the brick.” People were unlikely to carry the DynaTAC into a concert hall. Since that cell phone sold for $4,000, the equivalent of about $10,000 today, the chances that a person would even encounter one were slim. In 1989, Motorola introduced the MicroTAC, a flip phone that by modern standards was large but small enough to fit into a coat pocket or purse, and it weighed only 12.3 ounces. The MicroTAC price started at $2,495, not much more than a car phone price and low enough to make the phone popular.

Further, in the early days, the cost of a call was high: $.50 a minute. And in the U.S. customers paid for incoming calls so they were reluctant to give out their cell phone number. As prices for service started to fall, especially after the assignment of more channels in the early ’90s, incoming calls and their related annoying alerts became far more prominent. Consequently, smaller handheld units and the slow reduction of usage charges started to change people’s expectations – cellphones were becoming even more useful than fixed phones. We started to see phones in the movie theaters and concert halls, or rather, *hear* them.
But it doesn’t take a mobile phone to make people rude. Polite people learned to turn their ringers off in the concert hall and to speak in muted voices in crowded areas. In Japan, for example, using a mobile phone in a railway car will earn a sharp rebuke from the conductor. Society ultimately learns how to accommodate disruptive technology and we rarely hear phones ring at the movies.

The impact of the mobile phone on society has been predominantly positive; that fact is reflected in the content of this encyclopedia. This positive impact has occurred mostly with the two simplest mobile phone technologies – talking and texting. These simple activities have profoundly changed the lives of billions of people. It would be redundant to offer examples; every reader of the encyclopedia, even those who use the most advanced smart phones, is aware of how the simple ability to reach out to others is so important. But the example that most touches us is that of a poor woman in a village in India who obtains micro-financing to buy a cell phone and service. She then offers, at a nominal price, the use of her personal phone to farmers in her village who call the neighboring villages to discover the best markets for their produce. Everybody wins! The woman, the farmers, and the customers who end up with fresher produce at better prices.

We are especially sensitive to the gender issue that affects the future of the mobile phone as it does everything else in our society. We know that most mobile phone and application engineers are men, which can lead to neglect of women’s sensibilities and needs in phone designs. We know that in some developing countries, women often do not have access to the family phone. The main hope in this regard is education and the realization that investment in addressing women’s needs is not only the socially responsible thing to do but also a profitable thing. As you will see in our predictions for the future and in the encyclopedia, mobile phones and the relevant applications they make possible will have an important role in solving both of these gender-related problems.

The mobile phone industry has a long way to go before even a small fraction of the mobile phone’s potential is achieved. We are still in the early days. Services, especially mobile data service, are too costly, as are the phones themselves. Smart phones try to do all things for all people but don’t do any of them optimally. Mobile phones are designed as mass market commodities without regard to the fact that people are different from one another and that different kinds of people would benefit from phones that are designed for their unique needs.

Each of these deficiencies is being addressed in our society:

- New radio technologies are increasing the capacity of existing systems and reducing service costs,
- Specialized devices optimized for medical applications, education, and myriad “Internet of things” applications are appearing each day,
- Applications are starting to appear that promise to revolutionize medicine, education, and the way we do business, and
- People are starting to collaborate in ways that were not even dreamt about 10 years ago; the capacity of mobile-phone-enabled collaboration to topple governments has already been demonstrated.

And this is just the beginning.
We predict a world in which the mobile phone makes the most advanced medical technology available to all, as it helps solve the dilemma of a healthcare system focused on curing diseases rather than preventing them.

We predict a society in which mobile-phone-enhanced education occurs continuously, 24 hours a day and in the real world, not just in the classroom, in which students are educated in stimulating ways that draw them in, in which the knowledge of the world is available to everyone.

We predict an industrial society in which hierarchical organizations give way to collaborative self-organized functional entities that are in continuous communications with each other.

We predict a technological revolution in which the wireless technologies we espouse become either invisible, transparent, or intuitive, with the sole function of serving us as they make our lives better and, hopefully, simpler.

Wireless technology, the mobile phone, and all of its derivatives will not be the only catalyst for energizing these revolutionary advancements, nor will wireless technology solve the social, legal, and regulatory barriers that will have to be overcome. It is our fervent hope, however, that the promise of a technological solution is so compelling that the bureaucrats and bigots will fall by the wayside and the lawyers will actually facilitate progress. We further point out that the first phase of the wireless revolution took more than a human generation to evolve. It will take two or three more generations to achieve the full benefits we predict. But progress, as you will clearly observe in this encyclopedia, is already happening; it will be continuous and relentless, and there will be incremental benefits all along the way.

Some of our readers may find our predictions overly optimistic. I would urge those readers to dive into this encyclopedia. We believe you will change your mind.

Finally, we cannot overemphasize the importance of the new form of collaboration the mobile phone engenders. It is now possible for people to communicate with each other in numerous ways, independent of location and time. Communications can be instantaneous or delayed. People can talk, text, Tweet, post on Facebook, Instagram, email, and video conference inexpensively and conveniently. This is only the beginning. Most of these are crude, first-generation tools that will evolve and integrate into powerful facilitators of efficiency and productivity. It is our expectation and hope that the *Encyclopedia of Mobile Phone Behavior* will stimulate this revolution by enhancing the collaborative process. The result will be a cascading explosion of creativity that revolutionizes not only the mobile-phone industry but also the way in which we do everything.

We congratulate Prof. Zheng Yan and his team for this great achievement and are honored to participate in their ambitious project.

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Arlene Harris, known as the First Lady of Wireless, is an entrepreneur, inventor, investor, and advocate. She began her career at the age of 12 as a mobile telephone switchboard operator for her family’s business. Her career spans a lifetime of innovation in mobile technology and wireless consumer services. Harris is widely recognized for her “Jitterbug” cellular, first wireless health application, first prepaid cellular, first cellular activation system, and first niche cellular offering. In 2007, she won industry-wide acclaim as the first woman inducted into the Wireless Hall of Fame. Harris is co-founder and CEO of Dyna LLC, in Del Mar, California, where she incubates new ideas and businesses with her husband and business partner, Martin Cooper.

Martin Cooper, known as the Father of Mobile Phones, grew up in a modest immigrant family during the depression era of Chicago, graduated from Illinois Institute of Technology, and became one of the most celebrated inventors, entrepreneurs, and executives of our time. While at Motorola in the 1970s, Cooper conceived the first handheld mobile phone and led the team that developed it. He is also the first person in history to make a handheld cellular phone call in public. Cooper is co-founder of numerous successful communications companies with his wife and business partner, Arlene Harris, and serves on committees of the Federal Communications Commission and the United States Department of Commerce. He won the prestigious 2013 Marconi Society Prize that recognizes living scientists whose outstanding achievements in communications and information technology have advanced the social, economic, and cultural development of all humanity.