

Vision of Wireless Consumer Communications

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The wireless communication needs of the Consumer has produced a Wireless Communications Revolution, which does far more than provide a means of talking or of text messaging. We are today setting the stage for *Wireless Cities*.

The *Wireless City* is one in which people use *One Phone*, a hand-held computer, which permits you to talk, receive your email, download a book, watch a movie or TV, or listen to music, in real time. This device comes equipped with an expandable screen and provides 3D imaging, without glasses. Further, for your safety and convenience, a built-in GPS system enables others to locate you or allow you to plan your route. Other applications include shopping using an application containing a computerized replica of the user, sometimes called an *avatar*, that models the user's proposed clothing purchase to the person's actual body shape, from any store in an *electronic shopping mall*. In addition, home security cameras connect to the *One Phone* if there is a "break in", to show real time images of what is occurring and notify law enforcement.

The *Wireless City* also includes automobiles equipped with a wireless vehicular collision avoidance system, and an "automatic pilot", so that you can perform other tasks while the vehicle carries you to your intended destination. It also includes the "wireless post office", which can operate efficiently - and at a profit!

The key, to make this happen is, Multiple Access technology using MIMO, to permit multiple signals from multiple users to share a limited bandwidth.

This talk some of the Technical Issues surrounding the above ideas which includes the use of small cells, such as mesh networks and femto-cells, and the evolving Standards, and Patents.

These topics show the major role played, and that will be played, by COMSOC, as we proceed with this *Wireless Revolution*.