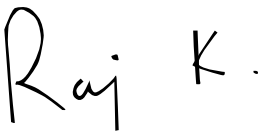
The (Unwired) World at Your Fingertips

Thanks to digital technologies, the consumer electronics world is rapidly inter-connecting and converging, and combinations of seemingly unrelated products (think cell phone and TV) are on the horizon. The cell phone marketplace is embracing this convergence most emphatically, adding cameras, music players, e-mail and video/internet access to the cell phone. The so-called 3G (Third Generation) cellular services are finally arriving in the U.S. It is interesting that the rollout of 3G has been so long coming in this country, especially given that this technology has already been widely deployed for the past couple of years in countries like Japan and Korea. One would suspect that this delay is rooted in Wall Street-related and regulatory factors rather than for technical reasons. Wi-Fi (now commonplace in airports, hotel lobbies, and coffee shops) and 3G, along with the anticipated availability of newer wireless technologies such as EV-DO and WiMax (a cousin of Wi-Fi but with much wider range), will fundamentally change the way people connect with the outside world. Internet will be available virtually anywhere you can get a cell phone signal.

In the light of these dramatic developments, it is somewhat ironic that a corporate giant that spawned many of the inventions underpinning the telecom revolution, namely AT&T, agreed recently to be acquired by one of its offspring, SBC Communications Inc. The factors underlying the fall of this company are complex and will no doubt be a popular thesis/dissertation topic on many business school campuses. Monopoly status is not necessarily a good thing, as Detroit automakers found out the hard way in the late 70s and 80s. AT&T management did not capitalize on many of the laboratory advances as long as profits steadily accrued from their hold on the telephone market. Certainly, AT&T missed the boat in the cell phone business, but possibly in many other arenas as well, such as PCs and fax machines.

At the heart of the telecom revolution is the transistor (which has steadily shrunk to dimensions in the micrometer range) and silicon. This special issue of *Interface* celebrates the advances that have been made in the silicon microelectronics world, and the remarkable journey that has been made since Bob Dennard's one-transistor, one-capacitor memory cell of 1968. It also looks into the future as we further traverse device dimension domains in the nanometer size range (the "nano world"). The collection of perspectives from experts, commendably assembled for this issue by Howard Huff, reminds us that reports of the demise of silicon are premature. It does not appear that innovations in the nano world will replace the silicon chip anytime soon. But nanowire circuit interconnects could certainly help squeeze more computational power/speed and memory into the next generation handhelds which will continue to be based on silicon (or alloys thereof). Yes, silicon is alive and well. Stay tuned.



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Editor

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