



Wireless in Europe, Part 2



On top of the wireless world

[Ira Kalb](#) (irakalb@KalbAssociates.com)

President, Kalb & Associates

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In the conclusion of this two-part article, we hear from several more developers working for innovative companies in Finland; they shared with us their thoughts on wireless development, where it's going, and what's developing in Scandinavia that keeps it at the forefront of wireless technology. dW staff also got to talk with Dr. Martti Tiuri, Chairman of Finland Parliament's Committee of the Future.

Olli-Pekka Mutanen

COO, Multilizer Inc

E-mail: olli@multilizer.com

Web: <http://www.multilizer.com>

Phone: +358-9-251 5100 Fax:
+358-9-2515 1200

Sinikalliontie 12,

Address: FIN-02630 Espoo,
Finland



Why is Finland considered a leader in wireless technology?

Finnish-made mobile phones and their user interfaces effectively serve users around the world. Because we Finns are a marginal language group, we understand the importance of considering non-English speaking end-users. We know that a mass product speaks the language of its user. Because the wireless revolution did start here much before it did in the Silicon Valley, this speed-to-global-market business is still a dream on the other side of the ocean, but I believe that our current lead is diminishing all the time.

Who are the important wireless players in Finland?

There are several important players, including all of the participants of the Wireless Finland Partnership Program -- Akumiitti, Arcus Software, AVS Technologies, Multilizer, Popsystems Oy, and WapIt, just to name a few of them.

What does Multilizer do that might be of interest to wireless developers around the world?

Multilizer Inc. is the leading provider of software globalization technology for enterprises to accelerate their global business. The main product, MULTILIZER® Software Globalization Framework, is an enterprise-level solution for adapting user interfaces of PC, mobile/PDA, and Internet software to operate in the users' own

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language worldwide. It helps enterprises achieve faster time-to-global-market, cut software internationalization costs, and achieve higher quality for international releases of their software. In the U.S., we are looking for partners and investors with the capability to speed up global market penetration. Multilizer has over 2,000 corporate users worldwide, including Ericsson, Intel Corp., and Xerox, and is a privately-held company whose investors include Holtron Capital Partners I and Miraimon M 2000 technology funds.

What do you see as being the current and future trends?

Information technology and software will diffuse widely through the Internet, and personal wireless devices will be used by a multitude of people of different nationalities. According to IDC, over 50% of Internet users are already located outside the United States.

"In the future, the product lifetime and development cycles of wireless and PDA devices will continue to shorten, already being very short (typically less than one year or only a few months). Rapid introduction of the product to only one market no longer suffices due to the increasingly global [nature of the Internet].

"The [globalization] of the Internet, wireless, and PDA environments has also raised the complexity level of software projects. In addition to Windows and UNIX, software is also produced in growing numbers for new platforms and operating systems -- EPOC, PalmOS, Windows CE, and other producer-specific operating systems (and we should not forget WAP and i-mode)."

Eero Koivisto

Eero has been working in the telecommunications industry in Finland for several years and is currently studying at UCLA.

E-mail: eero@ucla.edu.

Why is Finland considered a leader in wireless technology?

There are several factors that contribute to this trend:

- Finland is the home of Nokia, a world leader in mobile communications infrastructure products and systems, and the world leader in mobile phones.
- Finland has had a deregulated telecommunications market from the very beginning that has spurred competition. For example, at some point during the 1930s there were around 800 operators, and there are still over 40 operators in the market. Because of the multi-operator environment, open standards and interoperability between different operators' networks have been vital issues. This has driven technology development and competition.
- Nokia and other Nordic telecommunications equipment producers have been developing wireless standards and technology since the late 1960s to early 1970s. The analog NMT (Nordic Mobile Telephone) service, first-generation cellular network technology, was the first interoperable, comparatively low-priced, mobile network in the Nordic countries (Finland, Sweden, Norway, Denmark, and Iceland) with excellent coverage and a unique feature of international roaming. NMT and Nokia's belief in digital technology laid the groundwork for the head start in GSM (Global System for Mobile communications), a second-generation (digital) mobile phone technology. Nokia and other Nordic companies developed and put a lot of resources into GSM, which paid off, and helped it become a huge success worldwide. This has given Finland and the Nordic countries a lead in the wireless industry now when higher data rate mobile services, (GPRS -- General Packet Radio Service), and 3G (3rd Generation) mobile communications, are just around the corner.
- Post-secondary education in technology has had a solid base in Finland for a long time. Therefore, a skilled workforce has been readily available, which has been a critical factor in the success.
- Mobile telecommunications operators are very advanced in Finland and they are at the forefront of development and provisions of mobile services to their customers.
- The success of Nokia has helped other companies jump on the wireless bandwagon at an early stage: subcontractors, wireless content developers, etc.
- Therefore, Finland has the highest penetration of mobile phones in the world. This penetration is over 70% at the moment and some resources have predicted that it will reach 80% by the end of 2001. Also, the Finns have been on the forefront in adopting new mobile data services, such as the SMS (short message service) with which you are able to, for instance, send text messages to other users, or

download ringing tones and logos from wireless service providers.

Who are the important wireless players in Finland?

- Mobile handset and infrastructure suppliers: Nokia
- Mobile telecommunications operators: Sonera (formerly Telecom Finland), Radiolinja, and Finnish 2G
- Wireless middleware/security suppliers: Sonera SmartTrust -- a leading provider of comprehensive security and service management solutions for mobile and Internet e-services; and F-Secure -- a leading, strategic provider of powerful data security solutions, including wireless solutions.
- Mobile portals/services: Sonera Zed -- an international pioneer in the environment of mobile communications, and it leads the field in personalized wireless information services for consumers; lobox -- a pioneering Pan-European wireless portal with 3 million registered users. lobox is currently a subsidiary of Terra Mobile.
- Mobile technologies and solutions: Elektrobit -- develops world-class wireless solutions; WapIT -- builds advanced technologies for world-class mobile applications and services.

What do you see as current and future trends?

In the near future, higher data rates will be available to mobile handsets, which means that a whole new range of IP-based services can be provided to the end-users. GPRS, 3G, Bluetooth, and WLANs will be the driving technologies in the near future. They will be able to provide personalized Internet and intranet content and services to the mobile handsets for consumers and increase efficiency for businesses, because mobile workers [will be] able to access important information anywhere, anytime. Localized services will also provide new, useful services to the end-users.

I see WAP (Wireless Application Protocol) as an important stepping-stone to the higher bandwidth technologies -- GPRS, 3G, Bluetooth -- in the wireless handsets and the advanced services that can be provided to the mobile handsets. This provides a great opportunity to observe consumer perceptions and learn from their experiences in preparation for the new, high-bandwidth services. In addition, WAP-compatible content is exploding, so there will be more and more services available for WAP users. The amount of WAP users is also increasing rapidly. Useful services are the key drivers for the end-users' adoption of new wireless technologies.

Wireless handsets will have "always on" data connections to the Internet and intranets. This means that there will be a need to include more software on the handset. This, in turn, requires efficiency in terms of processor and power usage. Therefore, software (for example, middleware) in mobile handsets must be lean and economical.

Ilkka Aura

Sonera Corp

E-mail: ilkka.aura@sonera.com

Web: <http://www.sonera.com>

Phone: Mobile phone: 408-505 9174; Office phone: 650-316 3828; Fax: 650-316-3829

Address: 1875 Charleston Road, Mountain View, CA 94043

Note: The following statements are Mr. Aura's personal opinions, and do not represent official positions or views of the Sonera corporation.

Why is Finland considered a leader in wireless technology?

The Finnish market has long been extremely deregulated and mobile communication costs are among the lowest in the world. Also, Nokia and Ericsson agreed early on joint standards that they would both support. First, this was Nordic Mobile Technology (NMT), and then Global System for Mobile communications (GSM). Instead of fighting on Scandinavian home turf, these companies agreed to co-operate in Scandinavia and fight against the Asian and North American players. Also, Finns are very technology savvy.

The Finnish government has also promoted active R&D in wireless technologies -- providing financing and development programs for companies developing new services and applications.

Who are the important wireless players in Finland?

The biggest operator is Sonera with a 60%-plus market share in mobile communication. Second largest operator is Radiolinja Ltd. The Swedish company Telia entered the Finnish market three years ago. There are also two virtual mobile operators in Finland utilizing Sonera's network, but selling services using their own brands.

Nokia is, of course, important in the handset market. Finland is a natural live laboratory for some of the merging products.

There is a large number of small startups that play an important role in creating new services and applications.

What does Sonera do that might be of interest to wireless developers around the world?

In Finland, Sonera operates as both a network and service operator. Globally, Sonera is a leading communication operator creatively uniting mobile communication, the Internet, and service provider know-how. The Sonera vision is to create a global communication operator providing also transaction and content services.

Sonera has been a pioneer in numerous ground-breaking technologies and services, such as using a mobile phone to pay for vending machine transactions, location-based services, and IP telephony.

"Whereas some operators are talking about mobile value-added services, these services represent 11% of Sonera's domestic mobile communication revenue. Sonera is well beyond the "brochure-ware" phase, and its commitment to this space ensures new innovations and service launches.

What do you see as current and future trends?

Short message services will remain the most important delivery and presentation method for the next 12 months. WAP will be emerging, but will not gain a strong hold until it can provide better graphics with animation and support color and audio. The evolution of better graphics and processing power in handsets will further boost the acceptance. The current WAP format with existing phones is still too rudimentary for mass markets.

The mobile phone is a communication device and messaging will remain the "killer application" in the near term. SMS, e-mail, instant messaging, and multimedia messaging will be the most used services. As soon as processing and data speeds improve, downloadable objects like games, multimedia messaging, and small over-the-air applications will be the important next wave.

Which of the emerging standards will become the ones that most people use?

This will vary a great deal between different markets. In GSM markets, operators will upgrade their networks to Global Packet Radio System (GPRS) before moving on to UMTS. As long as services are circuit switched, adoption will remain low, services slow, and pricing high. Packet-based services are a must for mass market acceptance. Packet switched networks will provide always on availability, high speed, lower pricing, and carrier-grade back-end functionality.

Third-generation networks will allow a wider range of mobile terminals. Mobile terminals will evolve to be almost like the remote controls of our lives. They will include such features as calendar, messaging center, (digital) wallet, access devices to doors, and remote control to home devices. PDAs, pocket PCs, game consoles, and in-vehicle terminals and other mobile terminals will explode the use of mobile data networks.

Eero Teerikorpi

President, Capslock



E-mail: teerikorpi@capslock.fi

Web: <http://www.capslock.fi>

Phone: Mobile: +1 408-431-3305; Fax: 408-998-7881

Address: 303 Almaden Blvd Suite 600, San Jose, CA 95110

Why is Finland considered a leader in wireless technology?

Nokia has clear worldwide leadership in mobile hand sets, and it is a very strong vendor in mobile networks. Finland has a high penetration rate in cell phones -- over 80%; combined with high cell phone usage... and SMS and WAP services. Users are from school children to business people, and Finland is the first real m-commerce society [providing] mobile entertainment. The Government of Finland has been very favorable [toward] wireless technology and one [example of] this is the decision to hand out 3G licenses for free.

Who are the important wireless players in Finland?

Nokia is the leader in the technology. Sonera and Radiolinja (world's first GSM operators) are the strongest operators; and new upstart DNA Finland is interesting. Capslock and similar new mobile startups are very important to build more value for wireless society with real mobile applications. Finland is considered a mobile laboratory for many foreign companies -- IBM, HP, Siemens, Compaq, and even Ericsson all have mobile technology offices in Finland.

What does your company do that might be of interest to wireless developers?

Capslock offers mobilizing technology [Capslock Mobilizer] that allows [users] to publish existing client-server applications and Web site-to-mobile devices (smart phones, PDAs, etc.); mobile security technology [Capslock SWAT], which provides true end-to-end security for all wireless TCP/IP communication; Java technology-based architectures, both mobilizing and mobile security, that work in many platforms -- code once, run on any platform.

What do you see as current and future trends?

Currently, SMS is very strong, and will become stronger with mobile fun via icons and ring tones, but also in real productivity solutions for communication; WAP hype is over, but it will re-emerge as a very successful technology when packet-based networks [GPRS, EDGE, UMTS] are a reality. GPRS is real by the year's end... for 3G, we have had to wait longer than expected or hoped. There will be strong competition between UMTS and Wireless LAN [802.11b]. Both will find their places eventually [different usages]. Location-based services; instant messaging with text, graphics, video; secure transactions like banking, shopping, and electronic wallet; and phones will become Personal Trusted Devices, or PTDs.

Which of the emerging standards will become the ones that most people use?

- SMS is already huge in Europe; the U.S. will follow
- GPRS and Wireless LAN
- Eventually WAP... it will transform to more HTML/XML-oriented than current versions with WAP 2.0 and XHTML support, which is based on HTML 4.0
- PDA usage will grow in Europe.

How can wireless developers use your products to benefit themselves and Capslock?

Capslock offers an excellent suite of solutions for both wireless-enabling existing applications, as well as securing wireless connections; these technologies can be licensed very cost-effectively, and for those who currently have no adequate resources for wireless initiatives, Capslock also offers the best of breed professional services to implement secure mobile applications and to expedite the successful implementation.

Anything else you think is important?

Despite the current, somewhat negative, sentiment on the wireless marketplace, this wireless world will become very huge and any company -- whether a technology provider or technology user not outlining their wireless strategy right now -- will miss a significant opportunity and will lose business to those who are already moving into this space.

Markus Jokinen

New Innovations, Iobox -- a Terra Mobile company

E-mail: markus.jokinen@ioboxgroup.com

Web: <http://www.ioboxgroup.com>

Phone: Mobile: +358 40 5337349; Fax: +358 (0)9 693 1100

Why is Finland considered a leader in wireless technology?

Nokia itself is recognized as the leader in mobile telecommunications. Nokia's strong presence has boosted several private and publicly listed companies as partners and subcontractors in both software and hardware. There are several dozen wireless companies developing software and hardware solutions for the wireless world. Finnish telecom's cluster now consists of over 300 SMEs, and the Finnish IT sector has some 3000 companies -- a lot for a country with 5.2 million people. Finland was the first country in the world to grant licenses for 3G [March 18, '99]. These networks are expected to be ready by year 2002 (UMTS). Nokia was first in NMT and GSM, and is focusing on technologies such as WAP, 3G, and IP.

Another reason is the 75% mobile phone penetration in Finland. Finns want to have the latest gadgets and use the newest killer applications. Overall, they are very demanding clients for the equipment and service providers, and thus offer an excellent test market for new innovative products. Several international brand name firms, like Hewlett Packard and Razorfish, have already benefited from this, and have set up base in Helsinki for their test laboratories.

There is a strong focus from both the government and from Nokia on R&D (R&D spending is 2.8% of the GDP). As a result, Finnish universities have been producing an excellent supply of cellular technology specialists.

Who are the important wireless players in Finland?

- Nokia
- Sonera, for Telco
- Terra Mobile-Iobox, the first startup to penetrate successful Pan-European presence within just 1.5 years of its founding
- SpringToys, for mobile entertainment solutions
- Digia, the official Symbian EPOC development center

What does your company do that might be of interest to wireless developers around the world?

Terra Mobile-Iobox is the leading pan-European mobile portal with over 3.6 million registered users. Its headquarters is split between London and Madrid. Additional sales and marketing offices are in Helsinki, Stockholm, and Munich. Iobox's Development Center in Helsinki is an R&D center for 3G, WLAN, and Bluetooth services. Iobox was founded in Helsinki in January 1999, and acquired by the Spanish Terra Mobile in July 2000. The parent firms are Telefonica Moviles and Terra Lycos and employ over 200 people from 13 nationalities. Our objective is to become the world's leading mobile portal. We are currently expanding to other countries in Europe and Latin America.

What do you see as current and future trends?

Digital high-speed hotspots based on WLAN and Bluetooth are emerging now even before we see UMTS networks in place. End users will be using services according to available bandwidth -- GPRS with limited bandwidth and graphics while walking on the streets, and WLAN or Bluetooth with streaming video services in restaurants.

PDA's are becoming increasingly wireless with a greater amount of telephony support being built in. These devices will have the same kind of "open platforms" (for example, EPOC, Wince) as smartphones, which means that it is the user, not the handset manufacturer or operator, who will control the application portfolio."

Which of the emerging standards will become the ones that most people use?

"Bluetooth and WLAN hotspots -- especially Bluetooth hotspots -- are targeted for mass markets. Bluetooth

phones will also allow WML push services effects so that when a user walks into a shopping mall that has a Bluetooth network, the user will automatically receive local content and advertising, and be able to conduct m-commerce transactions.

MHP (Multimedia Home Platform) for DigiTV is another emerging standard. Mobile terminal manufacturers are adapting MHP part of their browsers. Nokia f.ex. is developing a DigiTV set-top-box, which includes a Bluetooth base station. This means that every Finnish home with DigiTV will have a Bluetooth hotspot where residents can access the network through their mobile phone via Bluetooth and DigiTV.

How can wireless developers use your products to benefit themselves and lobox?

We are launching our own PDA software shop [in which] lobox [will act] as a distributor selling developers software. We are also launching a Virtual Java (J2ME) open developer zone and forum where users can use our wireless infrastructure and platform to develop and send applications to their smartphones. Estimated launch dates are end of Q2.

Martti Tiuri, PhD

Chairman of the Committee of the Future, Finnish Parliament



Contact information is not provided because of the large volume of contacts Dr. Tiuri receives.

Why is Finland considered a leader in wireless technology?

- Finland has more mobile telephones per capita than other countries -- Austria and Sweden are in the same class.
- Finland is second after the U.S. in computers connected to the Internet.
- Nokia is a world leader in mobile telephone business.
- Northern countries invented the mobile telephone and got an early start.
- Finland has a long tradition in radio engineering.
- The first application of radio waves in Finland (a radio transmission from Kotka to an island in the Gulf of Finland in 1900 by Russian engineer Popov) happened at the same time as Marconi developing radio.
- The first professorship in radio engineering was founded in Finland in 1922.
- Finland has always had private telephone companies (the first was started in 1882) in addition to the state-owned company. Finland has several innovative ICT companies (Nokia, Sonera, F-Secure, Jippii Group, Elcoteq, etc).
- About 11% of all new university students (3% of the age group) are studying ICT.

Who are the important wireless players in Finland?

The important wireless players in Finland are, according to market value, Nokia, Sonera, Elisa Communications (formerly the Helsinki telephone company), Comptel, Teleste, Stonesoft, F-Secure, Jippii Group, YLE (state-owned Finnish Broadcasting company), and Digita (digital broadcasting distribution company owned by YLE and a French company). In addition, there are many small interesting ICT companies, such as Benefon, making mobile telephones.

As Chairman of the Committee of the Future in the Finnish Parliament, do you have any special wireless interests?

Gerontechnology is an interesting technology assessment project of the Committee. It studies the use of new technology, such as mobile telephones, in helping aging people to live at home.

What do you see as current and future trends?

Current trends in Finland are companies that have opened offices in several small towns due to the shortage

of educated people in big cities. Nokia and other companies are also recruiting educated people from India and China. YLE and Digita are looking for new applications of digital TV.

Viewing the wireless future from the top of the wireless world

While nobody can be certain which wireless standards will emerge and dominate, there seems to be considerable agreement from these interviewees and other wireless experts that the U.S. is in the "horse and buggy" stage in the wireless marketplace. Once the technology advances to the point where wireless networks can reliably deliver high-bandwidth at high speeds, the wireless marketplace will explode at all levels, from infrastructure to content. There will be a ubiquitous TCP/IP-based wireless network that will connect all sorts of wireless devices, such as wrist watches, mobile phones, household appliances, moving vehicles, computers, audio/visual equipment, and just about anything electronic, over wireless networks. To get a good idea of what the wireless future will bring, we can take a virtual or real trip to the top of the wireless world and watch what the Finns and Swedes are doing; they are building the future there today.

About the author

Ira Kalb is a consultant, author, part-time professor, and President of Kalb & Associates, an international consulting and training firm. He teaches courses in marketing, sales, management, and business systems for major universities and organizations around the world. He is also an artist and a woodwind musician who served on the Board of Directors of the Jazz Bakery -- a non-profit corporation showcasing world-class musical talent in a world-renowned venue. He can be reached at irakalb@KalbAssociates.com.



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Killer! (5)

Good stuff (4)

So-so; not bad (3)

Needs work (2)

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