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STANDARDS AREA OF THE YEAR:

WIRELESS (EVERYWHERE!)

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It is axiomatic that the only good standard is an implemented standard -- and that (at least by this definition) there are far too many bad standards that have been created over the years. Too often, a commitment to consensus or infighting can result in watered down standards, and many times the process time has exceeded the market's patience to await the result.

It is by this measure that we acclaim wireless technologies to be the standard setting area of the year. From wireless phones to Wi-Fi enabled laptops to RFID tags for everything, there are a host of wireless standards that are already implemented, or are in the process of being added to purchasing requirements. These standards come in all stages of development, refinement and sophistication, and have been developed by all types of standard setting organizations (SSOs). Moreover, there were few areas of commercial and consumer life that have been unaffected by the implementation of these standards, from road warriors connecting to the mother ship to third-world people gaining their first direct access to the outside world.

But great as this impact may have been, it is certain to be only a suggestion of what is to come, as geospatial information systems (GIS) standards enable more and more location based services, RFID tags are used to track ever-more pedestrian items, more and more wireless-enabled devices find their way into cars, products, kiosks, and a host of other as-yet unanticipated wireless products and services are conceived and implemented.

Highlights of the year were many. Here are but a few:

To Wi-Fi or not to Wi-Fi? In a sometimes chaotic, but ultimately productive, example of multiple standard setting processes setting competing solutions against each other, the market narrowed down to just two: the IEEE-developed 802.11 family of standards popularly referred to by the short hand name of "Wi-Fi", and the beguilingly named, competing "Bluetooth" standard. The press enjoyed covering the two standards as if they were a horse race, as well as the further development of new standards flavors within the Wi-Fi family. Meanwhile, vendors scrambled to decide which standard (or standards, for those that wished to hedge their bets in such a fast-moving situation) to deploy in their products.

In truth, Wi-Fi and Bluetooth were each largely targeted at different markets (the former, with a significantly larger range, being most appropriate for effortlessly deploying a home network, and the latter being a good choice for eliminating the wires connecting a PC to its printer and mouse in a single office). By year's end, Wi-Fi seemed the clear choice for home users and large office installations, while Bluetooth's best hopes appeared to be in more limited and particular types of usage. At the same time, some early commercial bets paid off, while others did not: home Wi-Fi use exploded, while investments in public-space Wi-Fi "hot spots" proved (so far) to find few paid users.

On the horizon, there are other wireless standards in contemplation, as vendors look for the best cost and technical solution to each set of problems. Some may cost just pennies to deploy, in contrast to the more substantial costs for both Bluetooth and wireless.

Here is a sampling of the wireless news we covered in this application area this year:

Selected CSB Stories, Comments and News Shorts:

Trends : WIRELESS (WHO'S ON FIRST?)
The press has made much of the competition of BlueTooth and Wi-Fi for the hearts and minds of the industry. Are competing standards good or bad?
http://www.consortiuminfo.org/bulletins/jan2003.php#trends

Market Uncertain Whether to Embrace 802.11a Wi-Fi Standard
CNET News.com, January 8, 2003 **-** *http://news.com.com/2100-1033-979748.html?tag=cd_mh*

Wi-Fi "Hot Spot" Seal of Approval Program Launched to Identify Compliant Sites
CNET News.com, January 9, 2003 *http://news.com.com/2100-1033-979959.html*

Bluetooth SIG Unveils Mobile Operators Strategy
3GSM World Congress 2003, Cannes, France, February 18, 2003 **–**
http://www.bluetooth.com/news/releases.asp?A=2&PID=549&ARC=1&ofs=

Standards: Truce pays off for rivals
CNET News.com, February 7, 2003, 4:00 AM PT – *http://news.com.com/2009-1033-982341.html?tag=cd_mh*

New Wireless 11g 'Standard' Ends in Tears
Newswireless.net, February 2, 2003 (08:43 GMT) **-** *http://212.100.234.54/content/59/29250.html*

IEEE Advances Wireless MAN Standard
Internetnews.com, January 31, 2003 - *http://www.internetnews.com/xSP/article.php/1577591*

RFID Tags: The Customer Speaks: Standards usually represent a forward-looking strategy by vendors, whereby the investment in setting standards is intended to lower the risk of product introduction. Hopefully, creation of a standard will enable the near-simultaneous introduction of a broad array of products and services that can interoperate. This, in turn, is intended to tempt customers into making their own investment in the newly introduced product or service that the standard makes possible. Sometimes the investment pays off, and sometimes it does not.

In the case of RFID tags, there were many who said that the technology and the standards might not pay off, and their doubts were not without foundation. After all, early R&D efforts could only produce tags at certain size and price, and the tags required an antenna to boot (albeit a small one). Anyone who decided to deploy the new technology would need to make a substantial investment in the readers and other related infrastructure, as well as buy a tag for every item that they wished to track. Add to this the risk that, absent common agreement among vendors on the standards that they would support, an early adopter might find that it had made a big investment in technology, only to find that its investment quickly became obsolete (at which time the same adopter might see its more conservative competitors make safer, cheaper purchasing decisions). Small wonder that many analysts thought that the day when RFID tags became ubiquitous might be later rather than sooner, if ever.

All that changed when Wal-Mart, the 900-pound gorilla of global retail, decided to require its largest suppliers to deploy RFID technology if they wished to continue to do business with what was often their largest customer. Not long after, the U.S. Department of Defense made the same decision.

As a result, the standards investment calculus was turned on its head almost overnight: First, a vendor had no choice but to implement, if Wal-Mart or the DOD was a large customer. Second, a vendor would

know that its competitors would need to make a contemporaneous investment, lowering the risk of loss of business to competitors based on price. Third, whatever technology Wal-Mart blessed would be likely to become a de facto standard, ensuring at least a near-term return on the immediate technology investment. Fourth, the potential business and volumes resulting from the guaranteed market for RFID products would cause per-tag prices to drop, and ensure rewards to those technology vendors that made the investment in miniaturization and other necessary advancements. Fifth, once vendors make the necessary investment to serve these two customers, they will have a strong incentive to capitalize on their investment by providing incentives to other customers to adopt the same technology.

And finally, the existence of a robust standard-setting process gave confidence that the standards would be effective, adopted, and durable.

The result? As great assurance as it is possible to have that adopting a new standards-based technology will be a sound investment. One can only assume that, as a result of the requirements decisions of these two huge customers, that the utilization of RFID technology has been accelerated by a factor of years. And after the initial pain, even the vendors required to be the first implementers may prove to be the long-term beneficiaries, as their experience and capabilities will exceed that of their later-adopting competitors. A happy story for all.

Well, perhaps not all. The concept of being able to attach a hidden, traceable tag to everything from a car to a tube of toothpaste leaves many privacy advocates uneasy. The impact of these concerns even caused Wal-Mart to engage in some public repositioning. But standards efforts are being applied to address privacy fears as well, with new features being designed that can, for example, deactivate an RFID tag when it passes by a reader at a store's front door.

The following selection of news stories and ***CSB*** comments shows how quickly this story moved during the year, taking RFID tags from an interesting new technology to projected rapid commercial deployment.

Selected CSB Comments and News Stories:

Wal-Mart to Throw Its Weight Behind RFID
CNET News.com, June 5, 2003 - CNET News.com, June 5, 2003 -- *http://news.com.com/2100-1022-1013767.html*

Microsoft Identifies with RFID Tag Organization
InfoWorld, June 17, 2003 - *http://www.infoworld.com/article/03/06/17/HNmsrfid_1.html*

How Smart is that Smart Shelf? In our last issue, we noted that Wal-Mart had urged its top 100 suppliers to attach radio frequency ID (RFID) tags to the products that they delivered to the retailing giant. Since then, privacy advocates have increasingly focused on the feared potential for tagged products to continue to supply information after they leave the store. Despite the pledge of RFID manufacturers to install "kill switches" to disable RFID tags as they leave the store, concerns remain - and Wal-Mart has cancelled its RFID-based "smart shelf" pilot program.

Wal-Mart Cancels 'Smart Shelf' Trial
CNET News, July 9, 2003 - *http://news.com.com/2102-1019_3-1023934.html?tag=ni_print*

No more lines (or privacy?) For the last several issues, we have been including news on the bleeding edge of adoption of radio frequency identification (RFID) tags. Some see these tiny transmitters on a chip as the ultimate tool for inventory tracking and end-to-end supply chain management, while others see a threat to privacy. Our guess is that they will eventually be ubiquitous (unless they are leapfrogged by some new, yet-to-be-released technology), with the greater question being how soon prices and antenna sizes both reduce to the point where the broad incorporation of RFID tags becomes inevitable. The first two articles below report on efforts being launched in Las Vegas and Chicago to familiarize the marketplace with the joys of RFID, both within and without the four walls of commercial establishments, while the third article focuses on efforts to quell the fears of those who feel that there are enough eyes looking over their shoulders already.

SAP to show off RFID's potential
IDG News Service, September 5, 2003 - *http://www.infoworld.com/article/03/09/05/HNsaprfid_1.html*

Chicago show heralds new 'Internet of things'
InfoWorld, September 15, 2003 - *http://www.infoworld.com/article/03/09/15/HNchicagoshow_1.html*

RSA Seeks to Fix RFID Worries
eWeek, August 25, 2003 - *http://www.eweek.com/article2/0,3959,1229567,00.asp*

Another link in the chain: We have been following RFID tag specifications and market testing for all of 2003, and the news in this area continues to issue rapidly. The following two stories show both sides of the buy/sell equation in this rapidly evolving area: a new standard from the Auto-ID Center has been released to enable the supply side, and another 900 pound gorilla is joining Wal-Mart on the demand side: the Department of Defense.

Physical Markup Language (PML) Core Specification Version 1.0 for EPC Objects
The Cover Pages, November 10, 2003 -- *http://xml.coverpages.org/ni2003-11-10-b.html*

Feds, Wal-Mart Drive RFID Adoption
eWEEK, October 28, 2003 - *http://www.eweek.com/article2/0,4149,1365701,00.asp*

From the Standards Blog:

***#8* Standards, New Frontiers and ROI, December 1, 2003 -** … As we have previously reported, both Wal-Mart, and now the Department of Defense have announced that they will require vendors to adopt RFID technology, which will have a dramatic impact on driving down RFID unit prices. But the more expensive elements of RFID-based systems will be evolving rapidly for some time, thus offering the risk for early obsolescence for early adopter/purchasers of such systems. What to do, if you're a defense contractor or a major supplier to Wal-Mart? One analyst identifies the following as a key element of any early-adopter deployment strategy:

"Invest in open standards, such as XML, as much as possible. If a company ties an RFID system to proprietary software processes, it will be locked into out-of-date technology almost as soon as its deployment is complete. An RFID project is an excellent opportunity to revamp proprietary systems and invest in open standards . [RFID: An ROI Black Hole, Barry Mason, Nucleus Research]

For the full entry, see: ***#8* Standards, New Frontiers and ROI**

Mobile Standards and Products Explode: The year also saw an explosion of activity along the entire spectrum of mobile telephone enablers and services, with mobile phone use based on GSM standards sweeping the globe. Indeed, GSM telephones passed the ***billion-user*** mark and membership in the GSM Association surpassed the ***200-country member*** mark. At the same time, there was increasing global cooperation among nations and regions to allocate and agree upon radio frequencies for new services - an imperative given greater urgency by the addition of wireless features to medical devices, such as pacemakers. And on May 16, Iraq became the newest member of the GSMA, as the American reconstruction force sought to restore the communications infrastructure of the defeated country.

Indeed, during 2003, it became clear that pervasive mobile-only phone use will not remain a third-world phenomenon, as many first world users transferred their home phone numbers to their mobile accounts -- and sometimes terminated their land line accounts as well. In 2004, the big news may turn back to land-line based services, as independents force even the major carriers to offer flat-fee, unlimited Voice Over IP (VoIP) services -- based on yet another set of standards. But the appeal of VoIP includes its emerging capacity to handle instantaneous delivery of huge amounts of data, such as video streams -- services that are not (yet) in great demand for deployment on a tiny mobile phone screen.

At the same time, a wealth of standards have been developed to enable mobile phone users to handle everything from financial transactions to text messages while on the go. Indeed, mobile phone owners in the U.K. alone sent over ***1.3 billion text messages*** in a single month.

Selected CSB Comments and News Stories:

GSM Europe calls on Telecom Council to support Rollout of new mobile services
Brussels, Belgium, March 27, 2003 **-** *http://www.gsmworld.com/news/press_2003/press_10.shtml*

Iraq Connects To The World With GSM Mobile Network
London, UK, 16 May 2003 **-** *http://www.gsmworld.com/news/press_2003/press_14.shtml*

Industry Specifications and Road Map Ready for Secure Mobile Transactions
Mobiletransaction.org June 2003 **-** *http://www.mobiletransaction.org/pressreleases/january220103.html*

What's a mile for wireless? The infamous "last mile" issue has plagued high-speed data exchange for years. The issue is particularly acute for those in rural areas, where that metaphorical last mile is a lot longer than for an urban customer. Wireless technologies offer one solution, and 3G Americas tracks the penetration of wireless technologies in the western hemisphere.

3G Americas Documents Next-Generation Transition for Rural and Regional Mobile Operators
Bellevue, WA, June 09, 2003 -
http://www.3gamericas.org/English/pressreleases/DisplayPressRelease.cfm?id=491

So Many Transmitters, So Few Frequencies: Not that long ago, radio frequencies were the concern of a limited set of commercial interests. Today, with the proliferation of standards-based services intended to free printers from cables and laptops from hardwire network connections, not to mention enable building-wide wireless networks, the allocation of radio frequencies has become a matter of broad and urgent concern. Equally important is agreeing upon global conformity of allocations and standards, in order to permit seamless services on a worldwide basis…

World Radiocommunication Conference Concludes: Agreements Define Future of Radiocommunications
Geneva, 4 July 2003 - *http://www.itu.int/newsroom/press_releases/2003/19.html*

Was that a cell phone I heard? One reason that standards have a higher profile today is because standards-enabled consumer products have become so ubiquitous and noticeable. Today, there are well over one billion mobile phone users - a fantastic number by any measure. In the following press release, the GSM Association, which promotes the interests of operators offering services based on GSM, GPRS (General Packet Radio Services), EDGE (Enhanced Data for GSM Evolution) and 3GSM wireless communications platforms, announces the arrival of its 200th member: Djibouti. Other recent arrivals include the Bahamas, Kiribati, Comoros, Guatemala, Timor Leste, Honduras, and Guyana. The reach and breadth of the GSM membership also underlines the way that standards-enabled technology can help emerging countries avoid capital intensive infrastructural investments (in this case, to enable wire-line transmission of voice and data) to bring first world services to third world countries.

GSM Celebrates 200 Country Milestone
London, UK: 2nd September 2003 - *http://www.gsmworld.com/news/press_2003/press_25.shtml*

Another British Invasion? While US mobile phone owners continue to be largely oblivious to text messaging, use in countries such as Great Britain continues to grow exponentially. With the offering of additional services designed to wed owners ever more tightly to their cell phones (such as popular polls and voting), the adoption of text messaging in the US may be even more rapid once the craze begins to take serious hold.

RECORD FIGURES FOR U.K. TEXT MESSAGING (1.8 billion)
The Mobile Data Association (MDA), November 25, 2003 -
http://www.text.it/mediacentre/default.asp?intPageId=598

WORLD STANDARDS DAY - GSM APPROACHES BILLIONTH USER
ETSI, Sophia, Antipolis, France, 14 October 2003 -
http://www.etsi.org/pressroom/Previous/2003/2003_world_standards.htm

Europe and adaptors: You already know that you have to take a grab bag of adaptors with you if you travel to Europe with a hair dryer. But what if you have a pacemaker? That would be rather awkward. In response, ETSI is tackling the necessary work to permit new, more advanced, wireless controlled medical devices to be used without regard to border crossings.

ETSI STANDARDS FOR ULTRA LOW POWER ACTIVE MEDICAL IMPLANTS NEAR
Sophia-Antipolis, France, 15th October 2003 -
http://www.etsi.org/pressroom/Previous/2003/2003_10_lpra1.htm

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