

# M D M

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[www.ericsson.se/mobitex](http://www.ericsson.se/mobitex)

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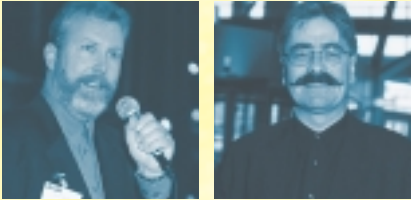
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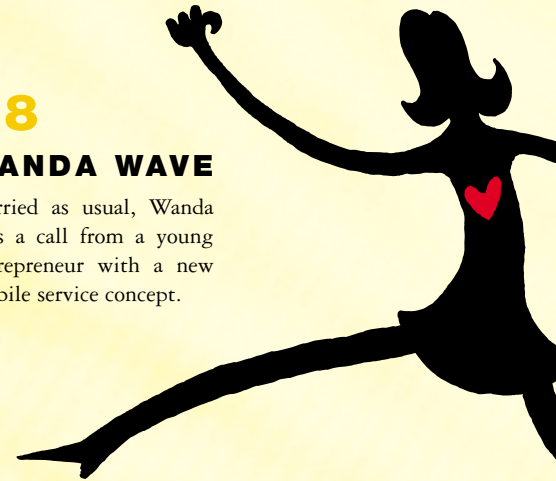
Mobitex continues to leverage its strengths as a narrowband packet data technology that is now opening up a mass market for interactive services. Ericsson is also enhancing the technology in a number of ways to prepare for millions of users.

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**Ericsson links:**

Ericsson: [www.ericsson.com](http://www.ericsson.com)

Ericsson's website for Network Operators:

[www.ericsson.com/wireless](http://www.ericsson.com/wireless)

Ericsson Mobitex: [www.ericsson.com/mobitex](http://www.ericsson.com/mobitex)

**Mobitex operators & associations featured in this issue:**

BellSouth Wireless Data, US: [www.bellsouthwd.com](http://www.bellsouthwd.com)

Cingular Wireless, US: [www.cingular.com](http://www.cingular.com)

Intec, Korea: [www.intectelecom.co.kr](http://www.intectelecom.co.kr)

Mowic, Sweden: [www.mowic.se](http://www.mowic.se)

RAM Mobile Data, Netherlands: [www.ram.nl](http://www.ram.nl)

RAM Mobile Data, Belgium: [www.ram.be](http://www.ram.be)

RAM Mobile Data, UK: [www.ram.co.uk](http://www.ram.co.uk)

United Wireless, Australia: [www.uw.com.au](http://www.uw.com.au)

**Companies and organizations featured in this issue:**

AOL, US: [www.aol.com](http://www.aol.com)

Austar, Australia: [www.austar.com](http://www.austar.com)

CNI, Korea: [www.cni.co.kr](http://www.cni.co.kr)

Dotwap, Australia: [www.dotwap.com](http://www.dotwap.com)

Itronix, US: [www.itronix.com](http://www.itronix.com)

Maxon UK: [www.maxon.co.uk](http://www.maxon.co.uk)

Mobitex Operators Associations: [www.mobitex.org](http://www.mobitex.org)

Clyrcom, Australia: [www.nomadicglobal.com](http://www.nomadicglobal.com)

Palm Inc, US: [www.palmpilot.3com.com](http://www.palmpilot.3com.com)

Queensland ambulance, Australia: [www.ambulance.qld.gov.au](http://www.ambulance.qld.gov.au)

Research In Motion RIM, Canada: [www.rim.net](http://www.rim.net)

Schlumberger, France: [www.schlumberger.com](http://www.schlumberger.com)

Startupfactory, Sweden: [www.startupfactory.com](http://www.startupfactory.com)

Tardis transcommunications, UK: [www.tardismobile.com](http://www.tardismobile.com)

# MOBITEX HAS LEGS!



Mobitex has life! With all due respect to MOA chairman David Neale, the conclusion in his address to the largest-ever MOA meeting held recently in Gothenburg is looking more and more like an understatement for every day that passes.

Would you bet on Mobitex? What kind of return do you expect on an investment? What is the economic lifetime of a Mobitex network? What is the product life cycle for a wireless PDA? What is the asset value of a mobile Internet service? How much are consumers willing to pay for wireless data?

We don't pretend to be able to answer all of these questions. In this issue of Mobile Data Magazine, however, we are taking an unusual approach. Instead of focusing on a market or an application segment for our theme, we are trying to look at Mobitex from an investor's perspective and to show that Mobitex technology provides profitable investment opportunities for many parties.

You will find some surprising conclusions in our investigation of how to profit from Mobitex. Today, everyone seems to be talking about the mobile Internet and 3G mobile systems. Ushering in this new age will be GPRS and WAP, portrayed by proponents as a marriage made in heaven. Meanwhile, as Ericsson senior vice president Torbjörn Nilsson so rightly observes, the mobile Internet is here today. It's an everyday thing, and in large parts of the world, it's running on Mobitex.

Smart people seize the day by taking advantage of existing technology and running with it. Look at what's out there. Packet data is already here, and Mobitex net-

works provide superb coverage. While dealers are waiting for WAP and GPRS phones, consumers are buying wireless handhelds for Mobitex by the thousands each week, and the world's largest media company and Internet service provider is making its services available on Mobitex. Can you spell opportunity?

For people who thought that Mobitex was old and for others who are still waiting for the savior to come, the world must be very confusing. According to the experts, it wasn't supposed to happen like this. Meanwhile, consumers are voting with their feet, and as far as we can see, they're running for Mobitex devices.

So, does Mobitex have life? It certainly does. In fact, in today's market and at the dawning of the mobile Internet age, Mobitex has almost everything going for it. Mobitex has legs. Now the only question is: When are you going to start running?

*Pontus Lindqvist*

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# DELIVERING WHAT USERS WANT

At the MOA meeting in Gothenburg, Sweden, Mobile Data Magazine took the opportunity to talk to MOA chairman David Neale and executive director Jack Barse about the future prospects for Mobitex and its attractiveness for investors.



## *s Mobitex an attractive investment in today's market?*

**DN:** If we look at it in terms of the survivability of Mobitex technology, I would say that the prospects are very good. The irony of today's situation is that everyone wants to be in packet data, which is where Mobitex has been for years, so we are now experiencing new interest in Mobitex as an investment vehicle. RIM, for example, is very well-funded. Nettech, which recently changed its name to Broadbeam and attracted USD 30 million in funding, is another example of a company working with Mobitex that has shown financial strength.

**JB:** The mobile Internet obviously represents a tremendous opportunity for Mobitex. The buzz and noise in the market is mostly being created by the cellular operators and the cellular infrastructure companies. The problem is that the expectations they're setting exceed their ability to deliver on their promises. Add to that the fact that those companies are fundamentally voice companies and are not inclined to become data experts. On the other hand, Mobitex is a proven, cost-effective and reliable technology with coverage, terminals and applications available now. We're working hard to show customers why we say that Mobitex can deliver what others only promise. We've got a lot going for us.

## *Are Mobitex networks profitable?*

**DN:** New networks are obviously not profitable yet, but they will be much sooner than 3G networks. Many established networks, however, are now cash-flow positive, which means that they are reporting an operating profit and paying down the investment in the network.

**JB:** What is particularly interesting today is that we see companies like CNI and its partners in Korea and Tardis in the UK re-investing in existing networks. There is no capital to do the same old thing. Instead they are investing in new business models.

## *What are these new business models?*

**DN:** There are basically two new models. In one case, system integrators are becoming application service providers. Broadbeam is an excellent example of that model in which Nettech's traditional business as a system integrator is being taken to another level. In the other case, resellers are becoming virtual network operators. AOL is the best example of that, but it's a trend that's happening everywhere.

**JB:** I believe that this shows that the Mobitex market is moving to another level of maturity. Historically, many operators had very narrowly focused vertical applications with a low number of users and high ARPU (average revenue per user). That was followed by what I call a "field of dreams" model in which each operator had one business unit for each of a number of broadly defined market segments. We are moving away from that now and going towards a next-generation business plan in which operators are moving up the value chain and partnering with other companies that have strong brands and existing customer relationships.

## *What is a profitable Mobitex investment in today's market?*

**DN:** There are any number of profitable investments in today's market, because interest in wireless data continues to accelerate. There are many companies working at many different

levels that will be successful. As the tide rises, the Mobitex boat is extremely well positioned and can take advantage of it faster. In a market where deliverables and demonstrable proof of concept are key, Mobitex remains the technology to beat.

**JB:** Profitable Mobitex networks will have one leading application that will quickly make them positive cash flow. One recent example of such an investment is CooperNet in Brazil, where wireless EFT/POS (Electronic Funds Transfer/Point-of-Sale) will be the killer application. CooperNet has one of the most solid business cases for Mobitex that I have ever seen.

## *What about competition from other technologies?*

**DN:** Other technologies are coming, but deployment will be slower than some people expect. Networks will be built-out for GPRS and 3G, but the operators will still be the SEND/END voice guys. Whatever technology, applications remain the key. Mobitex has much more life than people are aware of. We have fantastic devices, incredibly good applications and strong developer support. I would estimate a strong market advantage for Mobitex extending over at least the next three to four years.

**JB:** We think it's going to take a pretty long time before other technologies can offer the same sorts of services that are available in Mobitex today; and by then we'll be on our own next generation. Today, Mobitex has the largest community of users, the strongest community of companies, and is growing faster than anything else. Users know who can deliver – and it's Mobitex. ■

# MOBILE BUSINESS NEWS

A new Mobitex operator is moving quickly to open up a vast market in Brazil. Employing a somewhat unusual business structure and offering services precisely matched to local requirements, CooperNet is setting its sights high and planning for rapid growth.

Cooperativa Nacional de Transmissão de Dados Ltd (CooperNet) has been granted concessions by the Brazilian government to provide wireless data services on the 900 MHz band in the cities of Sao Paulo, Rio de Janeiro and Curitiba. Together, these cities and the states for which they are the capitals account for nearly 60 percent of Brazil's economic output.

As CooperNet notes in its business plan, this service area has some unique prerequisites.

- Sao Paulo and Rio de Janeiro are among the world's largest cities, with populations of 15 million and 10 million, respectively.

## COOPERNET SET TO SHINE



- There is currently no provider of similar wireless data services in Brazil.

- Unlike many other markets with well-developed telephone networks, wireless data services in Brazil will be cost-competitive with fixed services.

- The Mobitex network is expected to be more reliable than the existing landline network.

- There is significant unsatisfied demand for data communications services in the targeted cities.

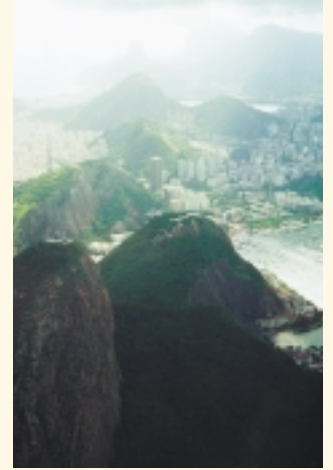
- Due to the high efficiency of the Mobitex network, the initial capital expenditure required is modest relative to the market coverage that can be obtained in Sao Paulo and Rio de Janeiro.

### COOPERATIVE BUSINESS ORGANIZATION

For CooperNet and its backers, this constitutes a compelling business case. To realize this potential, however, CooperNet is employing a somewhat unusual business structure that will allow the new Mobitex operator to move quickly and to deploy services efficiently.

CooperNet is organized as a cooperative, in which the engineering company Universal Network Technology S/A (UNT) will act as the operating company and cooperative members will deploy services. UNT, which is an associated company formed by the same group of investors behind CooperNet, will build and operate the Mobitex network, which when completed in the second half of 2001 will comprise 55 base stations in the three cities. The cooperative members, on the other hand, will deploy services and applications and pay subscriber fees.

According to this organizational structure, the cooperative members will be responsible for both applications and subscribers. The new operator has carefully targeted end users and applications, however, and has already signed a number of important agreements.



Wireless POS (point-of-sale) and EFT (electronic funds transfer) applications are the most important in CooperNet's initial business plan. UNT has concluded negotiations with the Commercial Association of Sao Paulo, the most powerful and important association of its kind in Brazil, with more than 25,000 member organizations, including the country's 500 largest companies.

"Our expectations over the next five years are that we will achieve 25 percent market penetration for ATMs and nearly 50 percent for POS applications," says Simão Brayer, President of CooperNet, adding that this represents a potential of more than 350,000 subscribers.

Because the network will cover densely populated urban areas, interactive applications will undoubtedly play an important role in building CooperNet's business. The new operator expects to certify devices from Palm and RIM for use on its network and is actively seeking partnerships with companies that will provide interactive services and content.

### BRILLIANT BUSINESS PLAN

"We believe that CooperNet has a brilliant business plan and that the new Brazilian operator has put an organization in place with the necessary expertise to execute it," says Jack Barse, executive director of the Mobitex Operators Association. "We welcome them to the Mobitex community and are confident that they will achieve success in their targeted market." ■

# REDEFINING PARKING FOR THE INFORMATION AGE

Maxon, a UK-based manufacturer of Mobitex modems, is helping Schlumberger to redefine parking for the information age. According to the terms of a recent order, Maxon will supply 5,000 of its DM200 radio modem for installation in Schlumberger's Stelnet and other parking meter systems in Belgium, the Netherlands and Great Britain. First out is the Belgian city of Gent.

"Gent is a forward-looking city ready to implement new ideas and new technology to better serve our residents and the many visitors to the city," says Ward de Bruyker for the City of Gent. "Schlumberger has helped us to solve the problem of putting useful information at the fingertips of the most common visitor to Gent, the motorist, thus helping them to make better use of our facilities and to make their visit a more enjoyable experience."

The new Stelnet system builds on Schlumberger's proven Stelio parking terminal by integrating a Navigation Information Server with a completely intuitive user interface and a color display. This provides an ideal public access point for accessing a wide range of local information. The Stelnet parking terminal can display maps and routes to shopping areas, tourist attractions, exhibitions and hotels, advertising for local theaters

and restaurants and print additional useful information on the parking ticket.

The integrated Stelnet Navigator is the key to the new parking terminal. A simple control wheel, mounted at the same level as the display, enables the user to select menu items and to click for the next page of information, which can be displayed in English, French, Dutch or German. When not being used to display information, the terminal will display parking tariffs and instructions on how to use Stelnet.

Like the Stelio parking terminals, Stelnet is connected to a central server via Maxon's modem and the Mobitex network operated by KPN RAM Mobile Data Belgium. In addition to providing a wireless communications link for downloading information updates to the terminal, Mobitex also allows parking operators to dramatically reduce costs, since each terminal generates detailed warnings and reports to the server where a central control program notifies service engineers, thus optimizing maintenance. ■

[www.maxon.co.uk](http://www.maxon.co.uk)  
[www.schlumberger.com](http://www.schlumberger.com)

# WIRELESS COMMUNICATIONS FOR MELBOURNE COMMUTERS

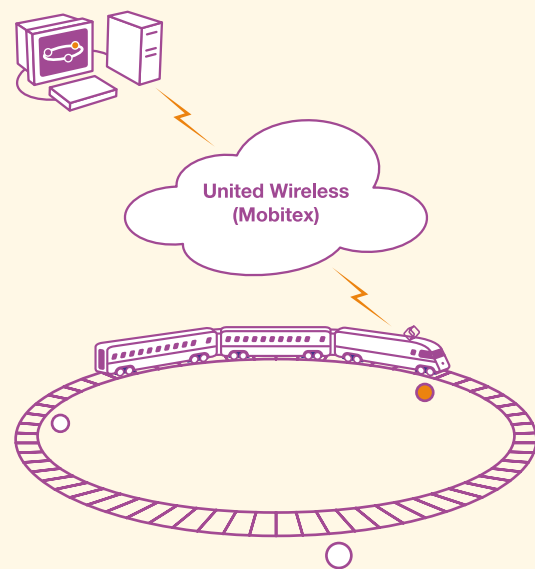
The Intelligent Network from Australian Mobitex operator United Wireless is providing the wireless data link for the recently commissioned Positions of Trains Systems (POTS) in Melbourne. POTS will enable Bayside Trains operational and maintenance staff to monitor and manage the network of trains, resulting in an increased level of efficiency, improved train scheduling and enhanced customer service to rail commuters in the Melbourne area.

The system captures real-time train location and logistics data from within the suburban electrified rail network and transmits it via the Mobitex network to a central database for processing and distribution. Some 650 electronic rail tags, which have been mounted on sleepers on tracks throughout Melbourne's network of 15 metropolitan lines, detect trains as they pass. More than 70,000 real-time reports are sent to the POTS server via the United Wireless network each day.



"The United Wireless Network will ensure that Bayside Trains has fast and easy access to the operational information and data they need," says United Wireless CEO Peter Clark. "We are delighted to be able to contribute to the enhanced services that will be delivered to Melbourne's rail passengers as a result of the new Position of Trains system." ■

[www.uw.com.au](http://www.uw.com.au)





# AN INTEGRATED STRATEGY FOR PIRELLI

Tire supplier Pirelli had a serious problem in the UK. Its distribution and service unit was suffering substantial losses due to inefficient operation. The service unit needed to be re-engineered to increase efficiency and to bring it more in line with market requirements, which included a contract service model. Otherwise, the unit would have to be shut down.

Pirelli's customers consist primarily of transport companies and other distributors who operate large fleets of vehicles. Although maintenance, including changing tires as necessary, is planned and scheduled at regular intervals, most of Pirelli's customers require roadside service. To serve these customers, Pirelli

maintained a workforce of 200 mobile tire fitters dispatched from multiple locations, who performed thousands of tire fitting jobs each year.

"This was a business unit drinking at the Last Chance Saloon," recalls Andrew Fitton, chief executive officer of Tardis Transcommunications. "The consequences of not re-engineering and streamlining this operation would have been devastating and undoubtedly resulted in Pirelli being eliminated from the UK market over time."

The solution that Pirelli created together with Tardis is called TruckWeb and involved creating a new centralized headquarters for the whole of UK. From this



center, the mobile tire fitters are dispatched to provide roadside service, while at the same time collecting fleet service inspection data. Each tire fitter's vehicle is now equipped with a Radix FW200 computer, a docking cradle with a radio modem and an in-vehicle color printer. The vans with stocks, are tracked in real time and linked via the RAM Mobile Data Network to an AS400 stock system back at head office.

"TruckWeb allowed Pirelli to significantly streamline operations," says Andrew Fitton. "With the new system, 80 service depots could be closed, and Pirelli's fleet could be reduced by 10 percent. Today, Pirelli's tire fitters provide more and improved service in less time, and the unit as a whole is now profitable." ■

[www.ram.co.uk](http://www.ram.co.uk), [www.tardismobile.com](http://www.tardismobile.com)

	Costs:	Savings:
Hardware	USD - 1 000 000	80 depots closed
Software	USD - 400 000	10% fleet reduction
Annual running	USD - 120 000	10% fleet reduction
Business is now profitable and service to customer improved.		

## KEEPING ENERGY COSTS UNDER CONTROL

Swedish Mobitex operator Mowic has entered a new strategic meter-reading project together with Schlumberger Technologies and Gothenburg Energy in the city of Gothenburg. The project involves wireless Mobitex communication within an AMR (automatic meter reading) solution for electricity and district heating.

Within the framework of this

project, the electricity meters of approximately 16,000 residential customers will be read automatically. The meter data will be transmitted over power lines to a concentrator and then forwarded over the Mobitex network to Schlumberger and then to Gothenburg Energy. Once the 16,000 customers are connected, which will take about three years according to the project

schedule, the contract will run for seven years.

"Although this is not the first time Mowic's network has been used for meter readings, it is the first time it has been used for residential electricity customers," notes Björn Sabel, marketing manager at Mowic. "With the continued deregulation of the energy market, however, this is

becoming a fiercely competitive segment. The fact that Mowic was selected over competing technologies confirms the commercial viability of our concept and shows that Mobitex is the best and the most cost-effective solution for secure wireless communication in real time." ■

[www.mowic.se](http://www.mowic.se)



# NEW JERSEY POLICE INCREASE PROPERTY RECOVERIES

In Fairfield, New Jersey, police officers are now using US Mobitex operator BellSouth Wireless Data's network and the latest wireless data technology to fight crime. Fairfield police officers are being equipped with vehicle-mounted laptop PCs that allow them to rapidly query the New Jersey Division of Motor Vehicles, the New Jersey state police criminal justice and the FBI National Crime Information Center (NCIC) databases over BellSouth's Intelligent Wireless Network using PacketCluster® Patrol software™ from Cerulean Technology.

"We have seen an increase of approximately 25 percent in the number of warrant-related arrests and in stolen property recoveries, including vehicles, due to wireless data transmission over the BellSouth network," says

Fairfield police chief Edward C. Facas. "We find that our officers are able to perform their jobs more effectively by having direct wireless access to multiple criminal databases."

During routine license and registration checks, or when officers notice a suspicious vehicle, they are able to enter information into their vehicle-mounted laptops to wirelessly search for outstanding warrant data, stolen vehicle reports and suspended licenses. The officers quickly receive a full report and are prepared for potentially dangerous situations before they step out of their vehicles.

Fairfield intends to expand its use of wireless data over the Mobitex network by integrating the PacketCluster Patrol software with their computer-aided dispatch and in-house records man-

agement system, which in turn connects to an online imaging database. ■

[www.bellsouthwd.com](http://www.bellsouthwd.com)



# QUEENSLAND NETWORK INAUGURATED



On November 30, 2000, the Queensland Ambulance Service (QAS) officially inaugurated its new private Mobitex network. Participating in the ceremony were Stephen Robertsson, the Minister of Emergency for Queensland, and media representatives from the press and TV.

The new network, which was described in a previous issue of Mobile Data Magazine, currently consists of 20 base stations serving 350 ambulances, of which about 290 are on active duty at any one time.

The QAS system includes automatic vehicle location (AVL), as well as logging, dispatching and reporting of all vehicle and personnel movements. The posi-

tioning system has an accuracy of less than five meters, allowing precise coordination of emergency responses between dispatchers and ambulance operators.

"Everyone is extremely pleased with the system," reports Per-Erik Sundström, manager for after-market sales at Ericsson Mobile Data Design, who was also present at the inauguration. "The benefits of being able to quickly dispatch ambulances to the scene of an accident were immediately apparent. Ambulance personnel, who often work under great stress, also regard the system as very user-friendly." ■

[www.ambulance.qld.gov.au](http://www.ambulance.qld.gov.au)

# CINGULAR WIRELESS TO EXCEL

The joint venture announced last April by US operators SBC and BellSouth to combine their wireless assets was officially launched on October 5, 2000. Cingular Wireless, as the new venture will be called, thus becomes a single source for nationwide wireless voice, Internet and data service in 42 of the nation's top markets.

"Cingular is a name that shows the importance of the individual customer, as well as the unity of this joint venture," says Cingular Wireless president and CEO Stephen Carter. "It is about simplifying the wireless industry, offering personal service and standing out among the rest of the industry."

The new company serves more than 19 million customers and approximately 190 million potential customers in 38 states, the District of Columbia and two US territories. The company will have annual revenues of about USD 12 billion, making it one of the US' 150 largest companies.

The new name will be evident in all aspects of the company's business. The Cingular Interactive senior executive team will remain in place. Mobitex operations will continue as a separate business unit, to be called Cingular Interactive. ■

[www.cingular.com](http://www.cingular.com)



A hand is shown holding a glowing green leaf, which is the central visual element of the page. The background is dark, making the glowing leaf stand out. The text is overlaid on this image.

# INVESTOR PERSPECTIVE

FROM AN

Market analysts and venture capitalists continue to regard mobile Internet and wireless data communications as a promising area for investment. Although markets are down sharply, compared with a year ago, and prospects throughout much of the technology sector are bleak, this area remains a bright spot.

“There are a tremendous number of companies that can use wireless data to be more competitive”

Not all mobile Internet and wireless data ventures receive funding, and many business plans that once made investors take out their check books are no longer viable.

Where do companies working with Mobitex technology stand in this new investment climate? The success factors that make Mobitex a profitable investment have never been adequately described in Mobile Data Magazine. For this reason, we are taking a somewhat different approach with our theme for this issue. Instead of presenting an application area or market segment, such as the m-commerce theme in our most recent issue, we will examine Mobitex from an investor's perspective.

The objective of any investment is naturally to make a profit. However, an investment in Mobitex, or any other technology, can take many forms. A small courier service, such as Holland Parcel Express, may invest a relatively modest amount in a turnkey solution for handling customer requests. Operators, such as Sweden's Mowic or Brazil's CooperNet, on the other hand, are planning a national network to serve hundreds of thousands of users that will require an investment of millions of dollars. Between these two extremes, there is an almost infinite spectrum of both young start-ups and established companies that are developing software, terminals and services for Mobitex from which they expect to make a profit. This article cannot hope to describe the business case for all of these ventures, but it will show how to profit from Mobitex.

## IDENTIFYING STRENGTHS AND OPPORTUNITIES

Mom-and-pop shops that grow from one location to several and then go on to expand to national chains relying solely on their own resources and financing are not an anachronism characteristic of the old economy. In the new economy, however, and particularly in fast growing markets, risk capital is essential to leverage market growth and build a successful business. Today, despite the technology stock market slump, there is no shortage of venture capital, but investors have become wary and need to understand the strengths and weaknesses of the technology in which they are investing.

In today's wireless communications market, there are a number of available and emerging technologies that present different opportunities. As a technology, Mobitex can be

presented in a SWOT chart that summarizes strengths, weaknesses, opportunities and threats that are generally considered important by investors and that will be decisive in securing funding for any wireless data venture.

As this chart shows, Mobitex presents significant strengths and can provide significant opportunities, but profiting from Mobitex also demands addressing its weaknesses and the threats to the technology. Mobitex is an available, proven and highly reliable technology that offers a large number of turnkey products and services that can be rapidly deployed to meet a substantial and rapidly growing demand in the market. Whether or not a Mobitex investment is profitable, however, depends critically on choosing the applications and services for which it is best suited and carefully matching their functionality to user expectations.

Mobitex is a narrowband wireless data technology for dedicated packet-switched networks. Ericsson has positioned Mobitex as the most cost-effective technology for the greatest number of wireless data applications. It is not suitable for wireless multimedia, and it does not compete with voice-centric cellular systems. Investors who are aware of these limitations and correctly understand the technology's strengths will find that it offers many profitable investment opportunities.

As the examples in this and previous issues of Mobile Data Magazine show, many companies are profiting from Mobitex. Speaking at the Wave 2000 conference last spring in San Diego, former BellSouth Wireless Data CEO Bill Lenahan reported that more than 50 percent of the end-user companies investing in vertical applications running on BellSouth's Mobitex network reported pay-back times of 12 months or less.

There are a tremendous number of companies that can use wireless data to be more competitive, and Mobitex operators and their busi-

ness partners can deliver customized solutions based on their technology, experience and expertise that are extremely cost-effective and competitive. In all successful cases, however, the investment decision is based on a sound business case that is rooted in detailed knowledge of the market, realistic expectations about demand, applications and services that deliver real value for customer companies and end users.

## MATCHING APPLICATIONS TO STRENGTHS

One of Mobitex' greatest strengths is that it is extremely cost-effective. It was specifically designed for sending many messages at low cost. In BellSouth Wireless Data's network, for example, users send an average of 500 messages per month, many of which are e-mails, yet these users are charged only USD 40 per month for an extensive messaging service. Compare this with SMS, which offers poorer service (short messages versus Internet e-mail) at much higher cost, and the Mobitex advantage is clear.

“The message is always delivered, and the response is virtually instantaneous,” says Dimitris Alexander at Mobile City, 299 Broad Street 1007 NY, explaining to a customer why he was recommending Mobitex and RIM's BlackBerry over a two-way paging device. In his

### STRENGTHS

- Absolutely reliable transactions
- Ideal for e-mail and instant messaging
- Immediately useful devices and services
- Proven technology
- Extensive expertise in delivering custom applications
- Extremely cost-effective for suitable applications

### WEAKNESSES

- Low awareness of technology
- Unsuitable for wireless multimedia
- Inadequate promotion

### OPPORTUNITIES

- Attracting new services and devices
- Accelerating demand for wireless
- Available now
- Short pay-back time for companies using wireless data
- New business models (ASP and virtual network operators)
- Extensive partnerships already in place

### THREATS

- Momentum for GPRS and 3G
- User expectations





cal of vertical wireless data applications. Many Mobitex operators, such as RAM Mobile Data UK, which was recently acquired by Tardis Transcommunications, believe that their expertise in building business solutions can add value to these classical applications and enable new ways of working, even in traditional industrial sectors.

“Accelerating business is the killer app for us,” says Tardis CEO Andrew Fitton. “Today RAM is selling wireless data service, but the future lies in business solutions. The network is one element in the solution, not the solution itself.”

### NEW HORIZONTAL MARKETS

New handheld devices and services are playing a crucial role in rejuvenating traditional vertical markets and opening new horizontal markets. This trend started about two years ago with the introduction of the RIM 950 Wireless Handheld, a breakthrough product that was quickly followed by the Palm VII Connected Organizer, which also uses the Mobitex network for wireless data communications. More recently, the RIM 957 Wireless Handheld, the Clyrcom Palm V Wireless Cradle, the TWM III handheld from CNI and the forthcoming Palm V wireless cradle from Maxon have expanded the number of handheld devices for Mobitex, and even more devices can be expected over the coming months.

The defining features of these devices are that they are truly tiny, being either handheld or wearable, that they can operate for weeks on a standard battery, and that they are consumer products in the truest sense, meaning that they are immediately useful and deliver an “out-of-box experience” that includes an intuitive interface and over-the-air activation. While it would be an exaggeration to say that these products were an overnight success, sales in North America two years after the introduction of the first devices are now running at about 15–20,000 units per week, meaning that the same number of new subscribers are being added to Mobitex networks. With the recent introduction of an AOL-branded RIM 950 wireless handheld as the AOL Mobile Communicator device, sales can be expected to further accelerate.

The new devices are ideal not only for e-mail, but also interactive (near real-time) messaging and instant messaging (chatting). In

addition, they can replace older and bulkier terminals for receiving service and dispatch orders in many vertical applications. All the devices support a WAP browser, as well as other connectivity options, meaning that they can access a variety of Internet-based information services, as well as corporate data via an enterprise WAP-gateway, for example. A current trend is that wireless banking and other m-commerce services are being offered on these devices.

### ATTRACTING NEW INVESTMENTS

The combination of a proven and cost-effective wireless data technology and readily available wireless handhelds designed for consumers has created considerable interest among service and content providers. This has in turn given rise to two new business models.

The AOL Mobile Communicator service, in which AOL is acting as a reseller to its customers of BellSouth Wireless Data’s service, is one example of the virtual network operator role, which in this case allows AOL to expand its popular instant messaging service to new user groups. RAM Mobile Data Netherlands provides an example of the ASP role (applications service provider), whereby the Dutch operator is using its innovative Track&Trace service to move up the value chain and act as an application service provider for small to mid-size businesses.

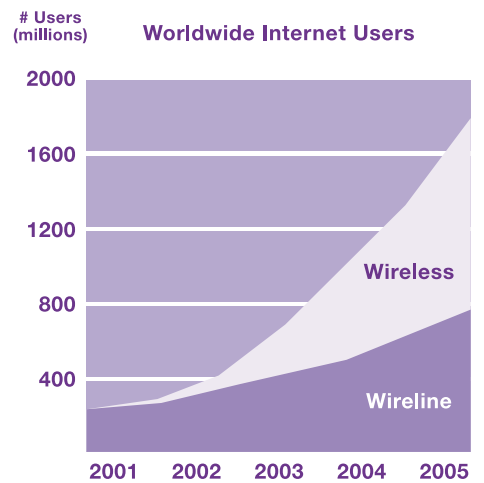
opinion, even though he was forced to send the customer to another retailer because the RIM device was temporarily out-of-stock, the customer should not settle for less.

Mobitex is a proven and reliable technology, offering high reliability that makes it the first choice for financial services and public safety applications, for example. Although consumers and e-mail users also value these features highly, they are an absolute prerequisite for many businesses and public authorities that demand that transactions must complete without dropped connections and that emergency messages must be delivered instantaneously.

### ACCELERATING BUSINESS

Mobitex has always been strong in traditional vertical markets, such as transportation, field service, telemetry and public safety, but its unparalleled messaging capabilities are adding a new dimension to these classical applications. In today’s customer-focused organizations, distinctions between blue-collar workers in the field and white collar workers in the office are fading. Whether it is drivers and dispatchers, or field service engineers and call handling agents, workers need access not only to customer orders and service requests, but a wealth of other information.

Increasingly, these customer-focused virtual teams need new forms of communication in which messaging and interactive applications add a new dimension to the classical paradigm of customer order processing and dispatching typi-



*There are many Mobitex enabled devices/terminals that can access Internet-based information, as well as corporate data, a market that is expected to grow substantially over the coming years. For investors is attractive to pick investments objects that are on the growth curve when it takes off.*

# “With this new investment, United Wireless is once again in start-up mode”

Australian Mobitex operator United Wireless provides an illustrative example of the synergy that these business models can create and how the availability of new products have motivated new investments from the owners. United Wireless had operated an established Mobitex network and had built a solid and steadily growing business based largely on traditional vertical applications. Austar, United Wireless owner, which is a cable TV operator, saw an opportunity. Austar had already had an installed base of largely rural cable TV subscribers but was moving into broadband services for which the initial take-up would be largely among urban subscribers.

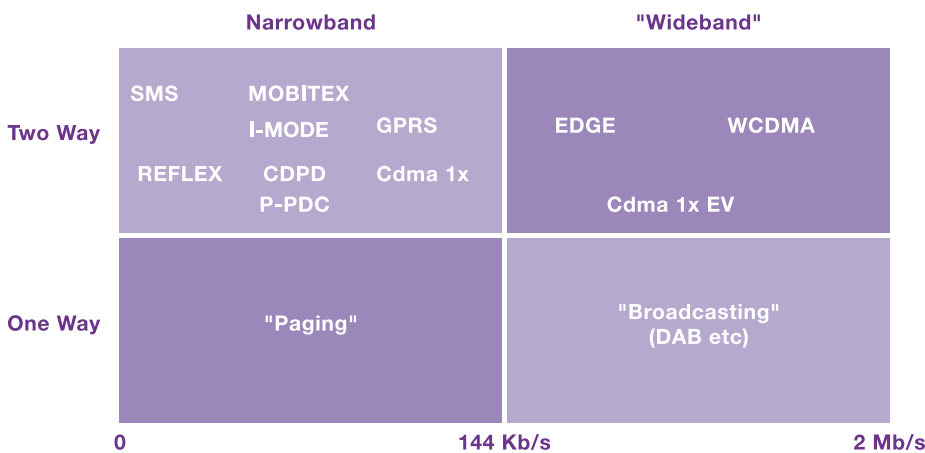
“Austar realized that Mobitex was a bullet-proof technology and that the timing was right to move into a horizontal market with a new device, such as the Palm V Wireless Cradle,” says United Wireless CEO Peter Clark. “With this new investment, United Wireless is once again in start-up mode and in a unique position to benefit from synergies

with Austar’s fixed broadband operations. We believe that the available market for interactive wireless applications and services will total at least 50,000 users over the next two years and consist largely of the user groups that Austar and its content partners wish to target for broadband services. This, in turn, will provide sufficient business to prolong the economic lifetime of the network by many years to come”

## REACHING THE TIPPING POINT

Partnerships, such as those forged in Australia between Austar, United Wireless, Clycom and dotWAP are common in the Mobitex community and an essential factor in delivering the solutions and providing the applications and services on which a successful business is built. In the US, as another example, a partnership between BellSouth Wireless Data and Palm Computing that is unparalleled in the wireless industry resulted one of the most successful products introduced to date.

Many people in the Mobitex community like to talk about the tipping point. When a technology is adopted by enough people and is backed by the right players, it becomes unstoppable. Mobitex is at the tipping point in a number of markets and fast approaching it in many others. ■



*There are a number of available and emerging technologies from Ericsson and other suppliers that present different opportunities. Mobitex operators will not be alone in the market. It is therefore essential to choose the applications and services for which the technology is best suited and to carefully match functionality to user expectation.*

## GOING THE DISTANCE IN BRAZIL

Bennett & Moloney is a US venture capital fund with about USD 500 million under management. Recently, the company took an equity stake in Universal Network Technology (UNT) and CooperNet, the newly started Mobitex network in Brazil

“We were already involved in the credit-card business in Brazil through partnerships with local terminal manufacturers,” says Jim Moloney, managing director at Bennett & Moloney. “We saw that Mobitex offered a significant advantage in the EFT/POS market primarily because it is extremely cost-effective and provides a compelling alternative to the poor fixed network infrastructure.”

As described in a separate article, CooperNet will build out its network using wireless POS as the lead application in Brazil’s largest cities. The objective is to put in place a fixed wireless infrastructure that will enable the new operator to capture a market share that may be as great as 25 percent for ATMs and 50 percent for credit-card terminals over the next five years.

“We believe that the potential is there, but we can realize a return on our investment with a much smaller market share,” says Jim Moloney. “We are prepared to go the distance and stay with it as long as it takes.”

Although Bennett & Moloney’s investment entitles the firm to board representation, Jim Moloney believes firmly in a hands-off approach to management. “UNT has a very capable management team, and we will defer to them in deciding how quickly to build out the network and other aspects of running the business,” says Jim Moloney, adding that his firm is confident that UNT has the expertise to deliver the service that customers expect and that the investment will be profitable over time.

“This is not your typical telecom investment where we intend to burn money and build out the network as fast as possible. Our decision was based on old-fashioned principles like cash flow. They may not be popular among other venture capitalists, but that’s what we believe in,” concludes Jim Moloney.



# TO THE NEXT LEVEL MOVING

Poised to take the next step in its development, Swedish Mobitex operator Mowic is looking forward to significant opportunities and a number of challenges in its market. Comprehensive network coverage has been established in Sweden's three largest cities, Stockholm, Gothenburg and Malmö, and the major roads between these cities. Customers have already signed on in key market segments, such as telemetry and logistics, and Mowic is now ready to take its business to the next level.





The company was formed in 1997 by a small group of private investors. Since that time, Mowic has been working hard to build its network and to grow with its major customers. One such customer is Birka Energy, which uses the Swedish operator's Mobitex network for a meter-reading application. As a result of this contract, Mowic has built out its network in Stockholm and the vicinity so that it now provides excellent indoor coverage.

Mowic is now pursuing an aggressive business plan in which the market is defined in five major segments. During the first quarter of 2001, Mowic will be preparing a new share issue for a private placement. Through this targeted share issue, the company expects to raise fundings, which will be used to expand the network and to establish offices in Gothenburg and other locations.

## CONFIDENT ABOUT MARKET PROSPECTS

"We felt that there were two paths forward," says Mowic chairman and principal investor Gary Johansson. "Either we could continue growing in small increments in pace with customer contracts, or we could increase the pace and go after a greater number of customers. We are very confident about our business and the prospects for the future, so it really wasn't a very difficult decision."

Principal investor Gary Johansson is a working chairman, who in addition to being a venture capitalist is a telecom industry veteran. President Tomas Rehn feels that this combination is invaluable for the company.

"Fast growth is not possible without financing, but for a start-up company, it is important that the investors understand the technology and the market" says Tomas, adding that the Mowic chairman and board of directors have been invaluable not only as financiers, but also as a sounding board.

"Technical expertise is essential when investing in a start-up company," agrees Gary Johansson. "But it is also necessary to maintain the right balance. The board can't get too involved. After all, the president is the one who is running the company."

## DEVICES ESSENTIAL FOR SUCCESS

Although Mowic intends to continue to develop its business in the established market segments of telemetry, property monitoring, transport and logistics, a key factor in the decision to



"We have seen what happened with subscriber growth in US when mobile Internet applications were introduced"

step up the pace is the availability of new wireless devices for the 400 MHz band that will enable interactive applications and services to be deployed.

"These devices are absolutely critical for our business going forward," emphasizes Mowic president Tomas Rehn. "We see major new market segments opening up in point-of-sale applications, positioning services and what we like to call mobile communities. To realize the potential in these segments, we simply have to provide small, low-power devices and excellent indoor coverage."

At present, Mowic is evaluating devices from a number of suppliers, including Clyrcom and Maxon, which have announced plans to produce a wireless Palm V cradle for the European market. These are attractive devices for the Swedish Mobitex operator, since there are some 200,000 Palm V users in Sweden, many of

whom have received the devices from their employers and use them heavily in their work.

"We are also very impressed with the products and services that CNI and Intec Telecom have created in Korea and are engaged in negotiations to introduce them in Sweden," says Tomas Rehn. "The recently launched TWM III opens up a whole new ballgame for the Mobitex community, and we hope that all operators recognize this opportunity. We have seen what happened with subscriber growth in US when mobile Internet applications were introduced. We see a similar opportunity with the right device for 400 MHz."

"CNI has the design expertise and the manufacturing capability to produce such a device, but it will require an up-front commitment for a relatively large order," continues Tomas Rehn. "We are optimistic about the negotiations with CNI, but it is becoming increasingly clear that we need to get other 400 MHz operators on board."

## INVESTING IN NEW MARKET SEGMENTS

Although both the Palm V cradles and the TWM III are WAP devices, Mowic does not intend to position itself as a wireless ISP or build its business on the mobile Internet. Instead, the company is focusing on mobile user communities of professional people who need to exchange information and access corporate data on the move. In many cases, this will involve a WAP and IP-based solution, but this will simply be a means toward the end of serving a mobile community.

Mowic also plans to invest in wireless payment solutions, even though fixed lines for such applications are readily available and relatively inexpensive in Sweden. "There are many cases where a wireless payment terminal at sporting events and exhibitions would be a very attractive alternative," says Tomas Rehn. "Today, people are also increasingly concerned about credit card fraud, and restaurants and other establishments able to complete a credit-card transaction while the card remains in the customer's sight can provide a higher level of service."

Tomas Rehn and Gary Johansson are aware that substantial investment will be required to realize the potential in the new market segments that Mowic is targeting. Despite being the first Mobitex operator to face competition in the form of commercial GPRS service, Mowic is confident that Mobitex offers compelling advantages with respect to security, cost and capacity. With the new share issue during the spring, Mowic's management will be ready to take the young company to the next level. ■

# LOGISTICS FOR THE NEW ECONOMY

“Without transport, everything comes to a halt,” says Gerrit van Dijk of the Dutch Society for Transport and Logistics (Transport en Logistiek Nederland). “With the rise of the Internet and e-commerce, the number of small deliveries is increasing. Customers want short delivery times and accurate information about how far their deliveries have progressed.”

**G**errit van Dijk believes that efficient IT solutions can make the delivery chain clear and transparent and that e-commerce makes it easier for transport companies and freight forwarders to organize and coordinate their operations. The transport and logistics infrastructure is thus vital for the new economy.

RAM Mobile Data Netherlands, realizing that the old-world transport infrastructure is not up to the task, has taken this advice to heart. Having previously launched its successful Track&Trace service (see Mobile Data Magazine 2/99), the Dutch operator decided to make further improvements to help small to mid-size transport and logistics companies operate more efficiently in the new economy.

“One of the ways in which we have expanded the capability of the Track&Trace service is to link it to the GSM network using SMS messages, thus allowing the service to be used throughout the whole of Europe,” says Peter Groot, director corporate marketing at RAM Mobile Data Netherlands.

**“The transport and logistics infrastructure is thus vital for the new economy”**

## NIMBLE COURIER FOR THE NEW ECONOMY

Holland Parcel Express is an example of a customer using Mobitex to operate more efficiently in this new environment. Working together with C-Track, this small courier company has equipped 20 vehicles with units that register not only speed, but also fuel and oil levels, as well as GPS equipment for tracking the vehicle's location. This information is then sent over the Mobitex network and made available to the company's order handlers.

Small parcel deliveries can now be handled much more rapidly and efficiently. Both vehicle operating costs and administrative costs have been significantly reduced, thus increasing the company's profitability. In addition, because logged data for each vehicle can be accessed at any time, maintenance and fueling can be more precisely planned, thus eliminating stress for drivers.

“For companies like Holland Parcel Express, the use of onboard computers and mobile data communications facilitates automatic route planning and makes the company more effective and responsive in a rapidly changing market,” says Peter Groot. “The new digital economy does not do away with the need to transport goods. Instead, it demands using the information infrastructure to improve transport and logistics systems so that they are able to function more flexibly and handle more and smaller deliveries more efficiently.”



## OFFENSIVE STRATEGY

The Track&Trace service is one example of how RAM Mobile Data Netherlands is migrating to a new role as an ASP (Application Service Provider). In addition, the Dutch operator is looking for opportunities to act as an ASP for other types of dedicated, business-critical data, such as meter readings or asset tracking. This is a change that Peter Groot considers essential in today's market.

“In our view, simply increasing data traffic is a defensive strategy,” says Peter. “We are pursuing an offensive strategy that will allow us to move up the value chain and derive greater revenues from services.”

This is also a move that is receiving full support from KPN Mobile, which last year acquired RAM Mobile Data Netherlands. “KPN management realizes that RAM Mobile Data possesses strategic expertise in wireless data solutions and that this expertise is vital in delivering greater added value as an ASP,” concludes Peter Groot. ■



# FUNDING A WIRELESS DATA PIONEER

RIM (Research in Motion) is a pioneer in wireless data communications and was one of the first companies to adopt Mobitex technology.

**F**ounded in 1984, the company has grown steadily and achieved many milestones on its way to becoming the leading global developer and manufacturer of wireless handhelds, PC Card and OEM radio modems for the narrowband wireless data industry. Today, the company is well capitalized, profitable and listed on both the Toronto (TSE: RIM) and Nasdaq (RIMM) stock exchanges.

By 1988, RIM was exclusively focused on wireless data and had become the first wireless data developer in North America. These were early days for Mobitex, and the Canadian com-

pany was instrumental in developing several protocols and connectivity products that established its reputation as a technology leader.

Major milestones were achieved in 1997, when Intel took an equity stake in the company and an IPO (initial public offering) was implemented, and earlier this year when Nortel also made an equity investment. Today, RIM employs more than 800 people and operates a state-of-the-art 36,000 square foot manufacturing facility, as well as a research and development center and corporate headquarters occupying 56,000 square feet.

## BRIGHT FUTURE

The future for the Canadian company looks very bright. According to a study by the International Data Corporation (IDC) published in February 2000, the number of wireless device users with access to inbound and outbound information services and Internet messaging will increase a whopping 728 percent from 7.4 million in 1999 to 61.5 million by 2003 in the United States alone.

If the success achieved by RIM's products to date is any indication, a large proportion of these users will select a RIM device. Recently, two major agreements were signed. In the first, BellSouth Wireless Data contracted RIM to supply 150,000 RIM 950 and 75,000 RIM 957 wireless handhelds over a 12-month period starting in March 2001. In the second, AOL (America Online) selected the RIM 950, which

it will offer as an AOL-branded device with AOL software, to its users.

In addition to Mobitex, RIM supplies products for other technologies. The company is also developing next-generation products and intends to enter international markets, particularly in Europe and South America. More important goals, however, are satisfying the tremendous demand for its products in North America, increasing the BlackBerry user base and completing development work on a Java platform that will allow additional applications and services to be added to the devices. ■





# DESTINY

IS IN OUR HANDS

After being hailed as the next big thing for so many years, wireless data is finally showing signs of explosive growth.



Of course, for people who have been working with Mobitex for years, it is hardly surprising that it has taken some time to bring the market to this level or that many seemingly promising technologies have fallen by the wayside. Unlike cellular voice calls, wireless data is not a commodity service, and building a successful business with wireless applications and services requires a different business model than those currently found in the cellular industry.

Predicting how this dynamic market will develop over the next few years and what market share Mobitex will capture is difficult for several reasons. Expectations surrounding the mobile Internet are one source of difficulty. WAP (Wireless Application Protocol) over circuit-switched cellular has not lived up to the initial hype surrounding this technology. Today, many people believe that the combination of WAP and GPRS (General Purpose Radio Service) will finally deliver a more satisfying user experience.

Of course, third-generation (3G) mobile systems, such as WCDMA (Wideband Code Division Multiple Access), which are further out on the horizon, are widely expected to deliver multimedia and a rich Web browsing experience over a wireless device. In the meantime, however, users are still waiting.

## RETAINING THE ADVANTAGE

According to an IDC (International Data Corporation) market study from February 2000 presented by RIM in its 1999 annual report, the number of wireless device users with access to inbound and outbound information services and Internet messaging will increase from 7.4 million in 1999 to 61.5 million by 2003 in the United States alone. This is an interesting study because it is based on a narrower definition of wireless Internet access that avoids the difficult issues of WAP, Web browsing and mobile Internet. In fact, the kinds of services included in the study are ideal for a narrowband technology, such as Mobitex.

Mobitex will naturally not be alone in this market. Restricting the focus to a narrower range of wireless services also delivers a more satisfying user experience than over a circuit-switched cellular phone. In addition to Mobitex, there are two-way paging services, as well as other packet-switched services, such as CDPD (Cellular Digital Packet Data), which seems to be gaining some ground again. The primary competition for Mobitex operators in

## “Mobitex will remain the first choice for business-critical applications”

this market over the next few years, however, will undoubtedly be GPRS. In Sweden, Movic became the first Mobitex operator in the world to face such competition when GSM operator Europolitan began commercial GPRS service on December 1, 2000.

“We do not view GPRS as a significant threat,” reports Movic president Tomas Rehn from Stockholm. “In our view, Mobitex has such compelling advantages with respect to reliability, price and capacity and we remain confident that our service will remain the first choice for the business critical applications and segments that we target.”

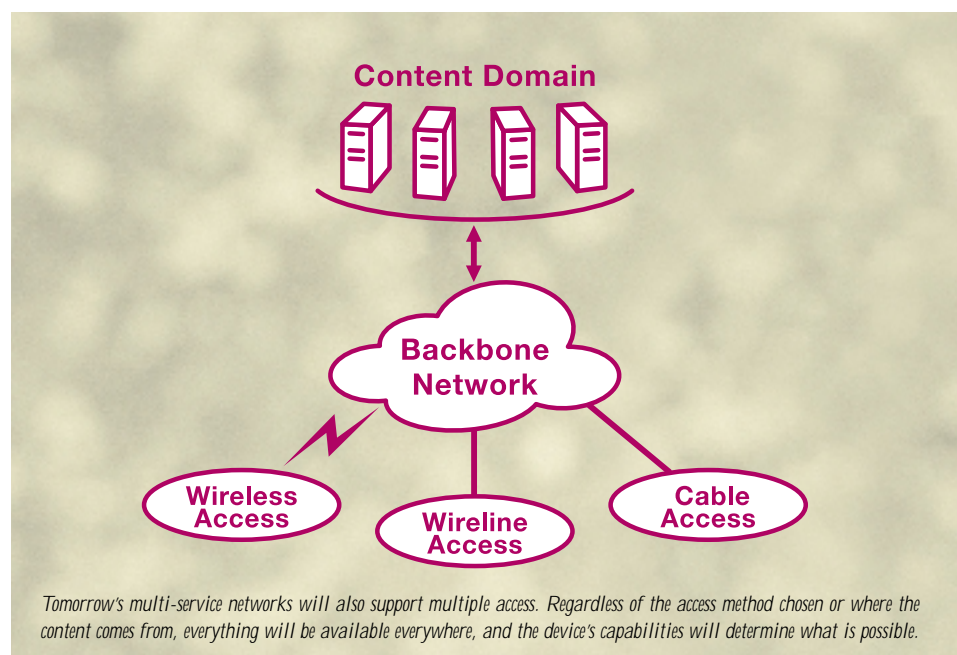
“At Movic, we have concluded that reliability is the most important differentiating fea-

ture,” continues Tomas Rehn. “Mobitex can guarantee absolutely reliable connections and that transactions will complete.”

At this point in time, Mobitex retains its cost advantage over GPRS. Tomas Rehn believes that this will continue to be the case, since infrastructure costs for Mobitex are lower than for GPRS, but he does not rule out the possibility that GPRS operators may try to win customers by offering low prices. However, GPRS operators have not yet established pricing models, and only time will tell whether or not Mobitex will continue to have a cost advantage.

“Capacity is a potentially more serious problem,” notes Tomas Rehn. “Cellular networks have the advantage in terms of coverage, but they are already heavily overloaded. Operators cannot guarantee how many channels or time slots users will be allocated for data, so capacity may be a problem. When traffic peaks, for example at a conference when everyone comes out for a break and takes out their cell phones to make a call, it may be impossible to get a data connection. Mobitex, on the other hand, will not shut users out.”

Movic’s early experience will undoubtedly generalize to other Mobitex markets. Reliability should remain the primary differentiating feature when alternative wireless technologies are





## “Enhancements will further increase coverage, capacity and speed”

considered. In addition, Mobitex can and must retain a cost advantage, compared with GPRS, even though some operators may temporarily lower prices to gain subscribers. Coverage, finally, will always be an area where service providers must constantly strive to satisfy customers.

### LEVERAGING TRADITIONAL STRENGTHS

Movic's confidence in the capacity of Mobitex to meet the competition provided by GPRS underscores another important point. Although wireless Internet access and messaging are important in creating a horizontal or mass market, Mobitex' traditional strength lies in vertical markets, such as transport and logistics, public safety, telemetry and point-of-sale applications. These are areas where growth will continue to be strong and in which Mobitex' reliability features will be decisive competitive factors.

In Brazil, for example, new Mobitex operator CooperNet has built a very strong business case on POS (point-of-sale) applications and expects to capture a market share of 25 percent for ATMs and nearly 50 percent for POS applications. Naturally, there are unique prerequisites for these applications in a country like Brazil, but the fact remains that security and reliability are crucial. Banks and customers demand that transactions must complete. There must be no risk that a connection will be dropped between the credit and debit phases of a transaction.

### CONTINUOUS IMPROVEMENT

Significant enhancements of Mobitex technology and the network architecture are continuously being made to meet customer demands and

to make Mobitex more competitive in today's market. Ericsson is committed to ensuring that Mobitex remains the most cost-effective technology for the greatest number of applications, and planned enhancements over the next few years demonstrate this commitment.

These enhancements began with an initiative called NTE (Network Topology Enhancement) that introduced sub-networks and release R14N, which included an improved radio protocol that significantly increased battery life and coverage. Current and planned work includes NTE-II, multi-channel base stations, ADR (Adaptive Data Rate), and a new backbone network. Together, these enhancements will further increase coverage, capacity and speed, while providing a backbone network for multi-service access that supports end-to-end IP solutions. In addition, Mobitex networks will become scalable from small campus networks serving a single organization to extremely large national networks able to accommodate millions of subscribers.

### MOVING TO THE NEXT GENERATION

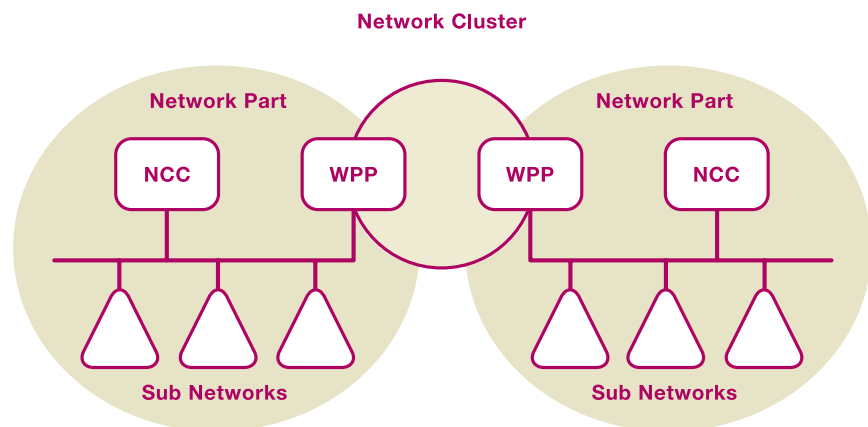
With NTE-II, node addressing is being introduced, and the number of sub-networks is being scaled up. At the backbone level, bridges will be implemented between network nodes to create network clusters. In addition to allowing Mobitex-agnostic connectivity between access

networks, this will facilitate the introduction of a state-of-the-art GPRS node called WPP (Wireless Packet Platform).

Although introducing a GPRS core node in the Mobitex network is a radical step, WPP will deliver significant benefits. WPP is the packet-data switching engine of the GPRS Server Node (GSN), which is not only a core component of the GPRS system, but a key component in the migration of Ericsson's GSM system to 3G and WCDMA. As such, it is a platform in which considerable resources have been invested and that will be maintained by many people within Ericsson.

Put simply, WPP brings wireless packet data into the core network. The WPP, which was designed by Ericsson Mobile Data Design as a core component for next-generation wireless networks, is a multi-processor, multi-tasking platform that provides more than enough performance for growth and telecom-grade redundancy. In a next-generation network, WPP and GSN will support a packet backbone network architecture capable of carrying multiple services. In the Mobitex network, it will provide a host connection point at the backbone level, thus superceding the current IAS (Internet Access Server) and X.25 implementations at this level.

Ericsson is also upgrading and redesigning Mobitex base stations. A new enhanced base station for 800 MHz is now undergoing field testing and will soon be available commercially. This will be followed by a new multi-channel base station that will significantly increase radio cell capacity.



*In addition to allowing Mobitex-agnostic connectivity between access networks, NTE-II will facilitate the introduction of a state-of-the-art GPRS node called WPP (Wireless Packet Platform).*



## PREPARING FOR MILLIONS OF USERS

Many of these enhancements are being driven by the North American market, where growth in both traditional vertical markets and new horizontal markets is explosive. In North America, for example, Mobitex Subscribers are being added at a rate of 15,000–20,000 each week. The US operator recently signed an agreement with RIM calling for delivery of 150,000 RIM 950 and 75,000 RIM 957 wireless handhelds over a 12-month period starting in March 2001. BellSouth Wireless Data and RIM also reached a breakthrough agreement with America Online (AOL) that will further accelerate Mobitex growth.

According to this agreement, the US Internet media giant will offer a version of the RIM 950 wireless handheld to be called the AOL Mobile Communicator. The AOL-branded device will contain proprietary software allowing users to access portions of AOL's services, including Internet e-mail and instant messaging. Merrill Lynch analyst Henry Blodget predicts in a research note that the AOL Mobile Communicator will be a big hit.

"We estimate that AOL could sign up 300,000 plus subscribers from RIM and future device manufacturers by the end of 2001 and 1.1 million by the end of 2002.

At current prices, this would generate USD 30 to 35 million in revenue to AOL in 2001 and USD 160 to 165 million in 2002," writes Blodget.

## DETERMINING OUR DESTINY

Combined with BellSouth Wireless Data's other subscribers, this could well add up to more than four million Mobitex subscribers in the US alone by the end of 2003. If so, this would amount to a five-percent share of the wireless data market predicted in the IDC study mentioned above.

"We are working hard on all fronts to prepare the Mobitex network for millions of subscribers and to deliver industry-leading performance in terms of capacity, connectivity, scalability and cost-efficiency," says Folke Bergqvist director technology at Ericsson Mobile Data Design, adding that he expects Mobitex to remain the technology to beat in most application segments for the foreseeable future.

"Mobitex is extremely well positioned on the curve as market growth accelerates. Over the next few years, there will be millions of users, and determining our share of that market is largely up to us. As the numbers show, a few percentage points are going to make an enormous difference," concludes Folke Bergqvist. ■

**"Many of these enhancements are being driven by the North American market, where growth in both traditional vertical markets and new horizontal markets is explosive."**



# MOBILE MARKET NEWS



Left: Ed Mc Gaw, director systems & technology, United Wireless.  
Right: George She, director system technology, BellSouth Wireless Data.



## LARGEST-EVER MOA MEETING

On October 22 – 24, the Mobitex Operators Association (MOA) held its largest-ever meeting in Gothenburg, the home of Ericsson Mobile Data Design and the birthplace of Mobitex. This highly successful meeting was both very productive and extremely informative. Not surprisingly, the MOA organizers and the Ericsson hosts who arranged the meeting received very high marks for their efforts.

“Seeing over a hundred people at a MOA meeting was simply overwhelming,” says Jack Barse, executive director of MOA. “It made me realize that Mobitex really has arrived and that we are on the verge of something momentous.”

The MOA meeting delegates represented 17 countries and 15 Mobitex operators. A



From left to right: Waldo Villasana, projects engineer T-link, Telcel, Venezuela.  
Won Baek, CEO Intec Korea. Pontus Lindqvist, general manager Mobitex Ericsson.

number of potential operators were present.

“For us, this was really a fantastic meeting,” says Per-Erik Sundström, manager for after-market sales at Ericsson Mobile Data Design. “MOA meetings have always been an important forum for the Mobitex community, but this time there was a real dialogue between operators and suppliers that was very constructive and bodes well for the future.”

“When we look back in a few years time, we will realize that the mobile Internet is here today,” emphasized Torbjörn Nilsson, Ericsson senior vice president for marketing and strategic business development in a presentation that was one of the highlights of the

comprehensive sessions program. From his vantage point as an industry leader and a member of Ericsson corporate management, Torbjörn Nilsson offered a fascinating and insightful chronicle of the development of the mobile Internet. In his view, the Mobitex devices, i-mode phones and SMS and WAP services that are now being used to access the Internet are more than adequate proof that this new era in communications has begun and that Mobitex users are fortunate to be on the leading edge of the curve.

The unique position that Mobitex enjoys today was a theme in several other presentations, including those by MOA chairman David Neale, Rich Pullin from

UK operator RAM UK, Björn Sabel from Swedish operator Mowic and Won Baek from Korean operator Intec, as well as Pontus Lindqvist from Ericsson Mobile Data Design. There was a general consensus that Mobitex is extremely well positioned to benefit not only from the growth of the mobile Internet, but more generally from rapidly increasing demand for wireless communications.

Australia’s Clyrcom Communications demonstrated its wireless Palm V cradle, while Intec’s parent company CNI introduced its TWM III wireless handheld that will be used for stock trading and other interactive services. The MOA meeting also featured presentations of a number of business cases described elsewhere in this issue and product demonstrations in a separate exhibition area. The presentations are available for downloading on MOA’s Web site.

The meeting concluded with a competitive update on GPRS by Ericsson’s Bengt Didner, who was accompanied by Rich Pullin, who described the UK operator’s strategy and positioning with respect to other technologies.

“Overall, participants rated the meeting as outstanding and clearly indicated that they wish to see such meetings continued as an annual event, so my guess is that this was the greatest-ever MOA meeting until next year,” concludes Jack Barse. ■



Left: Jack Barse, executive director MOA.  
Right: Torbjörn Nilsson, senior vice president, Marketing & Strategic business dev. Ericsson.



# GO SMART GO RUGGED GOBOOK

Itronix, a manufacturer of ruggedized, wireless mobile computing solutions, recently introduced the GoBook. Billed as the first notebook to combine the latest PC technology, integrated communications plus affordable toughness, the GoBook offers unparalleled performance at an affordable cost.

With a 650 MHz Intel Pentium III or Celeron processor, 64 – 245 MB RAM, hard drive sizes up to 20 GB, a 12.1" TFT display, a media bay for an 8X CD ROM, floppy drive or second battery, built-in speakers, headset and microphone jacks, the GoBook is a smart computer that provides all the performance and features users expect of a mainstream notebook PC.

Unlike mainstream products, however, the GoBook is designed and manufactured by Itronix, a company that has built its reputation on ruggedized products with integrated

communications. The GoBook is a fully featured computer and is built to withstand the rigors and changing needs of remote field use. It sustains extremes for water, shock and temperature. Further enhancing its use in the field, the GoBook includes a glow-in-the-dark keyboard and a three-button touchpad, as well as carrying handles and straps.

The GoBook supports a variety of wireless connectivity options, including Mobitex, CDPD, GSM and wireless LANs, through Itronix' new Common Radio Module Architecture that allows users to easily upgrade radio modems or change networks in the field. The GoBook is also the first computer of its kind to be shipped with Bluetooth, the new short-range radio standard for inter-device communications. ■

[www.itronix.com](http://www.itronix.com)

## WATCH OUT FOR WAVE 2001

Cingular Interactive (formerly BellSouth Wireless Data) recently announced that two renowned high-tech industry executives, Guy Kawasaki of Garage.com and Carl Yankowski of Palm, Inc., will headline WAVE 2001. This Wireless Alliances and Vision Exchange conference is one of the wireless data industry's most anticipated annual events. The conference, which will feature its strongest line-up of industry leading speakers and sponsors ever, will be held May

14-16, 2001, with optional developer workshops on May 17, at The Aladdin Resort in Las Vegas, Nevada. Sponsors include: Ericsson, Palm, RIM, Panasonic, Melard Technologies, Siebel Systems, MDSI, Clyrcom, Geoworks, Sybase and many more. This year's conference should easily top last year's record breaking attendance, so make sure that you register early for this important event. ■

[www.bellsouthwd.com](http://www.bellsouthwd.com)

## AWARDS FOR UK PARTNERS

UK Mobitex operator RAM Mobile Data recently held a partner conference at which several companies were recognized for exceptional performance over the past year. Isotrak received awards for both the largest increase in business and the highest number of units over the network. In the most innovative products category, three companies received awards: Motor Trade Software for its Turbo Track product, APD for a National Ports version of the IMDN PNC Service used by police forces throughout the UK, and Terrafix for its development of a Mobitex API for the Psion Epcoc 32 operating system. ■

[www.ram.uk](http://www.ram.uk)





# MAXON ANNOUNCES PALM V CRADLE

Maxon, a UK-based manufacturer of mobile communications equipment and a leading supplier of Mobitex modems, announced recently that the company is developing the DM 210 P wireless cradle for the popular Palm V organizer that is scheduled for release in March 2001. The DM 210 P will feature a battery life of 20 hours for low user requirements and 15 hours for heavy user requirements with a standby time of 30 hours. An extended battery option will be available.

The new unit will be based on the recently released DM 210 modem, meaning that it will be

available for use on 420 MHz network in the UK and 450 MHz networks in Europe and other parts of the world. Although product specifications have not yet been finalized, the DM 210 P is expected to deliver the same radio and Mobitex performance characteristics as the DM 210. ■

[www.maxon.co.uk](http://www.maxon.co.uk)



# WORLD'S SMALLEST RADIO PACKET MODEM



Communication Network Interface (CNI) of Korea, which is the parent company of Mobitex operator Intec, recently introduced the RPM3 Radio Packet Modem. Measuring just 58 x 47 x 9 millimeters and weighing only 35 grams, the RPM3 is the world's smallest and lightest OEM radio modem for Mobitex.

The RPM3, which is certified by the US Federal Communications Commission (FCC) and was recently approved for use on BellSouth Wireless Data's network, uses Mobitex for the radio protocol and the native MASC for the host protocol. Output power is variable from 2.0 W down to 0.03 W in seven

power-saving increments, while receiver sensitivity is a full -115 dB (BLER <10%).

The RPM3 is powered by a standard 4.2 V power supply requiring no DC/DC converter. Connectors include an RS-232C serial port, a 20-pin host connector and an antenna connector.

In addition to being offered as an OEM Mobitex modem with low cost and high functionality, the RPM3 is used in CNI's recently introduced TWM III wireless PDA that was featured in Intec's recent re-launch of its Mobitex network. It is also being included in the AirPOS wireless EFT/POS (Electronic Funds Transfer/Point of Sale) terminal

that Intec will be launching for wireless POS and m-commerce applications.

The RPM3 is currently available in a 900 MHz version for use on Mobitex networks in Korea, North America and South America. Versions with same form factor for 800 MHz and for 400 MHz for use in Asia, Europe, and Australia are currently under development. For more information or to place orders please contact Mr. CALI Kim, Tel: +82 2 330 5623 Fax: +82 2 330 5780 e-mail: [info@cni.co.kr](mailto:info@cni.co.kr) ■

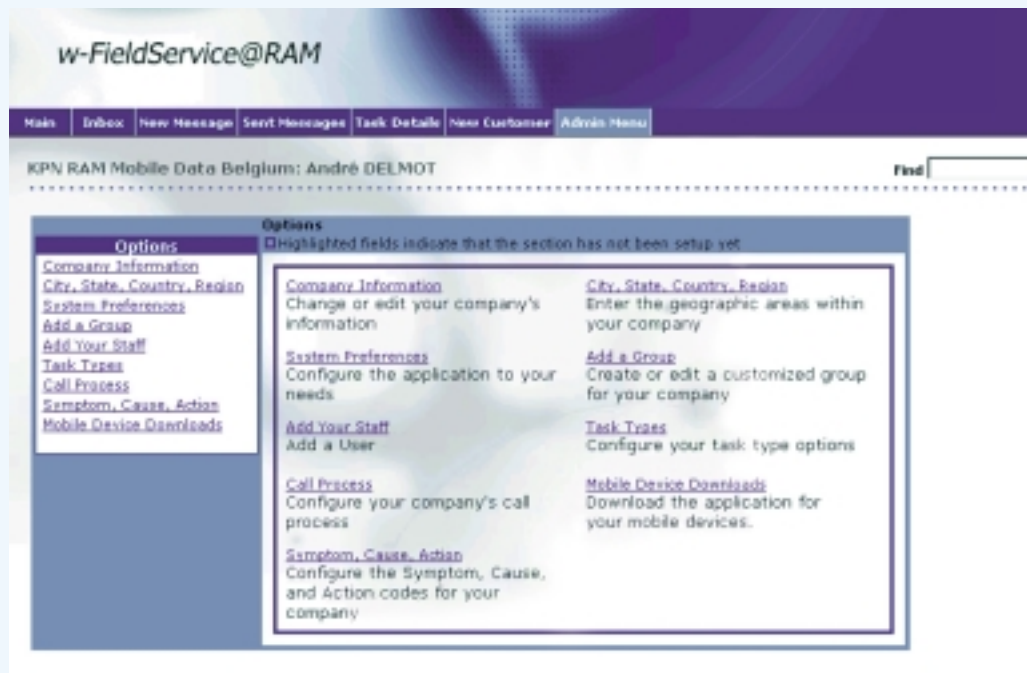
[www.cni.co.kr](http://www.cni.co.kr)

# FIELDSERVICE@RAM

Inspired by the success of the Track&Trace service, KPN RAM Mobile Data Belgium is launching a similar service to be called FieldService@RAM. The new service will enable even small service organizations to take advantage of wireless data communications for dispatching customer service requests and handling technical queries from the field without having to make large investments in equipment and application development. Instead, the customer only needs to have an Internet connection, a portable terminal for each driver and a subscription with KPN RAM Mobile Data.

The service includes the ability to control in real-time the activities in the field, the ability to assign the right person with the right skill to a customer, place orders for spare parts, automatic invoicing from the field as the assignment is completed, and the possibility to follow-up operations statistically.

“The FieldService@RAM concept is part of our strategy to deliver greater value to the customer and to take on the role of



an application service provider,” says Marc de Buyser, managing director at KPN RAM Mobile Data Belgium. “It is web-based and similar in concept to the Track&Trace service, and the new FieldService@RAM service was

also developed here in Belgium in our organization.”

This new service will enable field-service organisations to operate more efficiently, often resulting in better customer service and sometimes a reduction of

30-50% of time spent for doing the same task. The service can be delivered with additional services such as installation, helpdesk assistance and training of staff. ■

[www.ram.be](http://www.ram.be)

## MOWIC TARGETS SECURITY SECTOR

Swedish Mobitex operator Mowic is launching Mowi Larm, a range of products for its PMD 8000 network that offers customers a new concept for remote monitoring and measurement data. Mowi Larm is compatible with virtually all existing security and alarm systems. The basic Mowi Larm 1010 unit can transmit up to eight fixed inputs from fire

alarms, burglary alarms, meters, equipment sensors, etc. over the Mobitex network. The unit also has four relay outputs and can be programmed remotely over the wireless data network. A similarly configured unit called the Mowi Larm 1011 provides a connector for an optional card reader for passage control.

“Remote control and moni-

toring of premises is a market segment with tremendous potential,” notes Björn Sabel, marketing manager at Mowic. “This is also an area where Mobitex’s security features are key selling points, and we are therefore extremely optimistic about the prospects for Mowi Larm.” ■

[www.mowic.se](http://www.mowic.se)





# LEARNING FROM ASIA

Startupfactory is one of the leading Swedish venture capital firm with offices in Stockholm and Helsinki that is focused primarily on the mobile Internet.

*"We don't have to wait for tomorrow's technology"*

**T**he company currently has about ten startups in its portfolio. Although none of these companies currently work with Mobitex, Startupfactory's CEO Staffan Helgesson is very familiar with the technology and its capabilities, which is not surprising, since former Ericsson CEO Sven-Christer Nilsson is one of the company's principals. Mobile Data Magazine talked to Staffan Helgesson shortly after he and his colleague Lars Christensson returned from a trip to Asia on which they studied a number of mobile services.

*What role should operators take in providing mobile services?*

Operators have a key role. In Japan, for example, with i-mode and other mobile services, it is very much up to the operator to drive development, and that includes which features mobile phones contain. On the other hand, operators should not attempt to provide content. Their role in providing services is to make it easier for content providers to develop services.

*The mobile Internet is extremely popular. Is i-mode a recipe for success for other operators or is its popularity due to factors that are unique to Japan?*

Obviously the high cost of fixed Internet connections in Japan and the difficulty of handling Japanese characters on mobile terminals are two very important factors underlying i-mode's success. Those are not factors in Europe or the US, so i-mode would obviously not be as successful in those



markets. Operators in other parts of the world, however, would do well to learn from NTT DoCoMo.

*What are the Japanese doing that other operators should follow?*

Take contracts, for example. In Europe and the US, operators often end up negotiating a separate contract with every content and service provider, which is very cumbersome. Who wants to provide service or content when you don't know how or what you're going to get paid?

NTT DoCoMo, on the other hand, has a standard contract for i-mode that regulates all aspects of the relationship between the operator and the service provider, including how revenues will be shared. They provide standard templates and APIs for i-mode services. There is a Web site where developers can get help. Putting up an i-mode service is easy in Japan, because the operator has set a standard. That's an example that more operators should follow. If mobile Internet services are to be successful, operators simply have to make it easier for content providers to create services.

*Are there other differences between i-mode and other mobile Internet services that are important?*

The fact that fixed Internet connections are expensive in Japan and thus limit Internet usage is in some ways an advantage. In Europe and the US, people are trying to figure out how to shrink conventional web pages so that they can be displayed on a mobile terminal. In Japan, on the other hand, people are looking at existing services for i-mode and trying to develop them into something bigger.

*What other advice can you offer to others wishing to launch mobile Internet services?*

One of the most important points is that operators should not try to lock users into their own systems. The most successful operators will be those who partner with other content and service providers to offer users as wide a range of

services as possible. In mobile Internet, no one owns the customer, and all parties will benefit by creating a bigger market.

Another important point, particularly for the new GPRS services, is that operators need to create intuitive and reasonable pricing models. Mobile services obviously have to deliver value, but users have to feel that they are paying a reasonable price for the value they receive.

Over the next few years, Asia will take the lead in developing content and services.

*In what types of services is Startupfactory investing?*

We work with entrepreneurs in the IT and telecom industry with special focus on enabling technologies and applications for the mobile Internet. We support talented, driven entrepreneurs who are aiming for global leadership. We choose our portfolio companies carefully, selecting only those that match well with our areas of expertise. For the right companies, we invest in the seed and startup phases

One example of an exciting company that we are backing is PicoFun, which is the leading mobile Internet community games developer. PicoFun distributes their games via operator portals and independent mobile portals to the end user's mobile phone. The target market is people with a young mindset that have mobile Internet access and who like entertainment.

PicoFun launched the world's first multi-user WAP game in May 2000, PicoFun Football, and was also first to make it available for both GSM and GPRS. PicoFun is the McKinsey Venture Cup 2000 winner, and was E-challenge 2000 finalist, a pan-European competition to select the hottest Internet & wireless companies in Europe. According to Time magazine, PicoFun is one of Europe's 50 hottest tech firms.

*Will the introduction of GPRS mean a breakthrough for the mobile Internet?*

GPRS will obviously be important, particularly because it is a packet-data service and the user is always connected, but experience from Asia also shows that speed is not necessarily

important. The i-mode service operates at 9.6 kbit/s, which is the same speed as today's GSM network. What NTT DoCoMo has shown is that it is possible to create attractive and profitable services using today's technology.

*What can mobile Internet providers learn from Mobitex?*

Once again, it is a question of using available technology. The Palm VII, for example, is a fantastic device. The Americans are incredibly good at leveraging existing technology and creating a breakthrough product. We don't have to wait for tomorrow's technology to make the mobile Internet a success. There is plenty of existing technology that can be profitably deployed today.

*Will mobile Internet services drive development of terminals towards PDAs and handheld PCs?*

Terminals are obviously extremely important, but we must not let terminals prevent us from using existing technology. Even the simplest mobile phone without WAP or any other mobile Internet features can access the Internet via an IVR (Interactive Voice Response) system. Having said that, I believe that we will see an increasingly segmented terminal market. There will obviously be a wide range of products to suit the needs and preferences of young people, housewives, students and many other groups. The mobile Internet will mean different things for different people. ■

**"The most successful operators will be those who partner with other content and service providers to offer users as wide a range of services as possible"**



# Where you want to be

“Wanda! I’ve got a great idea! It’s a new wireless data service that’s going to make us both rich,” said a voice on the other end of the phone that I recognized as my nephew David. Frowning slightly over this interruption, I tried to re-focus my thoughts. My nephew was a sweet boy, but an SMS message coming in simultaneously on my cell phone reminded me that someone more important was probably trying to get in touch with me.

“Wait a minute, David! You’re a student. You don’t have any money,” I said, feeling my frustration mount. A beep sounded, indicating that new data had arrived on my handheld. The venture capitalists that I was working with for the articles on investing in Mobitex moved pretty fast, and David was slowing me down.

“That’s why I’m calling you, Aunt Wanda!” said David in a voice that told me he was putting on his most charming smile. “My new wireless service is called ‘Where you want to be,’ and it’s on your phone right now. Just check that SMS message that came in a few seconds ago.”

“Please, David! I have a job to do,” I countered, already pressing the buttons on my phone to retrieve the SMS message. Of course, now that I knew that it was from David, I figured that it wasn’t important, but I was nonetheless surprised to be informed that I wanted to be at Wayne’s sipping a cappuccino.

“Yes, I know, Wanda, and I’m sure you’re making lots of money as a consultant, too,” said David with what I detected as a slight note of irony in his voice. “But if you’d just check the e-mail I sent you and open up the attachment that shows you the form for your personal profile, we could start talking about why I called, which is to ask you to help finance my new wireless Internet service.”

“All right, David. I’ll open it,” I said, trying to hide my exasperation. David was a very bright student, and he had certainly demonstrated an entrepreneurial spirit on

more than one occasion. Perhaps I was being unfair by concentrating on the venture capitalists and market makers and ignoring the story right here in my own family.

“Great, Wanda! I know you’re going to think it’s a brilliant idea, and I’m sure I can count you in from the start. Now when can I expect the check?” said David, speaking so fast that I felt slightly dizzy.

“Not so fast, David!” I said, finally letting myself relax and focus my thoughts on David’s proposal. “Tell me more about this new wireless service and how it will be hosted. I mean, the name is intriguing, but what does it do for me?”

“It tells you where you want to be right now,” said David slowing down to a pace that he obviously thought appropriate for a 30s-something who needed to be stepped through things slowly. “We put together a profile like the one you just opened. Then, based on your location, we try to suggest places for you to visit, or even just to think about visiting. Our focus groups have found the service both entertaining and relaxing during a busy day.”

“OK. Then I just have one final question. Why a cappuccino at Wayne’s,” I asked.

“We know that you’re planning to go skiing Italy, and that particular Wayne’s has some really nice posters from the Italian Alps. Of course, they’re also one of our sponsors, which brings me back to my original question about an investment,” said David.

“Yes, about my investment,” I said, wondering how to let David down gently. “That skiing trip is going to cost me a bundle, so I thought maybe if you’re issuing options...”



*Wanda Wava*