



Mobitex™
Solutions

Examples of existing Mobitex solutions



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1 Mobitex™ - designed for real life requirements

Mobitex Technology AB designs, supplies and supports wireless data networks based on the unique Mobitex™ technology. Mobitex™ is a leading technology for dedicated wireless data for professional users. Mobitex offers services that deliver real value.

Mobitex brings simplicity to the complex equation of delivering better service by making innovative use of proven technology. Basic services like package delivery and collection, field force automation, credit card transactions, and monitoring and control may remain the same, but wireless data allows them to be executed in a different way saving cost.

Mobitex is already a proven performer for many organizations where rapid response and secure communications are essential.

Mobitex has a number of key advantages compared with other technologies. It provides a highly secure environment, fast data delivery with round-trip message times of just seconds, the highest levels of reliability, battery saving functionality, true always-on push functionality and extensive, seamless coverage.

There are now over 30 private and public networks worldwide and around 100 government and emergency services organizations that use Mobitex, as do 400 of the Fortune 1000 companies.

We have numerous customer references where Mobitex is used by operational staff out in the field to increase efficiency and availability. This document introduces you to some of the solution areas in which Mobitex excels.

2 Machine-to-machine (M2M) communication

Wireless telemetry (or M2M) can be defined as automatic transfer of data between two machines over a wireless network for the purpose of monitoring or control. Mobitex is ideally suited for telemetry applications, since the traffic typically consists of short exchanges containing small amounts of data.

Mobitex provides a cost-effective way to monitor and control remote machines from a central location. As can be understood from the definition above, wireless telemetry is a technology that can be applied in many areas. Examples include vending and ticketing machines, traffic lights and building control systems, which may be monitored and controlled across Mobitex networks and in many cases eliminate the need for site visits. Telemetry applications can be profitably deployed in utility networks both for monitoring and controlling the network and for automatic reading of e.g. gas, electricity and water meters.

2.1 Security and surveillance

Mobitex accommodates true push functionality. Without being requested, a host can initiate a transmission to a remote device, meaning the host "pushes" the information to the device. This functionality is particularly useful in security applications and other device-to-device applications. The Mobitex network is always available and deliveries are guaranteed with short response time.

2.1.1 Areas suitable for wireless surveillance

Security

- Card access control
- Security guards

Alarm monitoring

Examples of suitable entities to monitor remotely:

- Fire
- Burglary
- Pipelines
- Power lines
- Pumping stations
- Radio towers
- Outdoor lighting
- Refrigeration systems
- Storage tanks
- Environmental monitoring

2.1.2 Example of solution providers

- Honeywell - AlarmNet-M (<http://www.security.honeywell.com/hsce/solutions/alarmnet/index.html>)
- ADT Fire Monitoring system (Tyco) (<http://www.adt.com/>)
- Blue Mobile Systems – Guardtool (<http://www.bluemobilesystems.se/>)
- KiwoK – Bodykom (<http://www.kiwok.se/default.asp?conID=1&lang=2>)
- HITECHnologies (<http://www.hitechnologies.nl/>)
- AVID Wireless (<http://www.avidwireless.com/>)
- Fidelix – LinkBox (<http://www.fidelix.co.kr/eng/main.jsp>)

2.1.3 Case story- Security Guards and Monitoring of fire alarms

S1, a Samsung subsidiary and Korea's largest total security provider, offers security services including remote surveillance and control. With more than 250,000 customers and a market share of about 70 percent, S1 offers everything from crime and fire prevention to information and communication services. S1 changed from expensive fixed lines to Mobitex, resulting in great cost savings. Detectors at given sites, forward alarms and signals to and from the operation centre. The monthly communication fee was reduced from 10 USD to 2 USD, leveraging the customer base.

Fidelix developed the LinkBox for S1's security services in record time. Although simple in principle, the LinkBox contains a wireless and two wire line modems, a processor and a variety of interfaces for connecting to external equipment.



2.1.4 Case story- Monitoring heart patients at home (Sweden)

Monitoring heart patients wirelessly is a new service currently being installed in Stockholm on Mowic's Mobitex network. The application, Bodykom by Kiwok, uses sensors placed on the user's body to monitor health and react in critical or life-threatening situations by sending data over the Mobitex network to the nearest medical facility. The unit receiving the alarm will also be informed of the patient's location, which is determined using GPS. The registered patient data, sent in encrypted form, is stored directly in the patient's file and nowhere else along the way. Sensors are available for detecting various kinds of heart disease, blood pressure, diabetes, medication in blood and other data on the blood's content. Many patients who are granted sick leave because of uncertain diagnoses can now stay at work while under observation. Similarly, many elderly patients who suffer from common illnesses related to old age can be monitored in their homes.

2.2 Utilities

Based on industry standards and using off-the-shelf components wherever possible, these solutions have been designed to meet the specific requirements of the utility sector. Terminals vary with the application but are typically integrated units that include both a Mobitex modem and equipment specific to the application, such as a data concentration unit (DCU) for automatic meter reading.

2.2.1 Areas suitable for monitoring and control

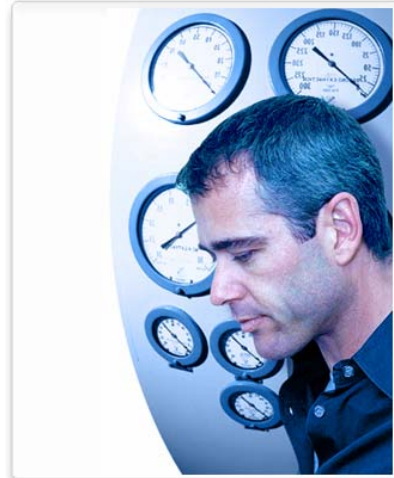
- Gas/Water/Electric Meter Reading
- HVAC Control

2.2.2 Example of solution providers

- Profile Systems (<http://www.profile-systems.com/>)
- HiTechnologies (<http://www.hitechnologies.nl/>)
- SensorLogic (<http://www.sensorlogic.com/>)
- AVID Wireless (<http://www.avidwireless.com/>)

2.2.3 Case story- Exact regulation of electricity

The Dutch energy & water company Noon has some 500 co-generation plants nationwide connected to Mobitex network with automated remote start of production of heating, cooling, steam or electricity. Forecasts on production every 15 minutes enable exact regulation and prevent surplus production. Great flexibility in the production as increase/decrease can be done almost instantaneously.



2.3 Vending

Vending machines are very nearly ubiquitous, at least in populated areas. Of some five million vending machines in the US, more than half are beverage vending machines, while the rest mostly sell snacks. There are estimated to be an additional three million beverage machines in Europe and an approximately equal number in the Asia Pacific region, bringing the total number of beverage vending machines in the world to about ten millions.

With Mobitex transaction times for credit-card validation are almost instantaneous, which is always a critical factor for success and experience shows that implementing cashless vending brings substantial increase in sales. Mobitex provides both wireless and mobile vending. Because the machines employ wireless communications, they are more mobile, requiring only a power source. This is a major benefit in e.g. a convention center, where often as much as 50 percent of all vending machines frequently are relocated. In this environment, a fixed dial-up connection is simply not an option.

2.3.1 Areas suitable for wireless vending

- Vending Machines
- Parking Meters

2.3.2 Example of solution providers

- TNSI – Synapse (<http://www.tnsi.com/>)
- Comstar – Charge Anywhere (<http://www.comstarinteractive.com/Products/ProductDescriptionCA.aspx>)
- Lipman – Nurit 8000 (<http://www.lipmanusa.com/site/sites/USA/lipman.asp?pi=775>)
- Hypercomm – ICE 4000 (<http://www.hypercom.com/>)
- Fidelix – e-POS (http://www.fidelix.co.kr/eng/product/EFTPOS_ePOS.jsp)
- Parkeon (<http://www.parkeon.com>)

2.3.3 Case story- Cashless vending provides key value adds for bottlers

TNSI has helped Pepsi to introduce wireless vending into their operation. The solution makes it easy for Pepsi bottlers and distributors to equip their vending machines. Installation takes just 15 minutes and involves mounting a combination card reader/dollar-bill validator that is compatible with virtually all existing Pepsi machines. The Mobitex modem is a separate unit that is mounted inside the vending machine. There are no moving parts, and TNSI uses the same cables and interfaces as found in legacy vending machines. On average, Pepsi experienced a 22 percent increase in sales in the first eight weeks after installation. This was obviously a key factor in the decision to roll out 10,000 units. Other important concerns were reducing cash handling and improving logistics and reporting. The credit-card transactions are typically approved in less than 5 seconds. An intelligent vending machine cannot only track sales but report errors and malfunctions as well. Because all transactions are recorded, the system has the capability to determine what machines need servicing. This would allow bottlers to take route management to the next level of dynamic routing.



2.3.4 Case story- Parking signs in China

Environmental goals inspired the Beijing authorities to try and reduce the number of cars driving around, looking for a free parking lot. By installing Mobitex modems in the parking signs, the information on the number of available parking spaces in a parking garage is updated using Mobitex. Using parking signs in strategic locations in a city makes it possible to route traffic from heavily used parking garages, and thereby limit additional traffic related to drivers looking for a vacant parking lot.



3 Automatic Vehicle Location (AVL) and asset tracking

It is imperative for companies to drive down costs, accelerate productivity and synchronize operations. Mobitex Technology and its business partners understand this and have the capabilities that enable companies to seamlessly integrate their fleet and inventory management systems and extend the reach of information systems from warehouse, to dock, to point of delivery wherever it may be.

Mobitex offers end-to-end solutions and turnkey applications for transport and logistics. Based on industry standards and using off-the-shelf components wherever possible, these solutions include computer-aided dispatching and vehicle and parcel tracking functions that continuously update central systems. Terminals are typically purpose-built units designed for vehicle mounting and easy operation while driving. Many solutions also include a web application that customers can use to track parcels in real time.

3.1.1 Typical AVL application areas

- Asset Tracking
- Vehicle Tracking & Remote Diagnostics
- Fleet Management

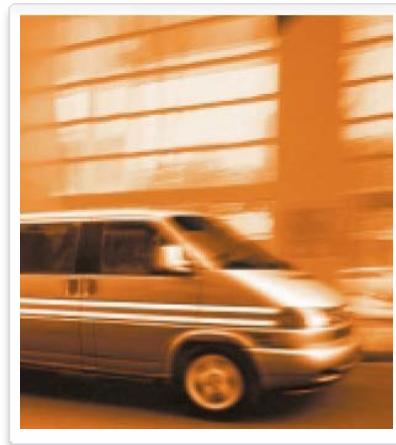
3.1.2 Example of solution providers

- Networkcar – Network FLEET (<http://www.networkcar.com/>)
- Discrete Wireless – MARCUS (<http://www.discretewireless.com/>)
- RAM - Track & Trace (<http://www.ram.nl/>)
- B&M Systemutveckling - MobiWin (<http://www.bmsystem.se/v1/index.htm>)
- Wireless Matrix (<http://www.wirelessmatrixcorp.com>)

3.1.3 Case story- Safe transportation of prisoners

The Swedish Prison and Probation Service selected a Mobitex solution for its transportation service. The solution provides both positioning and alarm functions for the transport service's vehicles. It is extremely important that alarms from vehicles are forwarded to the proper instance at the right time and contain accurate information.

Each year 40.000 prisoner transports are conducted within the country, while nearly 2500 transports are done to countries outside Sweden. The use of Mobitex makes the alarm system reliable and enables the use of position data to plan transports in a cost-efficient manner. The solution provides more than 90 percent coverage of the country's land area and achieves a very high level of operational reliability.



The Swedish Multicom Security AB in Sweden provides both positioning and alarm functions for the transport service's vehicles.

3.1.4 Case story- Tracking school buses and children

The Marcus Fleet Management Solution (by Discrete Wireless) runs on the Mobitex network in the US. It uses a combination of hardware and software to address the requirements of fleet management. The system monitors the location of all buses at all times, while transmitting position and operational data back to the dispatcher. A relatively simple enhancement using RFID (Radio Frequency Identification) tags enables the Marcus system to keep track of who is on the bus and where he or she got off. If the child forgets to phone home, its parent can phone the transportation service to find out when and if the child took the bus. With Marcus tracking school buses, parents don't have to worry.



Discrete Wireless currently has about 1,000 corporate customers in various sectors for its tracking services based on the Marcus Fleet Management Solutions.

3.1.5 Case story- Alarm supported by AVL in Paris

RATP runs 4000 buses on Mobitex in the Paris region. The buses provide the central system with continuous GPS-location information over Mobitex. In addition, the Mobitex network is used for safety for the bus drivers. In this system, alarms are sent to the central system in a case of emergency. This information is also forwarded to the police, who can monitor the whereabouts of the bus and the reason for the alarm and response accordingly.

3.1.6 Case story- Traffic information – Korea

An innovative system for traffic information being deployed by Mobitex operator Real Telecom, will contribute substantially to reducing traffic jams in the congested capital city of Seoul. The system gathers real-time traffic information from probe vehicles over the Mobitex network and then uses the operator's paging network to broadcast data about traffic flows to a vehicle navigation system that can compute the fastest route given current traffic conditions.

3.1.7 Case story- Traffic information – Sweden

In Sweden's southernmost county, Skånetrafiken is implementing a Mobitex-based system for vehicle location and passenger information that will help to keep buses running on time and provide real-time information to passengers on departure times and possible delays.

4 Point of Sales (POS)

Wireless payment refers to the electronic on-line authorization of a transaction from a remote terminal by a financial institution or host processor that is typically part of the computer system of a bank or credit card issuer. Although credit cards are often involved, the transaction may be credit, debit or funds transfer. By taking advantage of a Mobitex network, merchants also gain the added benefit that wireless point-of-sales applications allow mobility. This means that payment can be accepted wherever the transaction occurs and be approved within a matter of seconds.

Mobitex makes extremely efficient use of radio spectrum meaning that as many as 1,500 point-of-sales terminals can share a single 12.5 kHz channel. As a narrowband, packet switched wireless data network, Mobitex is designed for short, bursty data. This makes it ideal for wireless point-of-sales applications which typically involve data packets less than 150 bytes for a request and less than 110 bytes for an authorization.

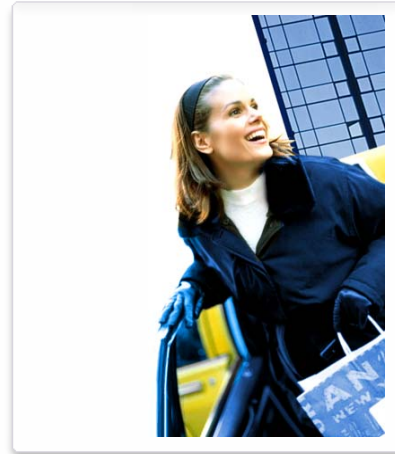
Mobitex offers end-to-end solutions and turnkey applications for wireless point of sale and electronic funds transfer (POS/EFT). Based on industry standards and using off-the-shelf components wherever possible, these solutions have been designed to meet the specific requirements on POS/EFT applications while supporting mobile terminals for wireless payment at the point of transaction. Terminals are available from virtually all major suppliers and are typically based on standard payment terminals with an integrated or external Mobitex modem.

4.1.1 Example of solution providers

- Lipman – Nurit 8000 (<http://www.lipmanusa.com/site/sites/USA/lipman.asp?pi=775>)
- Paymentech (solution built on Nurit 8000) (<http://www.paymentech.com>)
- Nova Information Systems (<http://www.novainfo.com>)
- Apriva (<http://www.apriva.com/>)
- Hypercomm – ICE 4000 (<http://www.hypercom.com/>)
- Fidelix – e-POS (http://www.fidelix.co.kr/eng/product/EFTPOS_ePOS.jsp)

4.1.2 Case story- Crown Taxi

In 2002, Crown Taxi of Toronto, Canada completed installation of wireless POS (Point of sale) terminals operating on Rogers AT&T Wireless' Mobitex network in its entire fleet of cabs. Since then, the company has seen a tenfold increase in credit card transactions, and both riders and drivers love the added convenience. The wireless POS terminals were supplied by eXcape Business Transaction Inc., as part of its FleetX credit and debit solution.



5 Field Force Automation (FFA)

Whether you are in the fast moving consumer goods industry or a business that sells and delivers products to regular customers on a recurring basis, the pressure to perform is high. On any given day, you may have many delivery drivers, field service technicians or route sales representatives on the road making deliveries, providing service or selling to your customers. If your organization relies on a mobile workforce for direct store delivery route accounting or field service, the ability to collect and use real-time information provides a strategic advantage over your competitors.

Extending solutions across the supply chain with wireless and mobile computing devices empowers your team at the point of activity, improving efficiency and productivity. Equipping your mobile workers with an intuitive, feature-rich wireless solution offers enhanced on-site access to customer records, product details and ordering information for your field teams. They will benefit from the ability to get the real-time information they need, when they need it. These systems allow mobile workers to produce and print invoices at the customer site, download technical diagrams, request on-line help and perform other time-critical activities, resulting in improved customer service. Marketing, sales or operations management can analyze delivery processes, monitor order entry and delivery progress, track product returns, manage inventory and provide up-to-the minute marketing offers with ease and efficiency throughout the business day - whenever the analysis is most useful.

Mobitex offers end-to-end solutions and turnkey applications for field sales and service organizations. Based on industry standards and using off-the-shelf components wherever possible, these solutions have been designed to provide the computer-aided dispatch, database access and real-time order processing functions that are essential for efficient field sales and service operations. Terminals are typically handheld or portable PCs that also provide wireless email and standard desktop applications, but purpose-built terminals designed for vehicle mounting and easy operation while driving are also available from many suppliers.

5.1.1 Typical FFA applications

- Dispatch/Work Order Management
- Service Management

5.1.2 Example of solution providers

- Networkcar – Network FLEET (<http://www.networkcar.com/>)
- Discrete Wireless – MARCUS (<http://www.discretewireless.com/>)
- RAM - Track & Trace (<http://www.ram.nl/>)
- B&M Systemutveckling - MobiWin (<http://www.bmsystem.se/v1/index.htm>)
- Wireless Matrix (<http://www.wirelessmatrixcorp.com>)
- MDSI – Advantex (<http://www.mdsi-advantex.com/>)

5.1.3 Case story- Community Service

In a city, there are numerous ways to benefit from mobile data in order to secure an efficient use of resources that handle general city services such as snow ploughing, garbage collection or other community services. Through tracking of vehicles and additional work orders on-the-fly, good service for the city population and a high level of flexibility is ensured.

Vehicle tracking solutions may take advantage of the records tracking the activities taken by personnel handling the community service. If a snow ploughing vehicle or a garbage truck has not been to a specific street it can be monitored in real time as well as analyzed at a later stage. This can prove useful if e.g. the snow plougher persists that he has performed his duty, even though complaints on the service are delivered by the public.



B&M Systems in Sweden is one company that has delivered this kind of solutions to the city of Stockholm. The solution from B&M Systems runs in the Mobitex network in Sweden

5.1.4 Case story- Workforce Management within the water industry

The Dutch water management company Waterleiding Maatschappij Overijssel (WMO) is taking to the air to keep water flowing. An application operating over Dutch Mobitex operator RAM Mobile Data's wireless data network gets service engineers to maintenance sites more quickly and minimizes service interruptions. WMO delivers drinking and industrial water to businesses and homes in the Dutch province of Overijssel. The water system operated by the WMO consists

of some 11.000 kilometer of pipelines, 27 pumping stations, 19 water towers and 57 reservoirs. The WMO has an extensive maintenance and management system that ensures that water is received at the right time and the right place. Breakdowns are reported to the supervisor electronically. The supervisor then send a work order directly to the service engineers wireless laptop computer. The supervisor has a real-time overview of each engineer's schedule and can manage workloads more efficiently. Both parties can signal changes in the work schedule/situation in real time.

The new system also provides information at the maintenance site that helps the service engineer get the job done more quickly. Warnings may also be issued to affected addresses before water is cut off. This is particularly important to customers, such as dentists or hospitals.

6 Messaging

Mobile office applications bridge the gap between valuable knowledge workers, who are constantly on the go, and the company information they need to perform their job efficiently. Communication should not stop just because you are away from your desk. While impossible to be in two places at once, Mobitex ensures that mobile professionals are never out of reach. Instead, they remain connected with secure wireless access to email and PIM (Personal Information Management), corporate data, and Internet wherever they are.

Because it is packet-switched, the Mobitex network is always available and instantly accessible and devices are always online and ready to receive and receive data. There are no time-consuming call setup or data activation procedures, and there are never any busy signals. Response times are short (typically 3-9 sec.) and access is instantaneous. Because packet switching does not require a dedicated connection, users pay only for the volume of data transmitted, not for the connection time, meaning that devices can remain online at all times, sending and receiving data as required by the application. This permits maximum utilization of network resources.

6.1.1 Typical messaging applications

- Messaging/Dispatch/Workgroup Communications
- Enterprise Email
- POP3 Email Access
- Messaging/Emergency Communications
- Secure Email
- Private Networks/Extensions
- Disaster Management
- Investigative

6.1.2 Example of solution providers

- Fidelix TWMK and TWM3
(http://www.fidelix.co.kr/eng/product/PDA_TWM3.jsp)

7 Solutions hardware

1 Handhelds	2 Purpose built	3 OEM Modems	4 Connectivity
 <p>Fidelix TWM3</p>  <p>Fidelix TWMK</p>	 <p>Progenie PG500</p>  <p>PsionTeklogix WorkAbout PRO</p>  <p>Fidelix POS terminal</p>  <p>Liman Infont 800 POS terminal</p>	 <p>Fidelix RPM3</p>  <p>Wavenet Boomer</p>  <p>Mobile Expertise ME-D400</p>	 <p>WSI BlueTex GPS</p>  <p>HITECHnologies Infralagic 100</p>  <p>Technisyst TC Connect</p>