



# **“Success 4 SMS” White Paper**

February 2001



[www.Success4SMS.com](http://www.Success4SMS.com)

# CONTENTS

The full SMS report, "Success 4 SMS" is divided into the following sections:

<b>Preface</b>	<b>2</b>
Issue History	2
Key Changes in this New Edition	2
1. Introduction	15
Aims	15
Authors	15
2. SMS Market Trends	16
<b>Part 1 – Introduction to SMS</b>	<b>18</b>
3. Key Features of SMS	18
160 Characters	18
Store and Forward Service	18
Confirmation of Message Delivery	18
Simultaneous with Voice, Data and Fax	18
Telephone Number Automatic Display	19
Ways of Sending Multiple Short Messages are Available	19
To Use SMS, Users Need the Relevant Subscriptions and Hardware	19
4. Key Advantages of Text Messaging	19
5. Comparison Between SMS and Paging	20
Service Design	21
Message Length	22
Interactivity	22
Protocols	23
Radio Frequency	23
Delivery Confirmation	24
Charging	24

Concurrent Services	25
Terminals	25
Roaming	26
Standards	26
Summary	27
6. Comparison Between SMS and Circuit Switched Data	27
Limitations	27
Information Types	28
Concurrent Services	28
Service Design	29
Service Types	30
Terminals	30
7. Comparison Between SMS and WAP	31
Developer Support	32
Service Reach	32
Technology Type	32
Preferred Bearer	33
Customer Friendliness	33
Service Type	33
8. Comparison Between SMS and GPRS	34
Destinations	34
Service Design	35
Message Length	35
Channel	35
Delivery Status	36
GPRS/SMS Interconnection	36
Example of Successful SMS Mobile Terminate Transfer Over GPRS	37
Mobile Streams' View on SMS/GPRS Relation	38
9. The Future of SMS	39

SMS Advantages	39
Store and Forward	39
Confirmation of Short Message Delivery	39
SMS Disadvantages	39
Limited Message Length	39
Inflexible Message Structure	40
Relatively Slow Signaling Channel	40
Always Store and Forward	40
Service Summary	41
<b>Part 2 – The Future of SMS</b>	<b>42</b>
10. Introduction – from Text to Multimedia	42
11. Text Messaging	44
12. Picture Messaging	45
13. Enhanced Messaging	47
14. Multimedia Messaging	47
Nokia’s Multimedia Messaging Strategy	48
15. Mobile Postcards	49
16. Summary – 3D in 3G	49
<b>Part 3 – SMS Technical Introduction</b>	<b>51</b>
17. Overview of SMS Mobile Network Implementation	51
Infrastructure	51
Message Transfer	51
Message Delivery Attempts	52
Message Delivery Retry Schedules	52
Message Delivery Success	54
18. SMS Hardware	55
Introduction	55
SMS Receive Support	55
SMS Send Support	55

Phone Man-Machine Interfaces	56
Predictive Text	56
Snap on Keyboards	58
Optimal SMS Phone Features	58
Message Origination	59
Message Arrival	59
SimCards and Message Storage	60
Serial Cables	60
Black Boxes	61
Dual Slot Phones	61
Smart Phones	61
Handheld Computers	62
Summary	62
19. The Standards for SMS	63
ETSI	63
Telecommunications Industry Association (TIA)	63
Competition and Cooperation	63
The Standards	64
20. General SMS Features	66
Concatenation	66
Compression	66
Binary Messaging	67
Encryption and Security	67
Priority Messages	68
Billing	68
Support for Different Alphabets	69
GSM SMS Inter-Network Roaming	69
National SMS Roaming	70
International SMS Roaming	71

<b>Part 4 –SMS Center Profiles</b>	73
21. SMS Center Selection Criteria	73
Design	73
Scalability	74
Performance	75
Availability and Resilience	75
Connectivity	76
Inbound Interface Connectivity	76
Inbound Interface Connectivity	77
Inbound Communications Connectivity	77
Outbound Connectivity	77
Pricing	77
ADC Enhanced Services	79
Aersoft	85
CMG Wireless Data Solutions	88
Comverse	95
Ericsson	101
Hyde Company	106
Glenayre	108
Logica	110
Motorola	118
Nokia	122
Sema	129
Openwave Systems (formerly Openwave Systems (formerly Software.com))	135
Telecommunication Sytems (TCS)	141
Unisys	144
22. SMS Center Suppliers by Continent and Network Operator	146
Continental Europe	146
Eastern Europe	148

	Middle East and India	159
	North America	151
	South America	153
	Africa	155
	Asia	156
23.	SMS Center Market Shares	169
	Continental Europe	160
	Eastern Europe	160
	Middle East and India	161
	North America	161
	South America	162
	Africa	162
	Asia	163
	Global	164
	Analysis	164
24.	Comparison of SMS Centers	165
25.	The Future for the SMS Center Vendors	168
	<b>Part 5 – Applications</b>	<b>170</b>
	Simple Person to Person Messaging	170
	Voice and Fax Mail Notifications	171
	Unified Messaging	173
	Internet Email	174
	Prepaid	175
	Ringtones	175
	Information Services	181
	Chat	186
	Instant Messaging	187
	Corporate Email	189
	Affinity Programs	190

Mobile Banking	191
Mobile Commerce	192
Advertising	194
Customer Service	194
Vehicle Positioning	196
Job Dispatch	199
Remote Point of Sale	199
Remote Monitoring Such as Meter Reading	200
<b>Part 6 – Software Suppliers</b>	203
26. SMS Software Supplier Profiles	203
Bulletin.net (formerly TWS)	204
Critical Path (formerly Isocor)	208
Dialogue Communications	212
Microsoft Mobile Internet (formerly Sendit)	215
Ztango.com (formerly SST, Oeno, iScape and Commit)	219
Airmedia	222
Materna	224
Infospace.com/Saraide.com (formerly GIN)	227
I3 Mobile (formerly Intelligent Information Incorporated)	231
Wireless Information Network (WIN)	236
Crosland	239
Global Telematics	242
27. Comparison of SMS Software Suppliers	245
28. Comparison of Wireless Email Suppliers	247
29. Comparison of Information Services Suppliers	248
30. Comparison of Vehicle Positioning Suppliers	250
<b>Part 7 – Application Developers</b>	252
31. Europe	252
Fingo	252



	Fonedata	252
	Free-SMS.com	252
	Infocell	252
	Kizoom	253
	Lexacom	253
	Mobileway	253
	Netsize	254
	Realtime	254
	Red Message	254
	UCP	254
	Yomi Media	254
32.	North America	255
	Airtrac	255
	Datalink.net	256
	Giantbear.com	257
	Hiddenmind	258
	Indiqu	258
	Infowave	259
	Lava2140	259
	Mobilesys	260
	W-Trade Technologies	261
	Wysdom	262
	<b>Part 8 – SMS Market Deployment</b>	263
33.	Trends in Asia	263
34.	SMS Availability on Different Network Types	264
	GSM	265
	NMT	265
	NAMPS	265
	SMS in Japan	265

	Tetra/Dolphin	267
	Iden/Nextel	267
	Globalstar	268
	SMS in North America	268
	TDMA	269
	CDMA	271
35.	Actual SMS Market Growth	272
	European SMS Market	272
	Global SMS Market	273
	SMS Volumes per European Market	273
36.	SMS in Specific Countries	274
	German Market Success Factors	274
	UK SMS Market Growth	275
37.	SMS Market Forecasts for year 2000	275
38.	SMS Market Forecasts Beyond year 2000	276
39.	A Guide for Network Operators to Maximise Returns from SMS	277
	Focus on Revenue per Subscriber as well as Market Share	277
	Focus on Services not Technology	277
	Choose Popular Applications and Services	278
	Remember Simplicity	279
	Choose the Right SMS Software Supplier	279
	Specify and Fund Development of a Solution In-house	280
	Pricing	281
	SMS Usage Charges in Western Europe	282
	Enable all Potential Users	283
	Educate Customers	284
	Educate the Mobile Workers	284
40.	SMS Messaging Milestones	286
	1. First Generation SMS Center	286

2. Voicemail Notifications and SMS Mobile Terminate	286
3. SMS Mobile Originate	286
4. Email	286
5. Information Services	286
6. Business Partners Program	287
7. Second Generation SMS Center	287
8. National SMS Interworking	288
9. SMS Prepayment	288
10. Predictive Text Input Phones	288
11. Standardized Protocols e.g. WAP	289
12. Terminal Developments e.g. Smart, Handheld Computers	289
<b>Part 9 – Case Studies</b>	<b>290</b>
42. One2One, UK	290
Introduction	290
Ownership	290
SMS Suppliers to One2One	290
Mobile Email Service	291
43. BT Cellnet in the UK	292
SMS Mobile Originaten Easylife and U Prepaid	293
Genie Internet	293
Cellnet Dictation Line Service	294
Barclaycard Affinity Program	295
BT and Microsoft Mobile Internet Global Alliance	295
Service Development Process	296
Info-touch and Mmail Services	297
Summary	298
44. Telia Mobile, Sweden	298
Introduction	298
Department of the Future (DOF)	299

	Summary	302
45.	Sonera, Finland	302
	Introduction	302
	Textus Branded Services	303
	Premium Rate Information Services	303
	Unique Finnish Characteristics	303
	Sonera SMS Success Factors	305
	Entertainment Services	306
	Sonera Strategy Evolution	307
	Summary	308
46.	Cellcom, Israel	308
47.	ATL, Brazil	310
	Value-added services rollout	310
	Challenges	310
	Internet Portal	311
	Tariffs	312
	Statistics	312
	Summary	312
48.	Summary	312
	Appendix	313
49.	Links to Related Internet Sites	321

# **1. INTRODUCTION**

The Short Message Service (SMS) is the ability to send and receive text messages to and from mobile telephones. The text can comprise of words or numbers or an alphanumeric combination. SMS was created as part of the GSM Phase 1 standard. The first short message is believed to have been sent in December 1992 from a Personal Computer (PC) to a mobile phone on the Vodafone GSM network in the UK. Each short message is up to 160 characters in length when Latin alphabets are used, and 70 characters in length when non-Latin alphabets such as Arabic and Chinese are used.

## **2. CUSTOMER USAGE AND MARKET GROWTH**

There is no doubting the success of the Short Message Service- the market in Europe alone has reached over one billion messages despite little proactive marketing by network operators and phone manufacturers. Key market drivers over the next two years such as the Wireless Application Protocol (WAP) will continue this growth path.

SMS statistics including per country figures for Europe, Global figures and forecasts can be found in the "Success 4 SMS report".

## **3. SMS MESSAGING MILESTONES**

### **1. FIRST GENERATION SMS CENTER**

The network operator needs to purchase its first generation SMS Center as part of the network commissioning plan. The initial SMS Center may be simply a voice mail platform module or alternatively a standalone SMS Center. It is not possible to make the Short Message Service available without an SMS Center since all short messages pass through the SMS Center.

### **2. VOICE MAIL NOTIFICATIONS AND SMS MOBILE TERMINATE**

The network operator sees SMS as a "tick box option"- something to say that it does have on its network. Often SMS Mobile Terminate Services are offered along with voice mail notifications, which account for the vast majority of SMS traffic on the network- typically over three-quarters.

### **3. SMS MOBILE ORIGINATE**

The network operator launches SMS Mobile Originate to give customer true two-way SMS capability. Customers experiment with the service and work out new uses for it. Addition of SMS Mobile Originate typically leads to 25% increase in overall SMS volumes being handled.

#### **4. EMAIL**

Additional of a wireless Internet/ mobile email service often follows, typically with the customer's mobile number becoming part of the email address they are allocated as part of the service. Emails sent to that address are forwarded as a short message to their wireless phone. Such a service tends to be popular with customers, especially in markets where Internet penetration is low and people don't already have an email address. This typically leads to 20% increase in overall SMS volumes being handled.

#### **5. INFORMATION SERVICES**

Addition of information services. These services typically start with mainstream content such as news, travel, weather and sports and over time, new information providers are sourced that offer lifestyle services such as horoscopes and jokes. Because there is typically a lot of work involved in sourcing and setting up content, these services tend to build up slowly, typically accounting for about a 10% increase in SMS volumes being handled.

#### **6. BUSINESS PARTNERS PROGRAM**

The network operator starts to see independent companies experimenting with SMS-based applications and offering these on a regional or company-specific basis. To encourage these developments and assist in their widespread deployment, the network operator hires a person whose sole responsibility is to manage relations with these business partners and help them to get any technical or commercial support they need. The aim is to try to get the business partners to deploy their applications using their network's SMS services rather than those of their competitors. Because vertical market applications can account for high messaging volumes, the introduction of a business partners program can soon lead to a further 20% increase in overall SMS message volumes being handled by the network.

#### **7. SECOND GENERATION SMS CENTER**

The network operator has seen gradual but significant increases in SMS traffic volumes as these initiatives have been taken and awareness of SMS builds. They then often find that their SMS Center capacity is starting to be challenged and need to expand the existing platform or purchase an industrial strength SMS Center from another supplier. This then removes any constraints in handling messages, and may lead to corporate customer complaints about service reliability at peak times falling, typically leading to a 10% increase in overall SMS message volumes.

#### **8. NATIONAL SMS INTERWORKING**

The additional of interworking between network operators who are competing in the same geographical market gives customers to both networks the opportunity to use SMS in the same way as they do voice. Just as they can make a voice call to each other's phones, so too can they send short messages to each other. Enabling this capability can rapidly increase the number of available messaging destinations, thereby increasing the

value and use of SMS. As such, adding national SMS interworking can lead to an uplift of 50% in SMS message volumes.

By this time, the total use of SMS on the network has reached "Critical Mass". There are sufficient regular users and awareness of and momentum behind the services. SMS has become an integral and important part of many customer's everyday business and personal lives.

Facilitating international SMS roaming is also important, particularly in land-locked countries where border crossing is frequent.

## **9. SMS FOR PREPAYMENT**

The next quantum leap in SMS traffic volumes is caused by the introduction of SMS for prepayment customers. These customers pay for their cellular airtime as they go rather than having contracts. Enabling the prepay customers to send short messages causes large traffic uplifts because the typical young person who is the main user of prepaid services is also ready, willing and able to manipulate the phone keypad and originate short messages. When customers are cost conscious, they tend to use SMS to let their friends know about changes in meeting arrangements and so on, calculating that this is less expensive than making a voice call to communicate the same information. An increase in SMS traffic of 100% (sometimes more) is not unusual when SMS for prepay is introduced.

For example, as we saw at the start of this guide, whilst Vodafone in the UK had more postpaid customers than prepay (three million postpaid, two million prepaid), the prepay customers sent more than twice as many short messages as the postpaid users.

## **10. PREDICTIVE TEXT INPUT PHONES**

Because simple person to person messaging is such an important component of total SMS traffic volumes, anything that simplifies message generation is an important enabler of SMS. Predictive text input algorithms such as T9 from Tegic that anticipate which word the user is trying to generate significantly reduce the number of key strokes that need to be made to input a message. Widespread incorporation of such algorithms into the installed base of mobile phones will typically lead to an average uplift in SMS traffic of 25% per enabled user. These predictive text algorithms support multiple languages.

## **11. STANDARDIZED PROTOCOLS E.G. WAP**

The introduction of standardized protocols such as SIM Application Toolkit and the Wireless Application Protocol (WAP) contributes to an increase in messaging usage by providing a standard service development and deployment environment for application developers and business partners. These protocols also make it easier for users to reply to and otherwise access messaging services through the provision of custom menus on the phone. As such, whilst these protocols are only a means to an end and not new

messaging destinations or services in their own right, they are likely to lead to a 10-15% uplift in total SMS volumes.

## **12. TERMINAL DEVELOPMENTS E.G. SMART, HANDHELD COMPUTERS**

The introduction of more friendly and easy to use terminals contributes to increases in messaging usage by providing simpler access to messaging services. Terminals such as smart phones make it easier for users to originate, reply to and otherwise access messaging services through the provision of a QWERTY keyboard rather than the limited keypad on standard mobile phones. As such, whilst these terminals are only a means to an end and not new messaging destinations or services in their own right, they are likely to lead to a 10-15% uplift in total SMS volumes.

As such, there are various steps that mobile carriers can and should take to spur the development of SMS usage. Each of these steps is complementary and useful in making SMS a success. It is the combined effect from these steps that has led to the significant and almost exponential growth in the usage of SMS by many developed network operators.



## **4. CONSUMER APPLICATIONS USING SMS**

The vast majority of SMS usage is accounted for by consumer applications. It is not uncommon to find 90% of a network operator's total SMS traffic being accounted for by the applications described in this next section. The main consumer applications based on SMS are:

### **SIMPLE PERSON TO PERSON MESSAGING**

Mobile phone users to communicate with each other routinely use the Short Message Service. Typically, such person to person messaging is used to say hello or prompt someone for something or arrange a meeting or tell someone something. Such messages are usually originated from the mobile phone keypad.

When the information to be communicated is short or it would take too long to have a full conversation or someone is traveling overseas or not available to take a voice call, SMS is an ideal messaging medium. For example, network operators typically charge the same to send a short message to someone in the same room as they do to someone traveling overseas with their mobile phone. Because short messages are proactively delivered to mobile phones that are typically kept in the user's pocket and can be stored for later reference, SMS is often more convenient than email or Data to communicate amongst distributed and mobile groups of people.

Once users have familiarized themselves with reading and sending short messages, they often find that SMS is a useful way of exchanging information and keeping in touch with friends. This is particularly so when the recipient is also able to reply to messages for two-way communication. If the recipient of the short message is unable to read or reply to it, then clearly the effectiveness of using SMS as the communications media is much lower. This is one of the reasons why simple person to person messaging is popular with many young people, a group that is generally more willing to learn how to use new technologies such as SMS.

As such, simple person to person messaging generates a high volume of short messages.

### **VOICE AND FAX MAIL NOTIFICATIONS**

The most common use of SMS is for notifying mobile phone users that they have new voice or fax mail messages waiting. This is therefore the starting point for most mobile network operators and the first (but hopefully not the last) time that mobile phone users use SMS. Whenever a new message is dispatched into the mailbox, an alert by SMS informs the user of this fact.

Because SMS is already routinely used to alert users of new voice mail messages, this application is and will remain one of the largest generators of short messages.

## **UNIFIED MESSAGING**

Unified messaging is an emerging value-added network service that is particularly compelling because it elevates communication above the technology used to communicate- the message takes precedence over the media. Currently, it is difficult to manage all the different kinds of messages that people get- they have to dial in and pick up emails, pick up their faxes from the fax machine, call in and listen to voice mail and so on.

Unified messaging involves providing a single interface for people to access the various different kinds of messaging they use. Be the messages fax, voice mail, short messages, email or so on, they can be conveniently accessed from a single point in the most actionable form.

The user typically receives a short message notifying them that they have a new message in their unified messaging box. The short message often also includes an indication of the type of new message that has been deposited, such as fax, email or voice mail.

Unified messaging is a convenient application that is likely to become mainstream in the future. It should therefore be a significant generator of short messages as more services are launched.

## **INTERNET EMAIL ALERTS**

Upon receiving a new email in their mailbox, most Internet email users do not get notified of this fact. They have to dial in speculatively and periodically to check their mailbox contents. However, by linking Internet email with SMS, users can be notified whenever a new email is received.

The Internet email alert is provided in the form of a short message that typically details the sender of the email, the subject field and first few words of the email message. Most of the mobile Internet email solutions incorporate filtering, such that users are only notified of certain messages with user-defined keywords in the subject field or from certain senders. Users could find it expensive or inconvenient to be alerted about every email they receive (including unsolicited "spam" emails), which would reduce the value of the service.

Because of the high and increasing usage of Internet email to communicate globally, and the benefit from using SMS to notify mobile users about important new email messages, this is likely to be a fast growing and popular application for SMS.

## **RINGTONES**

Another emerging SMS-based application is downloading ringtones. Ringtones are the tunes that the phone plays when someone calls it. With the same phone often sold with the same default tune, it is important for phone users to be able to change their ringtone to distinguish it from others. Phones often come with a range of different ringtones built into the phone's memory that the users can choose from. However, it has become popular to download new ringtones from an Internet site to the phone- these ringtones tend to be popular television or film theme tunes.

Much of the usage is spurred by word of mouth- people hear someone else's phone ringing and ask where they got that particular ringtone.

As mobile phone penetration increases, and everyone has a mobile phone, unique ringtones to help determine just whose phone is ringing will become increasingly popular.

## **CHAT**

An emerging application for the Short Message Service is chat. In the same way as Internet chat groups have proven a very popular application of the Internet, groups of likeminded people- so called communities of interest- have begun to use SMS as a means to chat and communicate and discuss.

Chat can be distinguished from general information services because the source of the information is a person with chat whereas it tends to be from an Internet site for information services. The "information intensity"- the amount of information transferred per message tends to be lower with chat, where people are more likely to state opinions than factual data.

SMS-based chat services are an emerging application area. It remains to be seen how willing the participants in the chat groups are to pay for EVERY message sent to the chat channel. It is likely that commercial chat services will let participants select which messages they receive on their mobiles according to who the message sender is.

Because SMS chat applications are high volume applications whereby one message submission leads to multiple message deliveries, expect this application to be a significant generator of short messages in the future.

## **INFORMATION SERVICES**

The Short Message Service can be used to deliver a wide range of information to mobile phone users from share prices, sports scores, weather, flight information, news headlines, lottery results, jokes to horoscopes. Essentially, any information that fits into a short message can be delivered by SMS.

Information services can therefore be configured as push-based and from a public or private source or pull-based and from a public or private source. An information service for an affinity program may combine public information such as share prices with private information from bank databases.

Successful information services should be simple to use, timely, personalized and localized.

## **5. CORPORATE APPLICATIONS USING SMS**

Corporate applications that use the Short Message Service are currently few and far between. Most of the SMS messaging volumes are generated by consumer applications. The reasons are the older age of corporate mobile phone users and their lower price sensitivity, particularly since mobile phone bills are usually paid by the company. Corporate users are less willing to learn how to and make the effort to send a short message- they tend to use voice as their primary communications method. The main corporate applications based on SMS are:

### **CORPORATE EMAIL**

The Short Message Service can be used to extend the use of corporate email systems beyond an employee's desk and office PC. With 40% of employees typically away from their desks at any one time, it is important for them to keep in touch with the office at all times. Corporate email systems run on Local Area computer Networks (LAN) and include Microsoft Mail, Outlook, Outlook Express, Microsoft Exchange, Lotus Notes and Lotus cc:Mail.

Corporate email notifications are similar to Internet email notifications. Users are given information such as the sender and subject of the email. Any emails of a business or personal nature that are sent to the corporate email address can be sent out over the wireless network.

Because unlike Internet email notifications, corporate email services tend to use the existing corporate infrastructure and email addresses, this kind of email application tends to generate significant average quantities of short messages per user. Very few corporations have so far extended their office email systems out to the wireless environment, leaving a large opportunity for the deployment of such services.

### **AFFINITY PROGRAMS**

Some mobile network operators view the development of the Short Message Service as low down in their overall priorities- because few users select the mobile network solely or primarily on the basis of SMS. However, affinity programs- which are also known as lifestyle packages- are a large opportunity for mobile network operators with the potential to secure large numbers of new customers, in which SMS is an integral part of the offering.

Affinity programs are the result of collaboration between mobile carriers and other companies in different industries with large customer groups. Affinity partners include television companies, sports clubs, supermarkets and other retailers, airlines and banks. SMS can be used to provide customers with all kinds of reminders and information such as frequent flyer miles status, overdue videotape rentals, appointment reminders and prescription drug pick-up notifications.

All parties to affinity programs can potentially benefit from the partnership- mobile network operators gain access to a largely new set of potential customers and affinity partners get to offer their customers new convenient services to their customers- offering differentiation possibilities against their competitors.

For affinity programs, the mobile phone may be branded with the affinity partner's logo and may have custom and personalized packaging. The route to market- i.e. the sales channel for the affinity product- is likely to be different from that of standard mobile phone purchases. Typically, the customized phones are marketed and distributed using direct mail- customers receive information about the affinity program through an insert into their statements or bills and they can then sign up and receive the package containing the mobile phone by post. A single bill, lower rates and easy access to the services are often features of the affinity package.

## **CUSTOMER SERVICE**

By providing mobile phone customers with information about their account, the Short Message Service can help to avoid the need for expensive person to person voice calls to customer service centers. In the customer service environment, SMS can help to deliver account status information, new service configuration and so on, in particular when standard SMS is combined with a protocol such as SIM Application Toolkit or Wireless Application Protocol. Some network operators find significant financial justification for deploying a value-added services platform on the basis of what they save in customer service costs alone.

## **VEHICLE POSITIONING**

This application integrates satellite positioning systems that tell people where they are with SMS which lets people tell others where they are. The Global Positioning System (GPS) is a free-to-use global network of 24 satellites run by the US Department of Defense. Anyone with a Global Positioning System (GPS) receiver can receive their satellite position and thereby find out where they are. Many commercial GPS receivers also incorporate support for the Russian equivalent of the Global Positioning System.

The Short Message Service is ideal for sending Global Positioning System (GPS) position information such as longitude, latitude, bearing and altitude. GPS information is typically about 60 characters in length, leaving room for other information such as the vehicle registration details, average speed from the tachometer and so on to be transmitted as part of the same short message.

Because the position updates are automatically generated, mobile network operators find that vehicle positioning applications are amongst the leading generators of short messages.

## **JOB DISPATCH**

160 characters is sufficient for communicating most delivery addresses such as those needed for a sales, service or some other job dispatch application such as mobile pizza delivery and courier package delivery.

The Short Message Service is used to assign and communicate new jobs from office-based staff to mobile field staff. Customers typically telephone a call center whose staff take the call and categorize it. Those calls requiring a visit by field sales or service representative can then be escalated to those mobile workers using SMS. Job dispatch applications can optionally be combined with vehicle positioning applications- such that the nearest available suitable personnel can be deployed to serve a customer.

SMS can be used not only to send the job out, but also as a means for the service engineer or sales person can keep the office informed of progress towards meeting the customer's requirement. The remote worker can send in a short status message such as "Job 1234 complete, on my way to 1235".

Because of the need to communicate with mobile workers and effectively and cost-effectively serve customers, such job dispatch applications are likely to be steady generators of short messages.

## **REMOTE POINT OF SALE**

SMS can also be used in a retail environment for credit card authorization. It is particularly convenient to use mobile technology when making sales from, for example, carts in the middle of isles at shopping malls, at flea markets or at sports stadiums, where it would be inconvenient to trail a fixed telephone wire. A mobile phone is connected to a Point of Sale terminal such as a credit card swipe and keypad. The credit card number is sent to a bank for authorization. The authorization code is then returned as a short message to the Point of Sale terminal.

## **OVER THE AIR**

Over the air capability gives mobile network operators, application developers and corporate sales managers some remote control of mobile phones for service and subscription activation, personalization and programming.

Over the air facilitates a number of end user applications such as remote service activation and update book updates.

## **REMOTE MONITORING**

The Short Message Service can be used to manage machines in a remote monitoring environment. This application provides people with valuable information from a remote location when an important event occurs that they need to know about. The information is automatically delivered electronically without having to constantly employ physical

resources locally on the off chance that such an event occurs. Examples of remote monitoring applications include remote meter reading, sending computer system fault information to mobile phones and notifying companies about empty vending machines.

Now that we have looked at the major applications that SMS facilitates, lets take a closer look at some of the factors that facilitate the achievement of the messaging milestones.



## 6. SMS ROAMING

### NATIONAL SMS INTERWORKING

Most network operators around the world recognize the need to allow customers to send short messages to people on network operators competing in the same country as them. Just as you can call using voice, so too should you be able to communicate using the Short Message Service.

To release national SMS interconnects, there are some issues. From a commercial perspective, network operators competing in the same country often charge different prices for the Short Message Service and offer different services. In such cases, knowledgeable users could benefit from accessing less expensive or more sophisticated Short Message Services by changing SMS Center addresses or sending their messages in a different way. A price has to be agreed for such inter-network national messaging to discourage or prevent such behavior.

Technically speaking, network operators are reluctant to allow their competitors access to their signaling channels, over which short messages are transmitted. This is because these channels also handle voice call set up and other mission critical tasks. However, firewalls have resolved many of these technical issues.

For example, about half the countries in Europe had inter-network national roaming by mid-1999 (including Scandinavia, UK, Netherlands) whilst half did not (including Germany, Portugal and France).

### INTERNATIONAL SMS ROAMING

Generally with the GSM Short Message Service, no specific international SMS roaming agreement is needed to use SMS overseas. Instead, international SMS roaming automatically arises whenever the following conditions are met:

- the GSM network operators have a voice roaming agreement, and
- the mobile network supports SMS. Obviously mobile phone users who are using another mobile network (known as "roamers") cannot use SMS if the mobile network they have roamed onto does NOT support the Short Message Service they are trying to use, and
- neither of the network operators have taken specific measures to preclude such short messaging activity.

## 7. SIM APPLICATION TOOLKIT

SIM Application Toolkit has been agreed and incorporated within the Global System for Mobiles (GSM) standard. "SIM" denotes the smart card inserted into GSM mobile phones that contains information about the user.

SIM Application Toolkit allows the flexibility to update the SIM to alter the services and download new services over the air. For example, network operators can remotely provision the user's wireless terminal by sending codes embedded in short messages from the server. Within the SIM Application Toolkit specification, the Short Message Service is a key mechanism for personalizing the SIM in each user's GSM phone.

SIM Application Toolkit is designed as a client-server application. On the server side, SimCard platform specialists such as Orga, Gemplus and AU-System have introduced servers based on this standard. On the client side, phone manufacturers such as Siemens, Motorola, Bosch, Sagem and Alcatel have launched phones that have support SIM Application Toolkit. Significantly, two of the three largest mobile phone vendors, Ericsson and Nokia, have not launched or announced SIM Application Toolkit compliant phones.

The biggest advantages of SIM Application Toolkit are that it has been:

- fully ratified as part of the GSM standard
- incorporated into several manufacturer's phone ranges
- incorporated into several commercial and trial network services, from mobile banking to information services to email
- proven to be a useful tool for accessing the SIM that contains all the information about the end user. This personal information allows security-related functions and identity verification to be carried out, which is essential for secure electronic commerce.

## 8. WIRELESS APPLICATION PROTOCOL (WAP)

See <http://www.wapforum.org> and [www.Yes2WAP.com](http://www.Yes2WAP.com)

WAP is an attempt to define the standard for how content from the Internet is filtered for mobile communications. WAP was developed to be the way of making readily available content from the Internet easily available to mobile terminals. One of the reasons why the mobile industry has got so excited about WAP is because it combines two of the fastest growing industries: wireless and the Internet.

The Wireless Application Protocol is envisaged as a comprehensive and scaleable protocol designed for use with:

- any mobile phone from those with a one line display to a smart phone
- any existing or planned wireless service such as SMS, Data, Unstructured Supplementary Services Data (USSD) and General Packet Radio Service (GPRS)
- any mobile network standard such as Code Division Multiple Access (CDMA), Global System for Mobiles (GSM), or Universal Mobile Telephone System (UMTS)
- multiple input terminals such as keypads, keyboards, touch-screens and styluses

The Wireless Application Protocol incorporates a relatively simple micro-browser into the mobile phone. WAP is aimed at turning a mass-market mobile phone into a "network-based smartphone". As a representative from the board of the WAP Forum commented "The philosophy behind Wireless Application Protocol's approach is to utilize as few resources as possible on the handheld device and compensate for the constraints of the device by enriching the functionality of the network".

## 9. SUMMARY

For a relatively simple messaging service, there certainly are a lot of elements that need to be taken into account when developing and deploying SMS! However operators who take the time and trouble to invest in SMS will find appreciative customers and appreciating revenues.

This guide is a cut down version of a book called "Success 4 SMS" which is 320 pages long and contains details of the SMS standard, SMS Applications, SMS Center vendor profiles, profiles of major SMS software suppliers, the FutureFoneZone and much more. To find out more about SMS and the book and to order your copy for just 495 US dollars, visit [www.mobileSMS.com](http://www.mobileSMS.com) or contact Mobile Streams by any of the methods listed below:

Internet site: <http://www.mobileSMS.com>

Email: [sms@mobileStreams.com](mailto:sms@mobileStreams.com)

Telephone: +44 7000 366366

Fax: +44 7000 366367

Postal Address: 9 The Broadway  
Newbury  
Berkshire  
RG14 1AS  
ENGLAND

## **ALSO PUBLISHED BY MOBILE STREAMS**

---

### **SUCCESS 4 SMS – SIMON BUCKINGHAM**

**Published: January 2001 (370 A4 pages)**

“Success 4 SMS” is the third edition of Mobile Streams’ renowned SMS report series, to be published. The intention of this report is to show how to maximize the use of, and therefore the revenue from, the Short Message Service. “Success 4 SMS” explains and interprets both the existing and future aspects of SMS by providing both an explanation of these developments and analysis to help interpret them. The idea is to identify the critical success factors for Service – now and in the future.

**For more information visit: <http://www.mobileSMS.com>**

**Price: 495\$US**

**ISBN: 1929105231**

---

### **Yes 2 GPRS – Simon Buckingham**

**Published: August 2000 (218 A4 pages)**

This report shows how to make mobile data a success by maximizing the use of, and therefore the revenue from, the General Packet Radio Service (GPRS). Education is the principle means of achieving this objective- by providing the first and only single source for accurate and comprehensive information about the development and deployment of GPRS around the world. “YES 2 GPRS” explains and interprets both the existing and future aspects of GPRS. It provides both an explanation of these developments, and analysis to help interpret them. The idea is to identify the critical success factors for the General Packet Radio Service- now and in the future

**For more information visit: <http://www.mobileGPRS.com>**

**Price: 495\$US**

**ISBN: 1929105258**

---

### **Data on Prepaid – Gerald T. Christensen**

**Published: August 2000 (370 A4 pages)**

Written by Mobile Streams’ Prepaid expert, Gerry Christensen, this 131 page report has been designed to help product and service providers and those investing in systems/solutions to make more informed business decisions.

**For more information visit: <http://www.mobilePREPAY.com>**

**Price: 250\$US**

**ISBN: 1929105231**

---

---

## **Success 4 WAP – Simon Buckingham**

**Published: January 2001 (190 A4 pages)**

The Wireless Application Protocol (WAP) is a hot topic that has been widely hyped in the mobile industry and outside of it. Mobile Streams originally produced its first WAP book, "Data on WAP", in July 1999. Due to rapid changes and developments this book was reissued in December 1999 before being reissued as "Yes 2 WAP" in May 2000.

**For more information visit: <http://www.yes2WAP.com>**

**Price: 495\$US**

**ISBN: 1929105215**

---

## **Yes 2 3G – Simon Buckingham**

**Published: February 2001 (245 A4 pages)**

"Data on 3G" presents an optimistic look at tremendously exciting possibilities that Third Generation/ UMTS technologies and applications enable. Timescales, profiles of all the major infrastructure vendors including the Japanese vendors, every mobile multimedia application, "At home with your futurephone"- mobile communications in the next few years, 3G Talking Points, all the 3G contracts awarded, the standards, handset alliances and partnership opportunities and much, much more are included in this report.

**For more information visit: <http://www.mobile3G.com>**

**Price: 495\$US**

**ISBN: 1929105150**

---

## **Mobile Positioning – Stephen M Dye and Dr Frank Baylin**

**Published: November 1999 (273 A4 pages)**

"Mobile Positioning" is a book about mobile positioning systems- in particular, the Global Positioning System (GPS), non-GPS location techniques and Cell Broadcast. Although the book focuses primarily on the Global Positioning System (GPS), appendixes cover other non-GPS location schemes and Cell Broadcast in considerable detail.

**For more information visit: <http://www.MobilePositioning.com>**

**Price: 250\$US**

**ISBN: 1929105134**

---

**NOTE: To order any of the above publications, please visit our secure online ordering form at <https://www.mobilesms.com/ordering.asp>**