

PREMIUM SMS

Payment by SMS for Content Providers

By Rudolf Bäumer, Bernd Mielke

Copyright © 2002 Rudolf Bäumer and Bernd Mielke

ISBN 1-929105-63-0
ISBN 1-929105-64-9

Hard Copy
CD-ROM

Published by
Mobile Streams Limited
9 The Broadway
Newbury
Berkshire
RG14 1AS
UK
Tel: +44 (0) 7000 366366
Fax: +44 (0) 7000 366367
Email: psms@mobilestreams.com
<http://www.mobilestreams.com>

Pricing and ordering information:
<http://www.mobilesms.com/main.asp>

Scope of study
Table of contents
Table of figures
About the authors

All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the author.

Although great care has been taken to ensure the accuracy and completeness of the information contained in this publication, neither Mobile Streams Limited nor any of its authors, contributors, employees or advisors is able to accept any legal liability for any consequential loss or damage, however caused, arising as a result of any actions taken on the basis of the information contained in this publication.

Scope of study

We have published this report with the intention of providing the content provider community, e.g. Premium Rate Service Provider, Web-Portals, Online-Services, Media-Partners, Mobile Content Providers and others with practical information for implementing Premium SMS in the workflow of content billing. In this context many issues have been discussed during practical day-to-day work with Mobile Network Operators, Wireless Application Service Providers and Content Providers. Many questions have been raised by Content Providers which are summarized and answered in this report - overall it is a guideline for Content Providers.

A central part of the report comprises implementation and workflow models for P-SMS services/applications. The second focus of the report provides helpful information about conditions and revenue share models at different mobile network operators and WASP's in Europe and compares the results with other payment models. The examples shown and the market outlook describe the manifold business opportunities to generate sound revenues with the new micropayment tool of Premium SMS.

Before implementing P-SMS in the workflow of content billing, several strategic and technical questions have to be answered. Following are some questions which are addressed in this report:

- Does P-SMS provide a complementary tool or an alternative to existing billing methods like premium rate call services (0900) or web content billing methods?
- Does P-SMS fit my target group and my business model?
- Which services are suitable for P-SMS?
- Do I want to provide P-SMS for national consumers only or also for consumers in other countries?
- Do I connect via a single aggregator, e.g. a Wireless Application Service Provider (WASP) or do I connect directly to the different MNOs in the country(s)?
- How do I connect to MNOs or WASPs?
- How do I implement P-SMS in the workflow of content delivery?
 - short code ordering. Usage of dedicated short code(s) or shared short code(s)?
 - consideration of different P-SMS billing models in Europe (P-MO or P-MT)?
 - Reference code (keyword) strategies
 - authentication and content delivery process in the case of web content billing
- Which tariff rates are applicable for my content?
- Consideration of regulatory aspects

Table of contents

1	EXECUTIVE SUMMARY AND OUTLOOK	7
2	SCOPE OF STUDY	17
3	DEFINITION OF ACTORS AND ELEMENTS IN THE P-SMS VALUE CHAIN	18
4	SERVICES AND CONTENT BILLING BY PREMIUM SMS	21
4.1	MOBILE SM SERVICES	21
4.1.1	SM CHAT	22
4.1.2	SM BETTING / QUIZ / MULTIPLE CHOICE	24
4.1.3	SM VOTING	26
4.1.4	SM DATING	26
4.2	WEB CONTENT BILLING VIA P-SMS	27
4.3	ACCESS TO DATA SERVICES: WLAN BILLING	27
4.4	JAVA DOWNLOAD BILLING	27
4.5	VENDING MACHINES	28
5	WORKFLOW MODELS FOR MOBILE SM SERVICES AND WEB-CONTENT BILLING	29
5.1	WORKFLOW MODEL FOR MOBILE SM SERVICES (P-MO/P-MT)	29
5.2	WORKFLOW MODELS FOR WEB CONTENT BILLING VIA P-SMS	32
5.2.1	PREMIUM MO MODEL	32
5.2.2	PREMIUM MT MODEL	36
5.2.3	PREMIUM MO / PREMIUM MT MODEL WITH ACCESS CODE	40
5.2.4	WEB CONTENT BILLING – SECURITY ASPECTS	44
5.2.5	SUMMARY	45
6	PAID CONTENT– A MARKET OUTLOOK	46
6.1	SMS IN THE USA	52
7	IMPLEMENTING PREMIUM SMS IN THE WORKFLOW OF CONTENT DELIVERY	55
7.1	REGULATORY EFFORTS BY MOBILE NETWORK OPERATORS AND REGULATION AUTHORITIES	55
7.1.1	GUIDELINES	59
7.1.2	COMBINATION WITH MOBILE MARKETING AND CRM	61
7.2	SHORT CODE ALLOCATION AND ORDERING	61
7.2.1	USAGE OF DEDICATED SHORT CODES	66
7.2.2	SHARED CODE CONCEPT AND REFERENCE CODES	66
7.3	P-MT WITH DIFFERENT TARIFF RATES ON ONE SHORT CODE	68
7.4	FIXED NETWORK PREMIUM SMS	69
7.5	INTERNATIONAL P-SMS MODELS	69
8	MOBILE NETWORK OPERATORS AND WASP TARIFF STRUCTURES AND REVENUE MODELS IN EUROPE	71
8.1	MOBILE NETWORK OPERATORS TARIFF RATES AND UNDERLYING P-SMS MODELS	72
8.2	BASIC FEES FOR P-SMS SHORT CODES	75
8.3	CONTENT PROVIDER REVENUE SHARES	77
8.4	MT-COSTS	80
8.5	PAYMENT CONDITIONS	80
8.6	WASP PRICE MODELS	82
8.7	CONNECTION TO MNO VERSUS CONNECTION TO WASP	83
9	CONNECTING TO P-SMS NETWORKS	86
9.1	CONNECTING TO MOBILE NETWORK OPERATORS	86

9.2	CONNECTING VIA WAP AND INTERNATIONAL CONNECTION	89
9.3	THE CONSUMER AND THE SHORT MESSAGE SERVICE CENTER NUMBER	93
9.4	CASE STUDY: VIA VODAFONE	94
9.5	CASE STUDY: IMPLEMENTING PREMIUM SMS ON MOBILE STREAMS' WEBSITE	95
10	OTHER MICROPAYMENT METHODS IN COMPARISON WITH P-SMS	100
10.1	BASIC STRUCTURE OF MICROPAYMENT SYSTEMS	100
10.2	MOBILE- AND MICROPAYMENT SYSTEMS IN EUROPE	104
10.2.1	PREMIUM RATE CALL BILLING (0900) – MANUAL DIAL-UP	104
10.2.2	NET 900	105
10.2.3	M-PAY (VODAFONE)	107
10.2.4	I-MODE	108
10.2.5	FIRSTGATE CLICK&BUY	110
10.2.6	PAYSAFECARD	111
10.2.7	MOBIPAY	112
10.3	PRO AND CONS OF P-SMS	115
11	APPENDIX	118
11.1	SMS TECHNOLOGY	118
11.1.1	SHORT MESSAGES	118
11.1.2	SUBSCRIBER SERVICES	119
11.1.3	SMS NETWORKS – THE BACKBONE OF PREMIUM SMS	121
11.1.4	ROUTING OF MESSAGES VIA SHORT CODES FROM SMSC TO APPLICATIONS	123
11.1.5	SENDING AND RECEIVING MESSAGES ON A MOBILE PHONE	123
11.1.5.1	SENDING A MESSAGE	123
11.1.5.2	MOBILE-ORIGINATED SHORT MESSAGE EXAMPLE	123
11.1.5.3	RECEIVING A MESSAGE	125
11.1.5.4	MOBILE-TERMINATED SHORT MESSAGE EXAMPLE	125
11.1.5.5	SMS PARAMETERS	127
11.1.6	SMS NETWORK ACCESS SCENARIOS	129
11.2	SIM TOOLKIT	133
11.3	WIRELESS APPLICATION SERVICE PROVIDERS IN EUROPE	134
11.3.1	AKUMIITTI	136
11.3.2	APOLLIS INTERACTIVE	136
11.3.3	ASKU WIRELESS	137
11.3.4	ASPIRO	138
11.3.5	ATOBE MOBILE SOLUTIONS	138
11.3.6	AU-SYSTEM	139
11.3.7	BEAMGATE	139
11.3.8	BRODOS AG	139
11.3.9	BRUNET	140
11.3.10	CODETOYS	140
11.3.11	CONVISUAL	141
11.3.12	CRITICAL PATH	142
11.3.13	DIALOGS	142
11.3.14	DIGITAL BRIDGES	143
11.3.15	DJUICE	143
11.3.16	DTMS	144
11.3.17	EDIS	144
11.3.18	EMEXUS	144
11.3.19	E-PROMOTIONS	145
11.3.20	GLOBAL NETWORKS INC	146
11.3.21	GOLDEN-BYTES	146
11.3.22	HANDY.DE	148
11.3.23	IC3S	148
11.3.24	INFOSPACE	150

11.3.25	INPHOMATCH	150
11.3.26	IOBOX	151
11.3.27	JAMBA!	152
11.3.28	LEGION	152
11.3.29	MATERNA GMBH INFORMATION & COMMUNICATIONS	152
11.3.30	MINDMATICS	153
11.3.31	MINICK (FORMERLY DISTEFORA MOBILE)	154
11.3.32	MOBILEWAY	155
11.3.33	MOTOROLA	156
11.3.34	MULTICHART	156
11.3.35	NET-MOBILE AG	157
11.3.36	NETS AG	157
11.3.37	NETSIZE	158
11.3.38	QPASS	158
11.3.39	QUIOS SOLUTIONS	159
11.3.40	SMSWORX.DE	159
11.3.41	SONERA ZED	159
11.3.42	TELECA	160
11.3.43	TELECOMMUNICATION SYSTEMS (TCS)	161
11.3.44	UCP AG	161
11.3.45	VODAFONE GLOBAL CONTENT SERVICES (FORMERLY VIZZAVI)	162
11.3.46	V-TEX	163
11.3.47	WAP3	163
11.3.48	WAPME SYSTEMS AG	164
11.3.49	WCL	165
11.3.50	XIAM	165
11.3.51	YAHOO!	166
11.3.52	YOC AG	166
11.3.53	12SNAP	167
11.4	LINKS TO P-SMS RELATED INTERNET SITES	168
12	ABBREVIATIONS	170
13	TABLE OF FIGURES	174
14	ABOUT THE AUTHORS	176

Table of figures

Figure 1:	Actors and duties in the P-SMS value chain	20
Figure 2:	Mobile SM Service Model (P-MO/P-MT)	31
Figure 3:	P-MO Web Content Billing, Screenshot, CeBIT Demo 2002, MATERNA Information & Communications	34
Figure 4:	P-MO Web Content Billing Model	35
Figure 5:	P-MT Web Content Billing, Screenshot, CeBIT Demo 2002, MATERNA Information & Communications	38
Figure 6:	P-MT Web Content Billing Model	39
Figure 7:	P-MO/P-MT Web Content Billing with access code, Screenshot, CeBIT Demo 2002, MATERNA Information & Communications	42
Figure 8:	P-MT/P-MO Web Content Billing Model with access code	43
Figure 9:	Properties of different P-SMS web content billing mechanisms	45
Figure 10:	Consumer Spending on Content 2001 - 2006, Jupiter MMXI, January 2002	46
Figure 11:	Western European SMS Value and Volume 1999 - 2006, Frost & Sullivan, April 2002	47
Figure 12:	Proposed number ranges and tariff bands, ODTR, January 2002	62
Figure 13:	Example for Correlation of Short Codes and Tariff Rates	66
Figure 14:	SM routing by short code and by reference code (Shared Code concept)	67
Figure 15:	Example for Shared Code Concept	67
Figure 16:	P-SMS Consumer prices in € (incl. VAT) for selected MNOs in the Netherlands (July 2002)	72
Figure 17:	P-SMS Consumer prices in € (incl. VAT) for selected MNOs in France (July 2002)	73
Figure 18:	P-SMS Consumer prices in € (incl. VAT) for selected MNOs in Belgium (July 2002)	73
Figure 19:	P-SMS Consumer prices in € (incl. VAT) for selected MNOs and GSM Service providers in Germany (E-Plus Tariff rates 1,20, 1,40, 1,60, 1,80, 2,20, 2,40, 2,60, and 2,80 are not enclosed in this Figure). (July 2002)	73
Figure 20:	P-SMS Consumer prices in € (incl. VAT) for selected MNOs in UK (July 2002)	74
Figure 21:	P-SMS Consumer prices in € (incl. VAT) for Vodafone Omnitel in Italy (July 2002)	74
Figure 22:	P-SMS Consumer prices in € (incl. VAT) for selected MNOs in Spain (July 2002)	74
Figure 23:	Revenue shares in NOK for content provider with direct connection to Telenor Mobil AS (October 2002)	78
Figure 24:	Revenue share in £ (pence) for content provider with connection via E-Promotions/Teleca Ltd (September 2002)	82
Figure 25:	P-SMS traffic for dedicated short code in August, screenshot customer service web portal, MATERNA Information & Communications, 2002	84
Figure 26:	Direct connections between Content Providers and Mobile Network Operators	87
Figure 27:	Connection to SMSC via X.25 or TCP/IP	88
Figure 28:	The WASP acting as mediator between Content Providers and Mobile Network Operators	90
Figure 29:	Anny Way SMS Service Platform Interfaces - an example for a WASP	92
Figure 30:	The structure of micropayments	101
Figure 31:	Network Elements and Architecture of SMS	121
Figure 32:	SM-MO scenario	124

Figure 33:	SM-MT Scenario	126
Figure 34:	Schematic of SMS Access Scenario 1 - Connection to several MNOs	131
Figure 35:	Schematic of SMS Access Scenario 2 - Connection via one MNO	132

About the authors

Dipl.-Ing. **Rudolf Bäumer**, born 1967, has graduated in civil engineering at the Royal Institute of Technology in Stockholm and at the University Dortmund in 1994. During his studies he focused on infrastructure planning (industry, traffic, energy, telecommunication). He started his career in Stockholm and Göteborg. At first at the German-Swedish Chamber of Commerce responsible for business cooperation and following as project manager for the establishment of business units in Germany and Spain at Prosolvia AB. 1999 he joined TÜV Informationstechnik GmbH in Essen (<http://www.tuvit.de/>) as sales and marketing manager for IT security solutions on the European and Japanese market.

Since 2001 Rudolf Bäumer is responsible at MATERNA GmbH Information & Communications (<http://www.materna.com>) for the development, product management, rollout and operation of mobile telecommunication services in general and SMS in particular. Micropayment is of his main concern for many years.

E-Mail: rudolf.baeumer@sellitmobile.de

Dipl.-Inf. **Bernd Mielke**, born 1961, studied in the 80's computer science at the RWTH in Aachen, Germany. Emphasis was on algebra, combinational optimisation, cryptography and graph theory. After this, he worked for more than 10 years in the support department of the notebook manufacturer Toshiba. There he occupied himself with wireless data from 1993 on, when Toshiba produced a notebook with an integrated modem for the German "Modacom" network. In 1993 he wrote a book on this packet data network. Since 1998 his web site on wireless data, <http://www.dafu.de/>, is online. In the end of 1998 he published a CD-ROM on wireless data by himself.

In 2000 and 2001 he worked as product marketing manager at MATERNA. Among his projects were SMS games, logo- & ringtone services, WAP gateway and MMS products. Since April 2002 he is employed by Vodafone Global as Roadmap Coordinator MMS.

E-Mail: bernd.mielke@dafu.de