

Mobile Payments and Banking

©2009 Informa UK Ltd.

All rights reserved.

The contents of this publication are protected by international copyright laws, database rights and other intellectual property rights. The owner of these rights is Informa UK Ltd, our affiliates or other third party licensors. All product and company names and logos contained within or appearing on this publication are the trade marks, service marks or trading names of their respective owners, including Informa UK Ltd. This publication may not be:-

- (a) copied or reproduced; or
- (b) lent, resold, hired out or otherwise circulated in any way or form without the prior permission of Informa UK Ltd.

Whilst reasonable efforts have been made to ensure that the information and content of this publication was correct as at the date of first publication, neither Informa UK Ltd nor any person engaged or employed by Informa UK Ltd accepts any liability for any errors, omissions or other inaccuracies. Readers should independently verify any facts and figures as no liability can be accepted in this regard - readers assume full responsibility and risk accordingly for their use of such information and content.

Any views and/or opinions expressed in this publication by individual authors or contributors are their personal views and/or opinions and do not necessarily reflect the views and/or opinions of Informa UK Ltd.

AUTHOR

John Darnbrough

FORECASTER

Gareth Sims

REPORT STAFF

Shailendra Pandey, *Research Manager*

Kris Szaniawski, *Reports Manager*

Olivia Gibney, *Reports Managing Editor*

Maria Mitchell, *Reports Production Manager*

Shalia Mughal, *Reports Production Editor*

HEAD OFFICE

Mortimer House

37-41 Mortimer Street

London W1T 3JH

Web site: www.informamedia.com

SALES & CUSTOMER SERVICE

UK/Europe

Phone: (44) 20 7017 5533

Fax: (44) 20 7017 4783

Email: telecoms.enquiries@informa.com

North America

Phone: (1) 978 258 2500

Fax: (1) 20 978 258 2500

Email: colleen.barron@informa.com

Published in March 2009

ISBN: 978 1843 117 933

ABOUT THE AUTHOR

John Darnbrough is an associate of Informa Telecoms & Media with over 16 years' sales and marketing experience in the mobile telecoms industry. He has held senior management positions in global product marketing, alliance management and business development for WaterCove Networks and Nortel Networks and has over eight years' strategic consulting experience with Analysys Ltd and his own consultancy business, Jalex Ltd.

Contents

CHAPTER 1

EXECUTIVE SUMMARY	1
Defining the mobile payments market	2
<i>Figure 1.1: Segmentation of the mobile payments market</i>	3
mPayments and mBanking business models	3
<i>Figure 1.2: The spectrum of remote mPayment business models</i>	4
MNO-centric (virtual bank)	4
MNO-led partnership	4
Third party-led	4
Bank-led partnership	5
Bank-centric (MVNO)	5
Market drivers and barriers	5
<i>Figure 1.3: mPayment and mBanking Market Drivers and Barriers</i>	6
The remote mPayments market	6
Remote mPayments in the mobile digital content market	6
Remote mPayments in the physical goods and services market	7
The business case for remote mPayments	8
The local (NFC) mPayments market	9
Key issues remain to be resolved	9
Trials show promise	10
The business case is still uncertain	10
The mBanking market	12
Regulation is key to the mBanking (and mPayment) market	13
mBanking slow to take-off in the developed world	13
... but shows greater promise in the developing world	14
The mBanking business case	14
The mobile money transfer (MMT) market	15
Domestic MMT in the developing world	16
Domestic MMT in the developed world	16
International MMT	16
The business case for MMT	17
Global forecasts and market outlook	18
Global mPayments and mBanking subscribers	19
<i>Figure 1.4: Global mPayments and mBanking users, by service type, 2008-2013</i>	19
Global mPayments and mBanking gross transaction value	19
<i>Figure 1.5: Global mPayment and mBanking gross transaction value, by service, 2008-2013</i>	20
<i>Figure 1.6: Global mPayment and mBanking gross transaction value, by region, 2008-2013</i>	20
Global mPayments and mBanking service revenues	21
<i>Figure 1.7: Global mPayment and mBanking service revenues, by service, 2008-2013</i>	21

CHAPTER 2

MARKET OVERVIEW	23
Defining the mobile payments market	24
<i>Figure 2.1: Segmentation of the mobile payments market</i>	24
Remote mPayments	26

Mobile digital content purchases	26
Physical goods and services purchases	27
Local mPayments	28
Contactless or NFC payments	29
mBanking	29
Information-based mBanking services	30
Transaction-based mBanking services	30
Branchless banking	30
mMoney transfer	31
Domestic mMoney transfer	31
International mMoney transfer (international remittance)	31
The mPayments and mBanking ecosystem and business models	32
The ecosystem	33
<i>Figure 2.2: The mPayments and mBanking ecosystem</i>	<i>33</i>
Consumers	33
Merchants	34
Banks	34
Payment networks	35
Mobile network operators	35
Trusted service managers	36
Internet players	36
Mobile application service providers and solutions providers	36
Mobile handset vendors	36
POS terminal vendors	37
Chipset vendors	37
The banking value chain and business model	37
<i>Figure 2.3: The banking value chain</i>	<i>38</i>
Credit card value chain and business model	38
<i>Figure 2.4: The credit card value chain</i>	<i>39</i>
The mPayments value chain and business model	39
<i>Figure 2.5: The mPayments value chain</i>	<i>40</i>
mPayment and mBanking technologies	40
<i>Figure 2.6: Bank channel architecture and mPayment technologies</i>	<i>41</i>
Server-side applications	41
SMS (Short Messaging Service)	41
USSD (Unstructured Supplementary Service Data)	42
WAP	42
IVR	42
Client-side applications	43
SIM Application Toolkit	43
Java ME	43
Security technologies	44
Bearer-only encryption	44
End-to-end encryption	44
Terminal security	44
Market drivers and barriers	45
<i>Figure 2.7: mPayment Market Drivers and Barriers</i>	<i>45</i>
Market drivers and enablers	46
Ubiquity and versatility of the mobile phone	46

Poor access to financial services in developing markets	47
<i>Figure 2.8: Proportion of households with access to a financial institution</i>	<i>47</i>
High service charges for banking and remittance services	48
Socio-economic benefits	48
Quicker ROI and new revenue streams	48
Opex savings and reduced churn	49
Market barriers	50
Poor user experience and security fears	50
Disproportionate regulation	51
Distrust and uncertainty between players in the value chain	52
Delays in technology availability and standardization	53
Credit crunch	53
Current market status and future prospects	54
Market status and key market trends	54
Remote mPayments	54
Local or proximity mPayments	55
Mobile banking	55
Mobile funds transfer	56
Regional trends	57
<i>Figure 2.9: mPayments development cycle</i>	<i>58</i>
Growth potential for the mPayments and mBanking market	58
<i>Figure 2.10: Global mPayments and mBanking users by service type, 2008-2013</i>	<i>59</i>
<i>Figure 2.11: Global mPayments and mBanking, gross transaction value by service, 2008-2013</i>	<i>60</i>
<i>Figure 2.12: Global mPayments and mBanking service revenues, by service, 2008-2013</i>	<i>60</i>
 CHAPTER 3	
REMOTE MPAYMENTS	61
Market developments in remote mPayments	61
Remote mPayments in the mobile digital content market	61
Premium SMS coming under pressure	62
Direct-to-bill/WAP billing addresses PSMS's weaknesses	62
Simpay – a short, and painful, history lesson	64
<i>Figure 3.1: Simpay chronology</i>	<i>64</i>
Payforit demonstrates industry wide nationally-based initiatives can work	64
Remote mPayments in the physical goods and services market	65
Mobile prepaid account recharging – the dominant application for remote mPayments	66
<i>Figure 3.2: Recharge Brazil</i>	<i>67</i>
Mobile ticketing – the fastest growing application for remote mPayments	68
<i>Figure 3.3: Bar-code 'symbolologies' for mobile</i>	<i>69</i>
Mixed fortunes for mobile ticketing	69
Mobile ticketing for public transport	70
Mobile ticketing for parking	71
Mobile ticketing for airlines	72
<i>Figure 3.4: Mobiq's 'Mobi-Pass for Airlines' mobile boarding pass</i>	<i>72</i>
Mobile ticketing for live events	73
Mobile retailing	74

Slow growth due to change as a result of innovation from new entrants	74
Overlap between remote and local mPayments	74
Mobile phones used to authenticate online purchases.	75
Mobile phones also used to initiate and authorize bill payments	75
Independent e-Money issuers push the mobile wallet concept in Europe	76
Elsewhere independent payments brokers are partnering with banks and mobile operators.	78
Internet giants enter the remote mPayments market too	79
<i>Figure 3.5: PayPal Mobile 'Text 2 Buy'</i>	80
<i>Figure 3.6: Google Checkout for Mobile.</i>	82
<i>Figure 3.7: Amazon's TextBuyIt service.</i>	83
Business models and the business case for remote mPayments	83
For mobile digital content	83
For physical goods and services	84
<i>Figure 3.8: The spectrum of remote mPayment business models</i>	85
Business models.	85
<i>Figure 3.9: Examples of remote mPayment business models</i>	87
Premium SMS business model held back early remote mPayments services	87
Sharing transaction fees will be a key driver for the remote mPayments business case	87
<i>Figure 3.10: Payments processing fees across the value chain</i>	89
Remote mPayment case studies	89
Payfort.	90
Company overview and strategy	90
Service offering.	90
<i>Figure 3.11: Payfort mobile payment framework</i>	91
Strategic analysis.	92
Mobilkom Austria/Paybox	93
Company overview and strategy.	93
<i>Figure 3.12: Paybox payments platform</i>	94
mPayments service offering.	94
Strategic analysis.	95
mChek	96
Company overview and strategy.	96
mPayments service offering.	96
Strategic analysis.	97
Luup.	99
Company overview and strategy.	99
mPayments service offering.	100
Strategic analysis.	101
Critical success factors for remote mPayments.	102
Consumer and merchant awareness and trust	102
Simple activation/registration process	103
Secure and reliable solutions	103
Standardization and interoperability.	104
<i>Figure 3.13: The impact of interoperability on market penetration</i>	104
Fair and equitable business models	105
Adopt an integrated, portfolio service approach	105

CHAPTER 4	
LOCAL MOBILE (NFC) PAYMENTS	107
Note on EMV	108
Contactless payments and NFC	108
NFC applications	108
NFC technologies	109
ISO-compliant contactless smart cards	109
RFID token-based solutions	109
Sony FeliCa smart card technology	109
<i>Figure 4.1: Sony FeliCa</i>	110
MIFARE	110
Near Field Communications (NFC)	110
Contactless POS infrastructure	111
Visa payWave	112
<i>Figure 4.2: International symbol for contactless payments</i>	112
MasterCard's PayPass	113
American Express' ExpressPay	113
Market developments in mobile NFC	114
<i>Figure 4.3: Mobile NFC in action</i>	114
Industry fora are driving the mobile NFC market	115
The GSMA's Pay-Buy-Mobile initiative	115
The Mobile Payments (Mobey) Forum	117
Key issues remain to be resolved in the mobile NFC ecosystem	117
The location and control of the secure element	118
<i>Figure 4.4: Options for the secure element location in mobile NFC phones</i>	118
The role of the Trusted Service Manager	120
<i>Figure 4.5: The position and role of the TSM in the mobile NFC value chain</i>	121
NFC handset availability	121
Market reaction to mobile NFC	122
<i>Figure 4.6: Results from Informa's mPayments market research</i>	123
Additional opportunities for mobile NFC beyond mPayments	123
Mobile NFC and marketing/promotions: smart posters	123
Mobile NFC and MMT	124
Regional developments and trials in mobile NFC	125
Japan	125
South Korea	127
Elsewhere in Asia	128
Europe	129
North America	130
NFC business models and business case	131
Potential business models for mobile NFC	131
<i>Figure 4.7: The spectrum of potential mobile NFC business models</i>	132
MNO-centric (proprietary NFC infrastructure)	132
MNO-led partnership	133
<i>Figure 4.8: NFC mobile business model: MNO-led partnership</i>	133
Third party-led partnership	133
<i>Figure 4.9: NFC mobile business model: third party-led partnership</i>	133
Bank-led partnership	134
<i>Figure 4.10: NFC mobile business model: bank-led partnership</i>	134

Bank-centric (MVNO)	134
The mobile NFC business case	134
For mobile operators	135
For banks	137
For merchants	139
Mobile NFC case studies	140
NTT DoCoMo's Osaifu-Keitai mobile wallet service, Japan	140
Company overview and strategy	140
Mobile NFC service offering	141
<i>Figure 4.11: Osaifu-Keitai services</i>	142
Strategic analysis	143
<i>Figure 4.12: Uptake of Osaifu-Keitai</i>	143
Payez Mobile Trial, Pegasus Group, France	144
Company overview and strategy	144
Trial implementation	145
<i>Figure 4.13: Payez Mobile transaction process</i>	146
Trial results	146
Strategic analysis	147
Beep N Go trial, Far Eastone, Taiwan	147
Company overview and strategy	147
Trial implementation	148
<i>Figure 4.14: Beep N Go logo and promotional material used at POS</i>	148
Trial results	149
<i>Figure 4.15: The Beep N Go service in action</i>	149
Strategic analysis	150
O2 Wallet trial, UK	150
Company overview and strategy	150
Trial implementation	151
Trial results	152
<i>Figure 4.16: Topping up Oyster on a mobile at an Oyster ticket machine</i>	152
<i>Figure 4.17: Using a mobile to make a cashless payment</i>	153
Strategic analysis	153
Critical success factors for mobile NFC	155
Early availability and broad range of NFC-enabled handsets	155
Rapid development of NFC-enabled POS infrastructure	155
Realistic value proposition for merchant and consumer	156
Standardization and interoperability	156
Collaboration not competition	157
CHAPTER 5	
MBANKING	159
The mBanking service portfolio	160
Information-based services	160
Transaction-based services	161
mBanking service delivery and vendor solutions	162
mPayments and mBanking solutions providers	163
<i>Figure 5.1: mPayments and mBanking platform vendors</i>	164
Regulation	165
<i>Figure 5.2: Regulatory burden for mobile network operators in mBanking.</i>	165

Anti-money laundering (AML) and combating of financing of terrorism (CFT)	166
Issuance and deposit taking	166
eMoney	167
Payments regulation	167
Cash-in/cash-out and the use of agents	168
mBanking in the developed world	168
Conflicting evidence on the consumer appeal of mBanking	169
mBanking in Europe	170
<i>Figure 5.3: UK: interoperability of Monilink</i>	171
mBanking in the US	172
<i>Figure 5.4: Verizon's Mobile Banking service</i>	174
mBanking in Asia's developed markets	175
mBanking in the developing world – branchless banking	176
Banking the 'unbanked'	176
<i>Figure 5.5: Selected countries, penetration of mobile phones and bank accounts, 2007</i>	177
Mobile operator-led not bank-led	178
Government intervention – a necessary evil?	180
mBanking in Africa	182
<i>Figure 5.6: Africa: the market opportunity for mBanking</i>	182
mBanking in the Philippines	184
mBanking in India	184
mBanking in China	186
mBanking in Latin America	187
Microfinance and mBanking	187
Banking services vs. payment services	188
Open vs. closed agent networks	189
Encourage banks to participate	189
Microfinance and mBanking in practice	190
The future of branchless banking	191
Business models and the business case for mBanking	191
<i>Figure 5.7: The spectrum of mBanking business models.</i>	192
The different business models	192
Mobile operator (MNO)-centric (virtual bank)	192
Mobile operator (MNO)-led partnership	192
Third party-led	193
Third party-enabled	193
Bank-led partnership	193
Bank-centric (MVNO)	194
Comparison of selected mBanking services	194
<i>Figure 5.8: Comparison of selected mBanking services.</i>	195
The mBanking business case	196
For mobile operators	196
<i>Figure 5.9: Transaction profile for WIZZIT customers, per month.</i>	196
For banks	197
For third parties	198
mBanking case studies	198
Safaricom's M-Pesa, Kenya	198
Company overview and strategy	198
Service offering	199

<i>Figure 5.10: M-Pesa tariffs</i>	200
<i>Figure 5.11: The M-Pesa transaction system</i>	201
<i>Figure 5.12: The roles of M-Pesa agents</i>	202
Strategic analysis	202
WIZZIT, South Africa	203
Company overview and strategy	204
Service offering	205
<i>Figure 5.13: WIZZIT mBanking charges</i>	206
Strategic analysis	206
FNB's Cellphone Banking, South Africa	208
Company overview and strategy	208
Service offering	208
Strategic analysis	209
<i>Figure 5.14: Transaction volume and value for FNB's Cellphone Banking service</i>	210
ICICI Bank's iMobile, India	210
Company overview and strategy	211
Service offering	211
<i>Figure 5.15: Example user interface for ICICI Bank's iMobile service</i>	212
Strategic analysis	213
Critical success factors for mBanking	213
Offer a compelling consumer value proposition	213
Build partnerships, not competitors, in the mBanking ecosystem	215
Enable interoperability to widen access	216
Deploy secure, scalable and reliable mBanking platforms	216
Develop regulation that is specific, proportionate and risk-based	217
CHAPTER 6	
MOBILE MONEY TRANSFER	219
Market developments	220
Domestic MMT in the developing world	220
Mobile airtime used as a proxy for cash	220
Airtime recharge systems to be used for money transfers	221
Purpose-built MMT	222
<i>Figure 6.1: Typical elements required in an mPayments and mBanking solution</i>	223
Regulators control market evolution	223
Domestic MMT in the developed world	224
International MMT	225
The global remittance market	225
<i>Figure 6.2: Financial flows to developing countries, 1988-2003</i>	226
<i>Figure 6.3: Global: top 10 remittance receiving and sending countries in 2006</i>	227
<i>Figure 6.4: Fee charged for funds transfer from the US to selected countries for an average remittance value of US\$200, 2008</i>	227
<i>Figure 6.5: UK, remittance fees charged by banks and MTOs</i>	228
The international MMT opportunity	228
The GSMA's Mobile Money Transfer project	230
<i>Figure 6.6: The GSMA's view of the opportunity for international MMT</i>	231
Encouraging deployment of global hubs for international MMT	231
Managing the proliferation of MMT platform vendors	232
Providing mobile wallet platform for MMT trials	233

International MMT in the developing world	233
International MMT is already a reality	233
International operator groups home in on MMT	234
International MMT in the developed world	234
Card-based remittance services will precede MMT	235
The business case for MMT	237
For mobile operators	237
For banks	237
MMT case studies	238
OboPay, US	238
Company overview and strategy	238
Service offering	238
Strategic analysis	239
Smart Money – Smart Communications, Philippines	240
Company overview and strategy	240
Service offering	241
<i>Figure 6.7: Smart's MBS User Interface and Smart Money Prepaid MasterCard</i>	<i>242</i>
Strategic analysis	244
G-Cash – Globe Telecom, Philippines	245
Company overview and strategy	245
Service offering	246
<i>Figure 6.8: Money Transfer and cash-in and cash-out services of G-Cash</i>	<i>247</i>
Strategic analysis	247
Western Union	248
Company overview and strategy	248
Service offering	249
<i>Figure 6.9: Western Union's MMT gateway</i>	<i>250</i>
<i>Figure 6.10: Western Union's MMT gateway service: Phase 1 commercial trial partners (announced)</i>	<i>250</i>
Strategic analysis	251
Critical success factors for mobile money transfer	252
Simple to use and a value proposition for the consumer	252
Effective cash-in/cash-out channels at both ends of the remittance corridor	252
Risk-based and proportionate regulation	253
Interoperability and collaboration to enable international MMT	253
 CHAPTER 7	
FORECASTS AND MARKET OUTLOOK	255
Forecast methodology	257
Global mobile subscriber forecasts	258
<i>Figure 7.1: Global mobile subscribers, by region, 2008-2013</i>	<i>258</i>
<i>Figure 7.2: Global mobile data subscribers, by region, 2008-2013</i>	<i>259</i>
<i>Figure 7.3: Global mobile data subscribers, by regional market share, 2008-2013</i>	<i>259</i>
Forecasts for mobile payments and banking	259
Global mPayments and mBanking subscriber forecasts	260
<i>Figure 7.4: Global mPayments and mBanking users, by service type, 2008-2013</i>	<i>260</i>
Global mPayments and mBanking transaction forecasts	261
<i>Figure 7.5: Global mPayment and mBanking transactions, by service, 2008-2013</i>	<i>261</i>
<i>Figure 7.6: Global mPayment and mBanking transactions, by region, 2008-2013</i>	<i>262</i>
Gross transaction value	263

<i>Figure 7.7: Global mPayment and mBanking gross transaction value, by service, 2008-2013</i>	263
<i>Figure 7.8: Global mPayment and mBanking gross transaction value, by region, 2008-2013</i>	264
Global mPayments and mBanking service revenue forecasts	265
<i>Figure 7.9: Global mPayment and mBanking service revenues, by service, 2008-2013</i>	265
<i>Figure 7.10: Global mPayment and mBanking service revenues, by region, 2008-2013</i>	266
Remote mPayments forecasts	266
Remote mPayments for mobile digital content	266
<i>Figure 7.11: Global remote mPayment transactions for mobile digital content, by region, 2008-2013</i>	268
<i>Figure 7.12: Global remote mPayment service revenues for mobile digital content, by region, 2008-2013</i>	269
Remote mPayments for physical goods and services	269
<i>Figure 7.13: Global remote mPayment users for physical goods and services, by region, 2008-2013</i>	270
<i>Figure 7.14: Global remote mPayment transactions for physical goods and services, by region, 2008-2013</i>	272
<i>Figure 7.15: Global remote mPayment gross transaction value for physical goods and services, by region, 2008-2013</i>	273
<i>Figure 7.16: Global remote mPayment service revenues for physical goods and services, by region, 2008-2013</i>	274
Local (NFC) mPayments forecasts	274
<i>Figure 7.17: Global mobile NFC handset shipments, by region, 2008-2013</i>	275
<i>Figure 7.18: Global local (NFC) mPayments users, by region, 2008-2013</i>	276
<i>Figure 7.19: Global local (NFC) mPayments transactions, by region, 2008-2013</i>	277
<i>Figure 7.20: Global local (NFC) mPayments gross transaction value, by region, 2008-2013</i>	278
<i>Figure 7.21: Global local (NFC) mPayments service revenues, by region, 2008-2013</i>	279
mBanking forecasts	279
<i>Figure 7.22: Global mBanking users, by region, 2008-2013</i>	280
<i>Figure 7.23: Global mBanking transactions, by region, 2008-2013</i>	281
<i>Figure 7.24: Global mBanking service revenues, by region, 2008-2013</i>	282
Mobile money transfer forecasts	283
Domestic MMT	283
<i>Figure 7.25: Global domestic MMT users, by region, 2008-2013</i>	284
<i>Figure 7.26: Global domestic MMT transactions, by region, 2008-2013</i>	285
<i>Figure 7.27: Global domestic MMT gross transaction value, by region, 2008-2013</i>	286
<i>Figure 7.28: Global domestic MMT service revenues, by region, 2008-2013</i>	287
International MMT	287
<i>Figure 7.29: Global international MMT users, by region, 2008-2013</i>	288
<i>Figure 7.30: Global international MMT transactions, by region, 2008-2013</i>	289
<i>Figure 7.31: Global international MMT gross transaction value, by region, 2008-2013</i>	290
<i>Figure 7.32: Global international MMT service revenues, by region, 2008-2013</i>	291