



EMERGING HANDSET MARKETS

Pyramid Research Product Launch
Global Mobile Handsets

July, 2007

Introduction to Pyramid Research

Pyramid Research is a leading market research firm for the communication, technology, and media industries. We have over 8,000 industry connections to service providers, operators, vendors, regulators, government, consumer associations, and financial institutions. For 20 years we have advised executives and decision-makers at these organizations on how to stay ahead of market trends, understand competitive threats and capitalize on opportunities.

Key Differentiators

Global Perspective

Unlike our competitors who provide global answers by indexing data from a few select markets, we research the market in each country and then aggregate data by region to build our global forecasts. We fully analyze the competitive landscape of every country and develop scenarios for growth across technologies by assessing existing and emerging business models. This ensures our advice is reliable, relevant, and actionable at the local, regional and global levels.

Unmatched Global Coverage

With coverage in over 100 countries around the world, Pyramid Research has developed a reputation as the most reliable source of market research due to our unique, proven research methodologies. We employ the most comprehensive research methodologies – analyzing each market from the bottom up. As a result, clients use our data with confidence, knowing that each data point is supported by primary research.

Agenda

- Introduction to Pyramid Research's Handset Service
 - Methodology
 - What Will The Service Enable You to Do?
 - Countries Covered
- Market Context: Mobile Service Adoption Trends
- Mobile Handset Adoption Trends
- Vendor Positioning
- Q&A

Introduction to Pyramid Research's Handset Service

Introduction to Pyramid Research's Handset Service

- Pyramid Research has been covering the handset sell-through market in Latin America since 2000. Because information on handset sales is difficult to find in other emerging markets, clients have long requested that Pyramid Research expand its coverage outside of Latin America to include other regions.
- Responding to client demand, in July 2007 Pyramid Research launched its global handset service, providing detailed handset sell-through information for more than 40 countries, which are in turn aggregated into six distinct regions: Africa/Middle East, Asia Pacific, Eastern Europe, Latin America, North America and Western Europe.
- Pyramid Research took advantage of this service launch to rebuild and enhance its forecasting model for tracking handset sell-through. Based on customer feedback, Pyramid Research expanded its tracking to include handset sales by handset manufacturer, handset sales by feature set, handset sales by price tier as well as detailed ASP and handset revenue information.
- The result is that for more than 40 markets, Pyramid Research can now provide both a standard forecast deliverable for those clients who are primarily focused on market sizing at the market level, and a premium forecast deliverable for those clients who are interested in more detailed information including market share and trends in feature set adoption, among others.

Methodology

- Following in the Pyramid Research tradition, we have built our handset sell-through model based on a bottom-up methodology that begins at the country level and builds up to the regional and global level.

Phase I

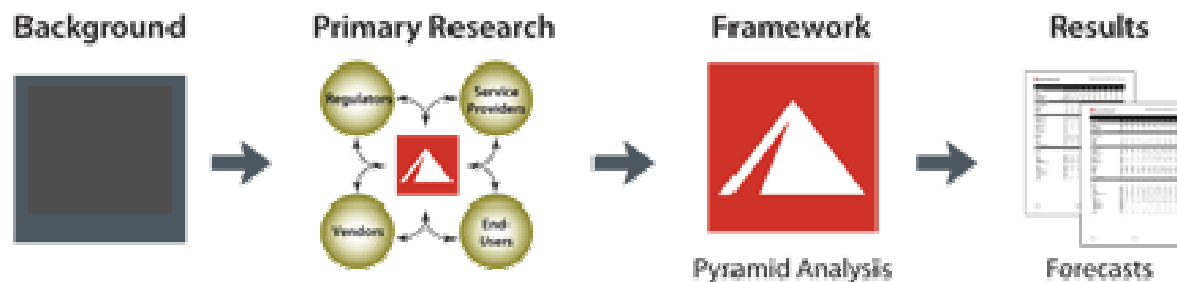
- Secondary Research
- Obtain Data from Customs
- Regulatory/Consumer Group Studies
- Gather Inputs from Demand Model
 - Churn Rates
 - Subscriber Growth
 - Technology Adoption

Phase II

- Primary Research Interviews with:
 - Leading Handset Players in Country
 - Service Providers in Country
 - Distributors

Phase III

- Run Inputs from Phases I and II through forecasting model.
- Benchmark with other countries and make adjustments as needed.



What Will The Service Enable You to Do?

- Track handset sell-through in each of 40 markets to identify the largest markets for your products, and the markets that are expected to grow the fastest over the next five years. Segment the market into replacement handset sales and handset sales to new subscribers to better position your product portfolio.
- Track the activities of your competitors in more than 40 markets by seeing how their market share is evolving over time. Pyramid Research tracks market share evolution for at least the top five vendors in each market, which enables vendors to assess their progress relative to that of their main competitors.
- Track handset sales by technology and by generation to make sure you are positioning the appropriate handset models for each market. Identify the largest CDMA markets in the world or those that are most quickly adopting 3G technology.
- Identify those markets where users are most quickly embracing new features, like 2 megapixel camera capabilities, PDA/smartphone capabilities or MP3 player capabilities.
- Track the evolution of the average selling price (ASP) in each market and how that is affecting the overall revenue growth of the market.

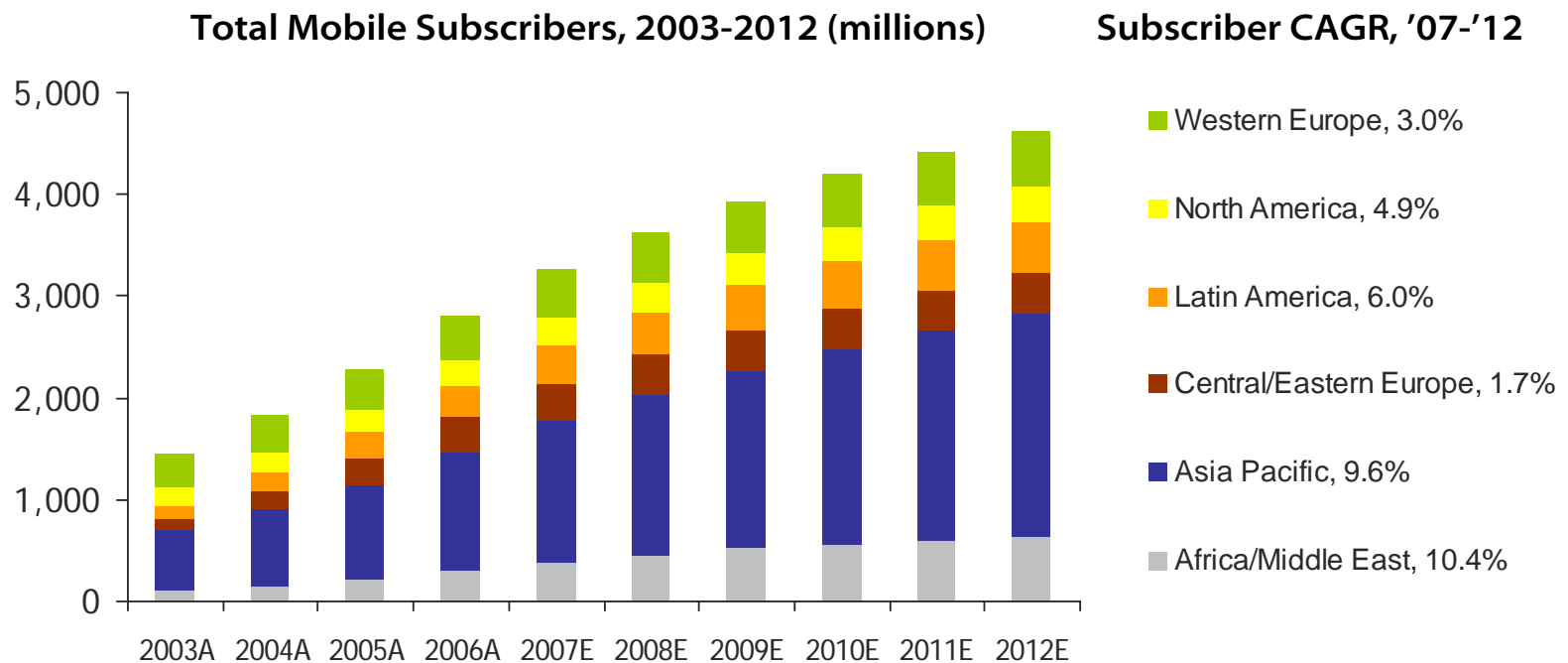
Countries Covered

- Africa / Middle East: Israel, Nigeria, Saudi Arabia, South Africa, Turkey
- Asia Pacific: China, India, Indonesia, Japan, Korea, Singapore, Thailand
- Eastern Europe: Czech Republic, Poland, Romania, Russian Federation
- Latin America: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Uruguay, Venezuela
- North America: Canada, United States
- Western Europe: France, Germany, Italy, Spain, UK

Market Context: Mobile Service Adoption Trends

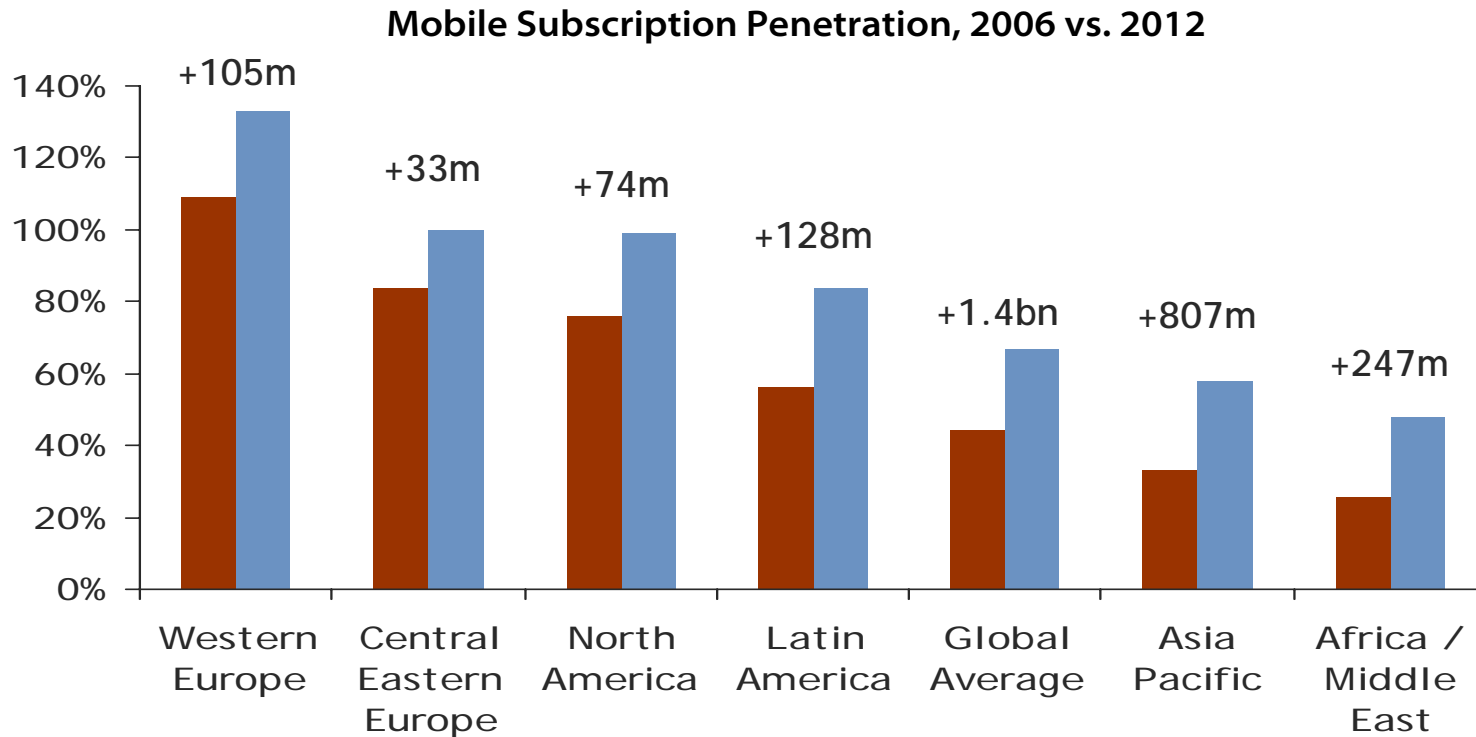
Mobile Subscribers Set to Top 4.6bn at Year-End 2012...

- The number of mobile subscribers worldwide has nearly tripled in the last five years, increasing from 964m at year-end 2001, to 2.8bn at year-end 2006. We expect 2007 to close with some 3.3bn mobile subscribers worldwide, an addition of 450m. We expect mobile operators globally to add another 1.4bn subscribers during the next five years, topping nearly 4.6bn at year-end 2012. This represents a compounded annual growth rate of 7.2%. We expect Africa, the Middle East and developing Asia to experience the fastest growth rates, while growth slows in markets where penetration has already topped 100%.



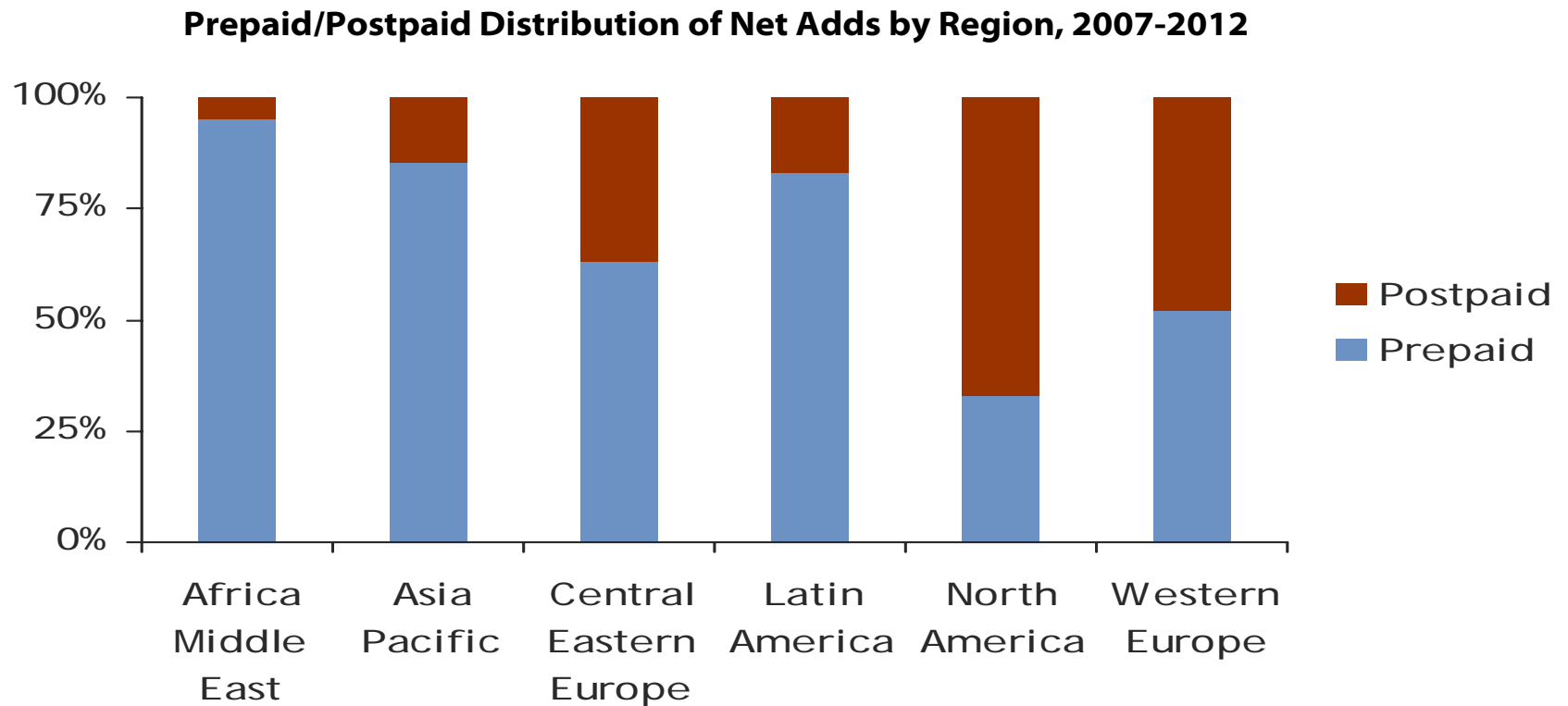
...resulting in a 67% Mobile Subscription Penetration Rate by 2012

- Pyramid Research expects global mobile penetration rates to top 50% in 2007, an increase of six percentage points over 2006 levels. By 2012, we expect penetration rates to reach 67% though differences across regions will remain significant. Europe, which currently enjoys a subscription penetration rate of 109%, will see 133% subscription penetration by 2012. At the other end of the spectrum, Africa / Middle East will see a near doubling of penetration over the next five years, reaching 48% by the end of 2012.



Growth is Coming Largely from the Low-end Prepaid Variety....

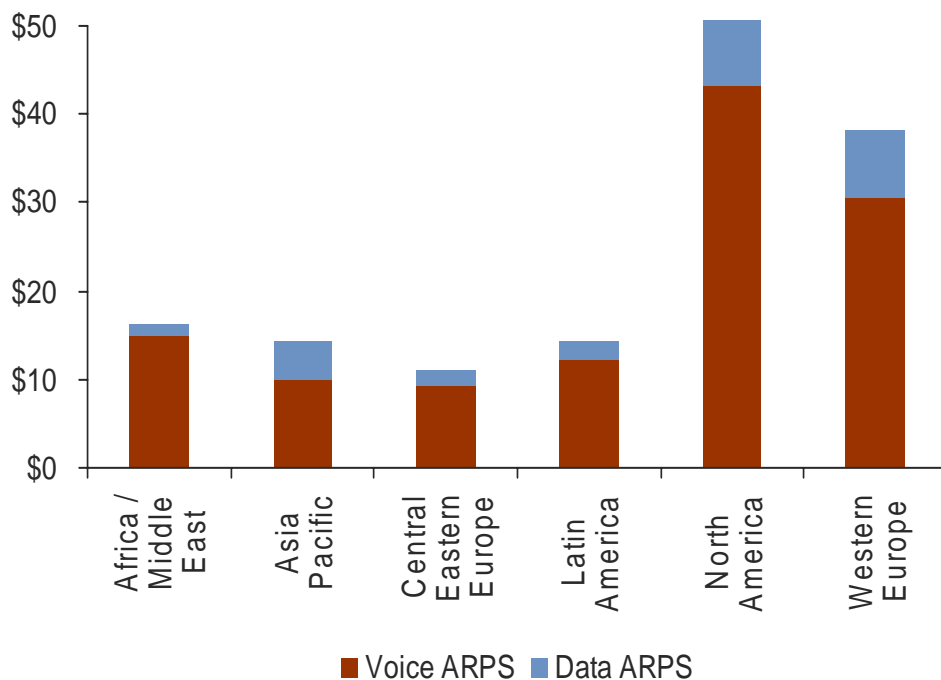
- Of the 1.4bn subscribers that will be added over the next five years, 81% will be prepaid subscribers, with an average spend per month of US\$6 per month. Postpaid subscriber additions will be largely confined to North America and Western Europe and will exhibit average monthly spend levels of US\$37, six times the prepaid average.



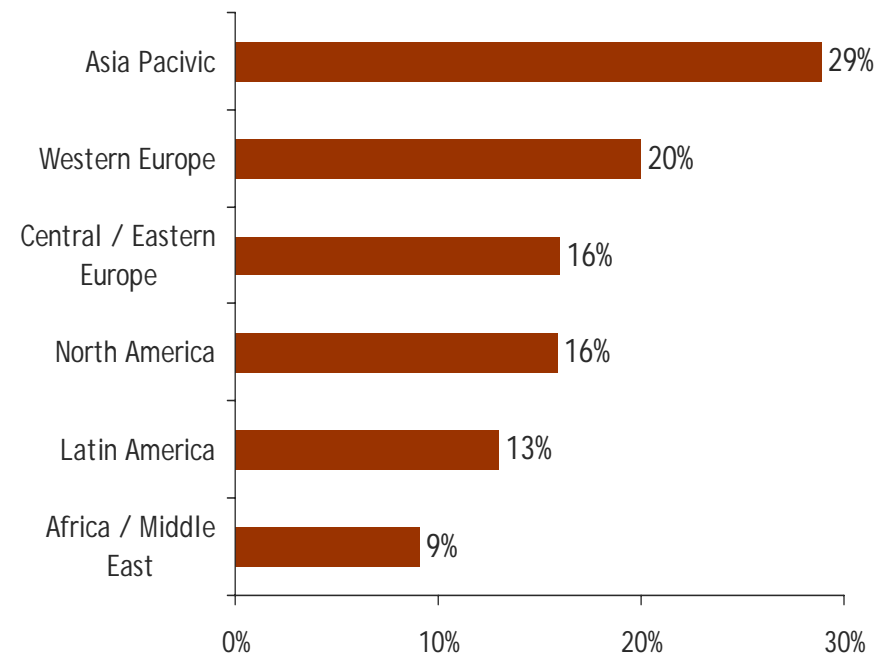
... That Tend to Spend Less on Voice and Data

- As can be expected, there remains a significant difference in ARPS levels between emerging and developed markets, with emerging market ARPS levels at roughly \$15, with developed market ARPS at roughly \$45.
- In terms of data adoption levels, from an absolute ARPS standpoint, North America leads the way with data ARPS levels of US\$8 in 2007. From a proportion of total spend perspective, Asia Pacific comes out on top with 29% of total monthly mobile ARPS dedicated toward data services.

ARPS Segmentation by Region, 2007



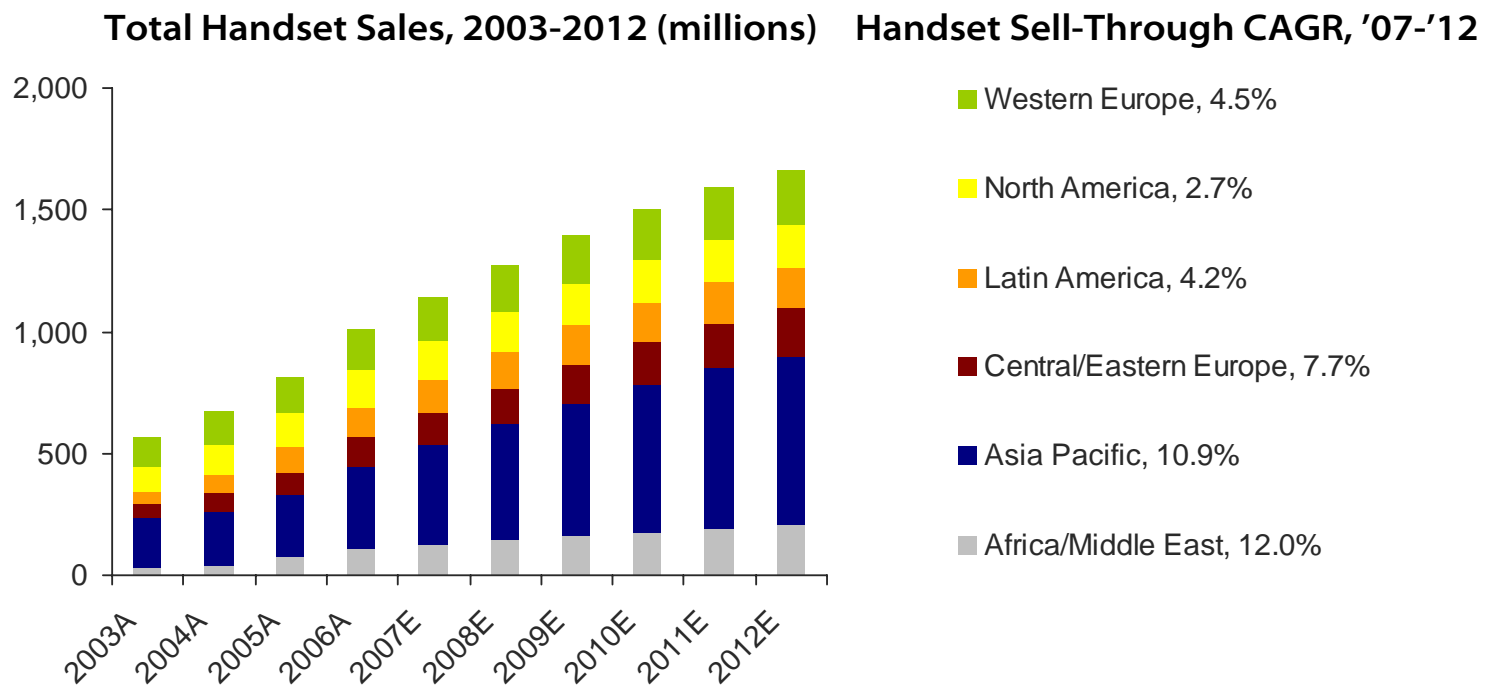
Data ARPS as a % of Total ARPS, 2007



Mobile Handset Adoption Trends

Mobile Handset Sell-Through to Top 1.6bn in 2012

- Buoyed by continued growth of the mobile subscriber base, Pyramid Research anticipates that total handset sales, which first passed the 1bn mark in 2006, will top 1.6bn in 2012. The bulk of these will be replacement handset sales, though in markets like India there remains an important opportunity for entry level handsets given that more than half of handset sales still go toward first-time mobile users.

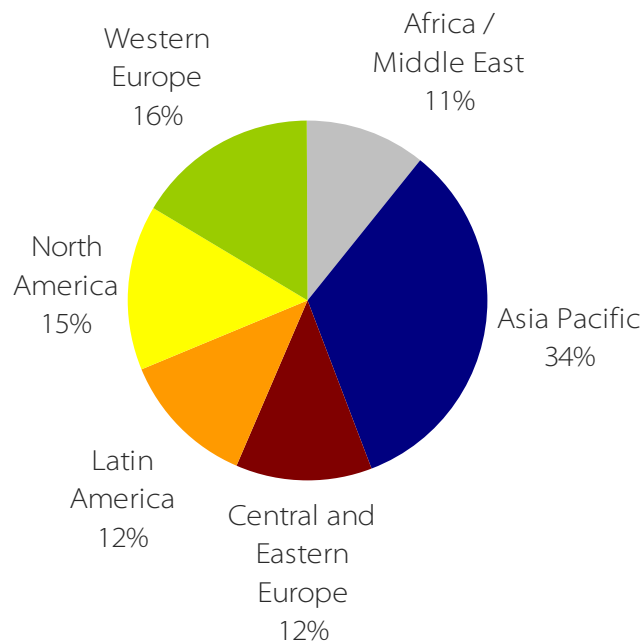


Source: Pyramid Research

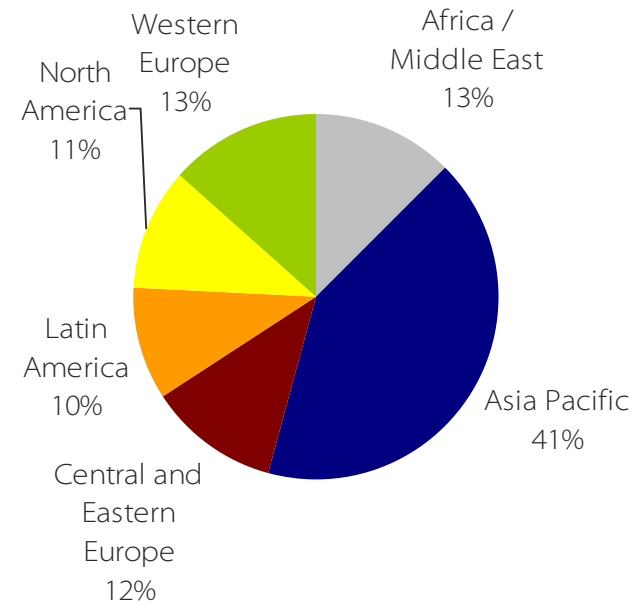
Asia Pacific to Account for 41% of Total Handset Sales by 2012

- Asia, which will be home to nearly 50% of all mobile subscribers in the world by 2012, will be the single largest market for handset sales over the next five years, accounting for 3.4bn handset sales during the 2007-2012 period. Western Europe, which in 2003 accounted for roughly one-fourth of total handset sales globally, will see its importance decrease over the forecast period, with only 13% of handset sales going to that region by 2012.

Handset Sell-Through, 2006 (1.0bn)



Handset Sell-Through, 2012 (1.6bn)



Source: Pyramid Research

Top 8 Markets Account for 55% of total Handset Sales Globally

- Countries in Asia, Eastern Europe and Latin America are quickly displacing more developed markets such as France from the world's top 10 list. Interesting opportunities go beyond the oft-talked about BRIC, to include markets such as Indonesia and Mexico, which will both rank among the top 10 markets for handset sales during the 2006-2012 period.

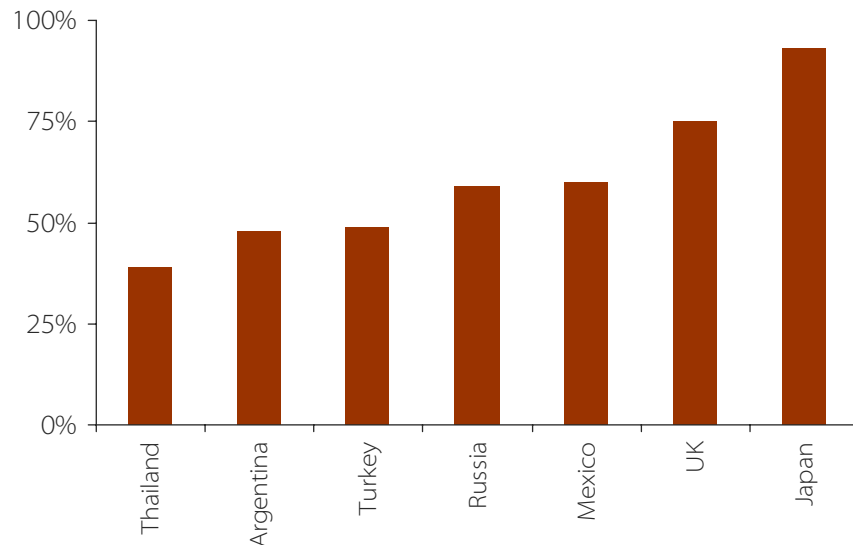
Rank	Country	Handset Sales (millions)	% World Sales
1	US	148m	14.1%
2	China	130m	12.9%
3	India	82m	7.8%
4	Japan	48m	4.8%
5	Brazil	37m	3.7%
6	Germany	37m	3.7%
7	Russia	36m	3.6%
8	Indonesia	35m	3.5%
	Total	553m	55%

Source: Pyramid Research.

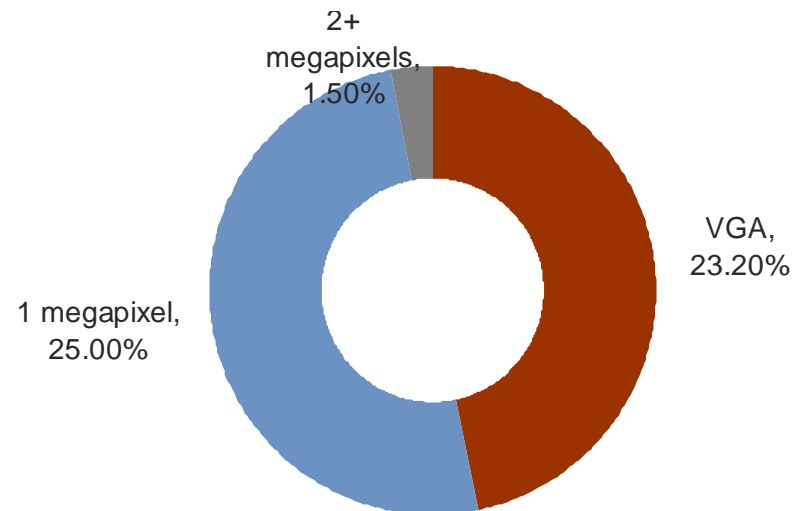
Camera Phone Trends: Toward Ubiquity and High-end Resolution

- Though globally, just under 50% of phones sold in 2006 had a camera, we found that there still existed tremendous variability across countries. At the high end of the spectrum are countries in developed Asia and Europe and at the bottom are countries in developing Asia, Africa / Middle East and Latin America.
- As cameras increasingly become standard features on phones, differentiators become the resolution on those cameras. As can be seen in the example of Turkey, vendors in emerging markets are working on transitioning users from low-end VGA cameras to 1 megapixel + cameras, with most subscribers currently purchasing

Camera Phones as a Percent of Total Handset Sales, 2006



Distribution of Camera Phones by Type, Turkey 2006

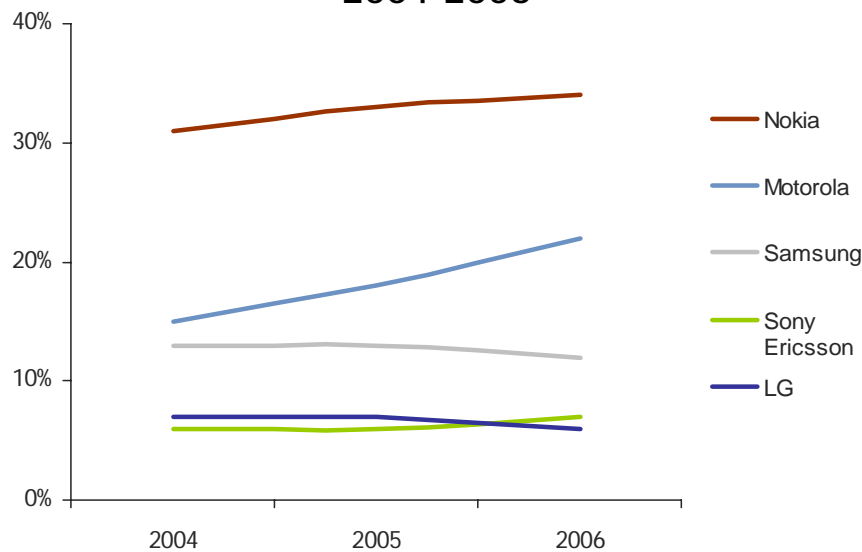


Vendor Positioning

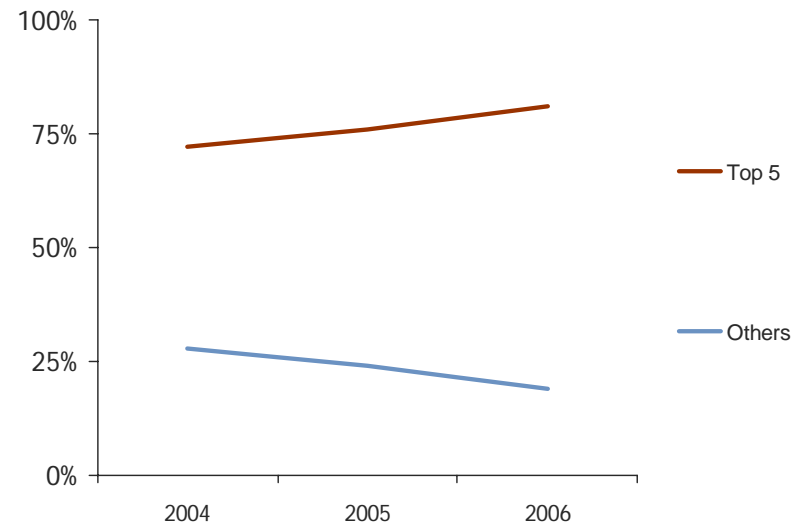
Market Share Evolution: Increasing Concentration in Top 5

- Over the last three years, Nokia, Motorola and Sony Ericsson have seen their combined market shares increase a combined ten percentage points on the strength of design, feature-set introduction and attractive low-entry pricing for emerging market demands. While the top gains in 2007 will be experienced by a different trio of companies, what remains true is that the top five vendors - Nokia, Motorola, Samsung, LG and Sony Ericsson - continue to become stronger, accounting for over 80% of all handset sales worldwide. Non top-five vendors focusing on a specific niche (a market, feature or customer segment) will have an important place in the market in terms of driving innovation.

Market Share of Handset Sell-Through
2004-2006



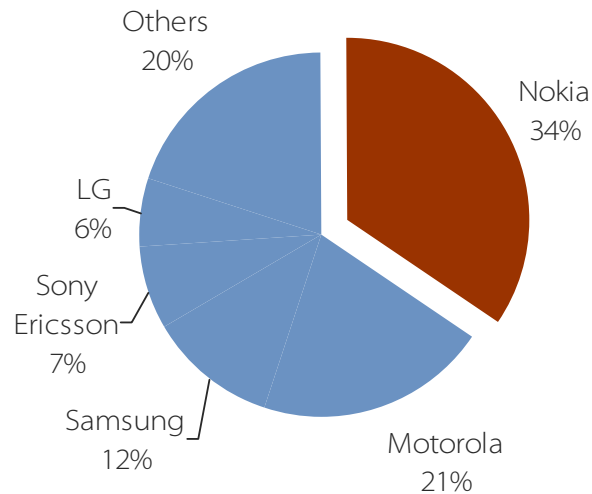
Market Share of Top 5 vs. Others
2004-2006



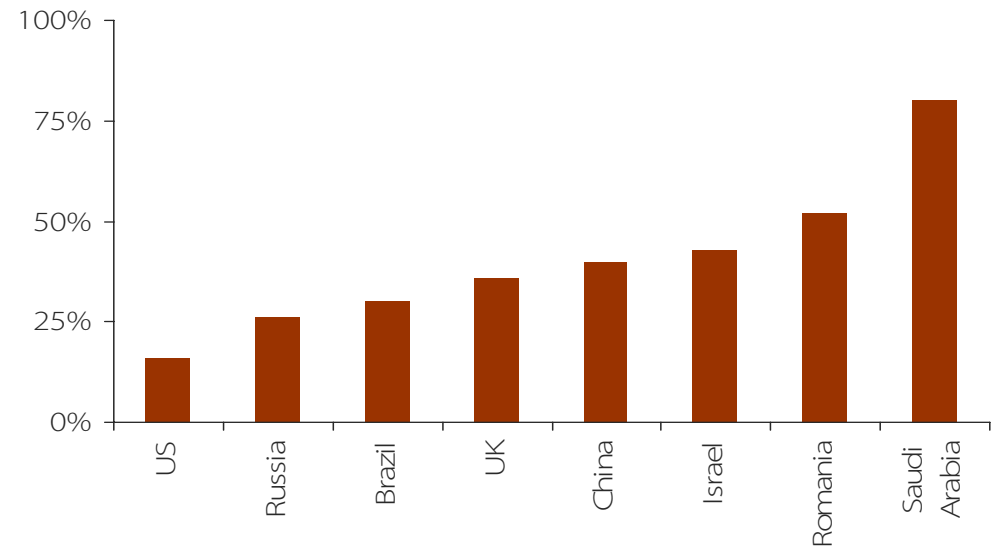
Nokia: Working Toward 40%

- Nokia is the leading handset manufacturer worldwide, with a leading share of the market in Europe, Africa/ Middle East and parts of Asia and Latin America. Its decision to lessen its focus on CDMA to focus on GSM has led its market share in the world's largest handset market - the US - to drop to 13% by 1Q2007. Nokia's leading market share in fast growing markets like China and India bodes well for its future positioning, and we believe a 38-40% market share is realistic within the forecast period.

Nokia's Share of Global Handset Market, 2006



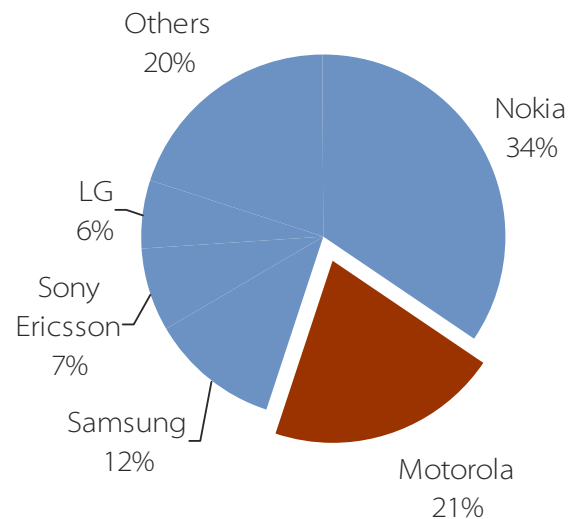
Nokia's Market Share in Selected Markets, 2006



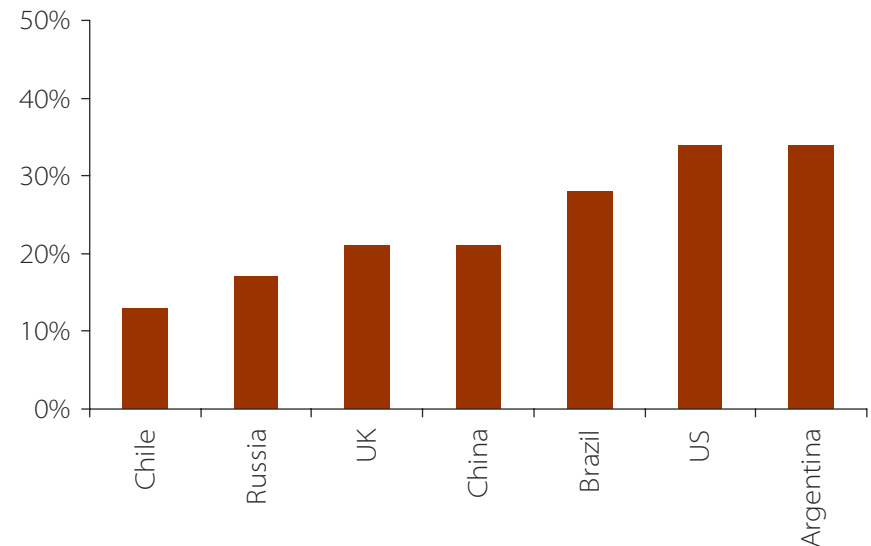
Motorola: Struggles Continue in 2007

- Motorola experienced tremendous success with its RAZR line of phones, which enabled it to sustain its lead in the US market, and make inroads in European markets dominated by Nokia. Nevertheless, its lack of a wide portfolio of 3G -ready handsets for European markets and the relative lack of success of its low end Motofone line will mean that the nearly three percentage point market share gain it enjoyed in 2006 will not be repeated in 2007.

Motorola's Share of Global Handset Market, 2006



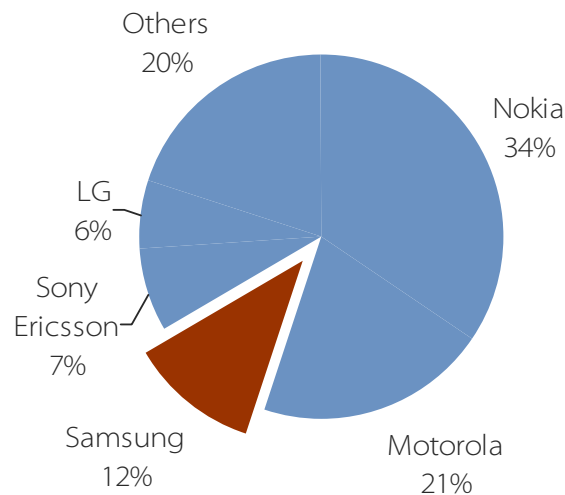
Motorola's Market Share in Selected Markets, 2006



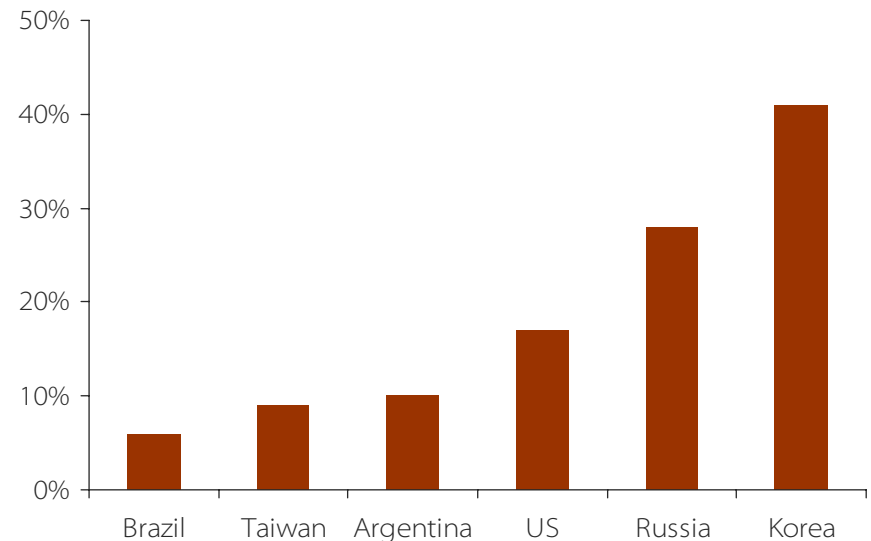
Samsung: Getting off to a Great Start

- Korean vendor Samsung, which experienced a modest increase in handset sales volumes in 2006, resulting in a one percentage point loss of market share in 2006 versus 2005, has gotten off to a tremendous start in 2007 with sales in the first half of the year projected to be just under 40% higher than 2006 levels. It has taken advantage of its Ultra line of products in the high end and its entry level products to expand its share in both developed and emerging markets. It maintains an important position in important markets like the US, Russia and Korea.

Samsung's Share of Global Handset Market, 2006



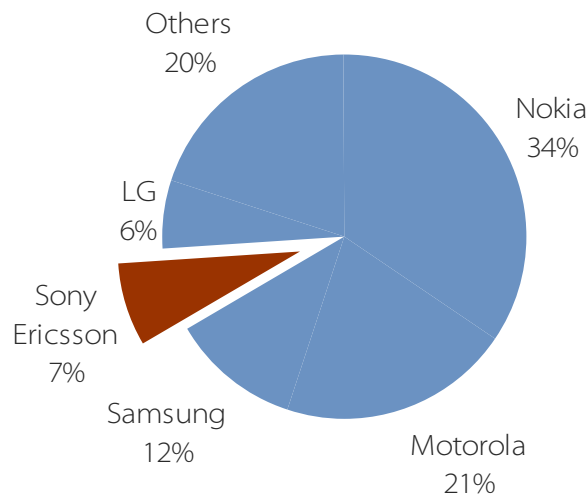
Samsung's Market Share in Selected Markets, 2006



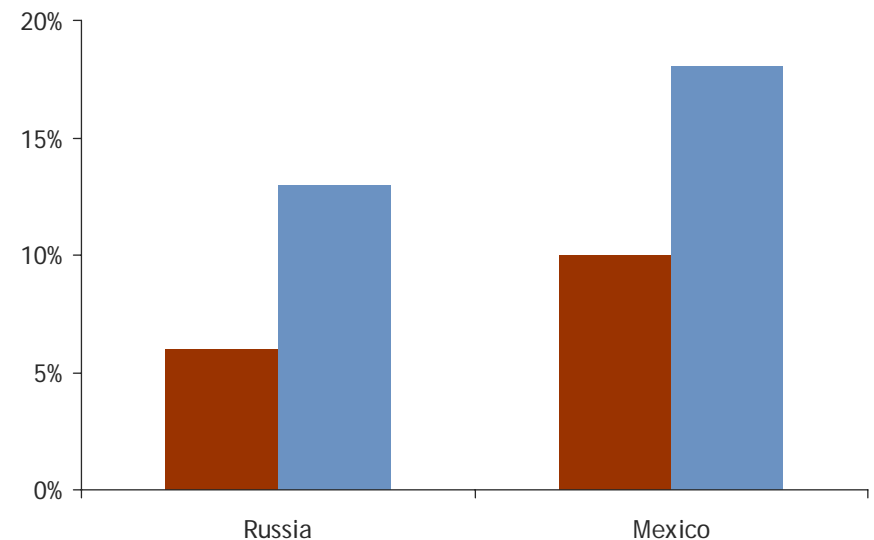
Sony Ericsson: Leveraging Cybershot and Walkman to Make Market Share Gains

- Sony Ericsson leveraged its Cybershot camera phone line and its Walkman MP3 phone line to take the number four global spot in 2006 from Korean operator LG. Between 2005 and 2006, its handset sales grew an impressive 46%, giving it 7% share for 2006, versus LG's 6%. In selected markets, the vendor made impressive gains. In Russia, Sony Ericsson more than doubled its share in one year, rising from 6% in 2005 to 13% one year later. In Mexico, a close relationship with leading player Mexico has seen that vendor's share increase from 10% in 2005 to 18% in 2006.

Sony Ericsson's Share of Global Handset Market, 2006



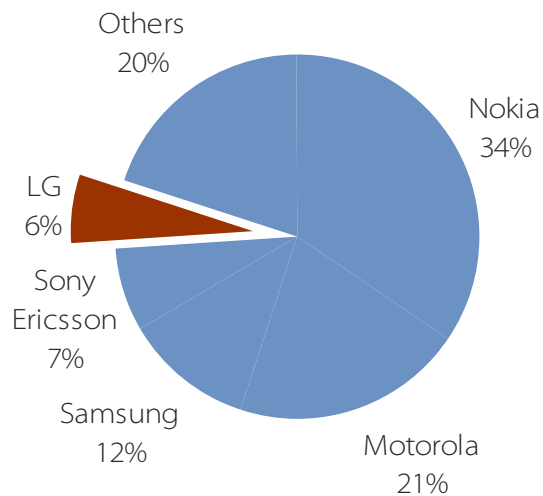
Sample Market Share Gains for Sony Ericsson, 2006



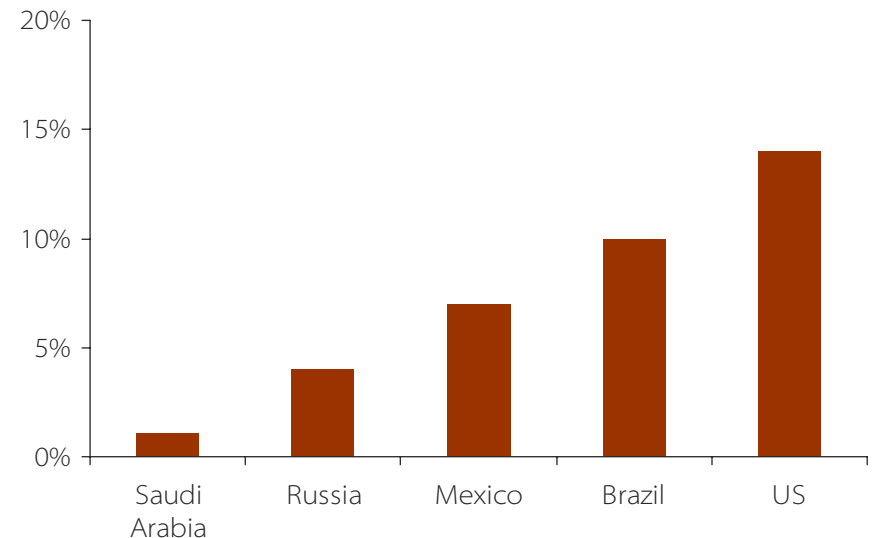
LG: Building on its Popular “Chocolate” Model and CDMA Strength

- LG has long enjoyed success in the US and Korean markets with its CDMA portfolio of products. In the US, it enjoys nearly 15% market share buoyed by its stylish line of CDMA phones and its newly launched Chocolate line. In most other markets, however, LG has struggled to move beyond the 4-6% market share it maintains worldwide.

LG's Share of Global Handset Market, 2006



LG's Market Share in Selected Markets, 2006



Thank-you

To submit comments and questions after the session is completed, please contact
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Appendix

Indicators Tracked

TOTAL HANDSET SALES	
Total Handset Sales	[000]
Replacement Handset Sales	[000]
New Subscriber Handset Sales	[000]
Sales of New Handsets	[000]
Refurbished Handset Sales	[000]
TOTAL HANDSET SALES BY TECHNOLOGY	
Total Handset Sales	[000]
Analog	[000]
Digital Trunking/iDEN	[000]
GSM	[000]
TDMA	[000]
CDMA One	[000]
HSCSD	[000]
TD-SCDMA	[000]
TD-CDMA	[000]
PAS	[000]
PHS	[000]
PDC	[000]
GSM/GPRS	[000]
GSM/EDGE	[000]
CDMA 1X	[000]
CDMA2000 (EV/3X)	[000]
UMTS	[000]
HSPA	[000]
Mobile WiMAX	[000]
LTE	[000]
Other	[000]
Other	[000]
Other	[000]

NEW HANDSET SALES BY TECHNOLOGY	
Total New Handset Sales	[000]
Analog	[000]
Digital Trunking/iDEN	[000]
GSM	[000]
TDMA	[000]
CDMA One	[000]
HSCSD	[000]
TD-SCDMA	[000]
TD-CDMA	[000]
PAS	[000]
PHS	[000]
PDC	[000]
GSM/GPRS	[000]
GSM/EDGE	[000]
CDMA 1X	[000]
CDMA2000 (EV/3X)	[000]
UMTS	[000]
HSPA	[000]
Mobile WiMAX	[000]
LTE	[000]
Other	[000]
Other	[000]
Other	[000]
NEW HANDSET SALES BY TECHNOLOGY GROUP	
Total New Handset Sales	[000]
Analog	[000]
Digital Trunking/iDEN	[000]
GSM/GPRS/UMTS/HSPA/LTE	[000]
TDMA	[000]
CDMA One/CDMA 1X/CDMA 3X	[000]
Mobile WiMAX	[000]
Others	[000]

Indicators Tracked (Cont'd)

NEW HANDSET SALES BY GENERATION	
Total New Handset Sales	
1G	[000]
2G	[000]
2.5G	[000]
3G	[000]
4G	[000]
Total New Handset Sales	
1G	[%]
2G	[%]
2.5G	[%]
3G	[%]
4G	[%]
NEW HANDSET SALES BY CARRIER	
Vivo	[000]
Claro	[000]
TIM	[000]
Oi	[000]
Others	[000]
NEW HANDSET SALES BY PRICE TIER	
Low End (< US\$75)	[000]
Mid to Low End (US\$76-US\$150)	[000]
Mid Tier (US\$151 - US\$300)	[000]
High End (US\$301+)	[000]

NEW HANDSET SALES BY VENDOR	
Total New Handset Sales	
Nokia	[000]
Motorola	[000]
Samsung	[000]
LG	[000]
Sony Ericsson	[000]
BenQ/Siemens	[000]
Gradiente	[000]
0	[000]
0	[000]
Others	[000]
Market Share	
Nokia	[%]
Motorola	[%]
Samsung	[%]
LG	[%]
Sony Ericsson	[%]
BenQ/Siemens	[%]
Gradiente	[%]
0	[%]
0	[%]
Others	[%]
NEW HANDSET SALES BY FEATURE/FORM FACTOR	
Camera Phone	[000]
Camera (VGA)	[000]
Camera (1 Megapixel)	[000]
Camera (2 Megapixel or greater)	[000]
MP3 Player	[000]
PDA/Smartphone	[000]

Indicators Tracked (Cont'd)

HANDSET ASP BY PRICE TIER	
Handset ASP	[US\$]
Low End (< US\$75)	[US\$]
Mid to Low End (US\$76-US\$150)	[US\$]
Mid Tier (US\$151 - US\$300)	[US\$]
High End (US\$301+)	[US\$]
TOTAL NEW HANDSET SALES BY PRICE TIER	
Total New Handset Sales	[US\$m]
Low End (< US\$75)	[US\$m]
Mid to Low End (US\$76-US\$150)	[US\$m]
Mid Tier (US\$151 - US\$300)	[US\$m]
High End (US\$301+)	[US\$m]