

# International Mobile Data Revolution 2009 - 2014

## Asia's Continued Dominance

March, 2010

### OVERVIEW

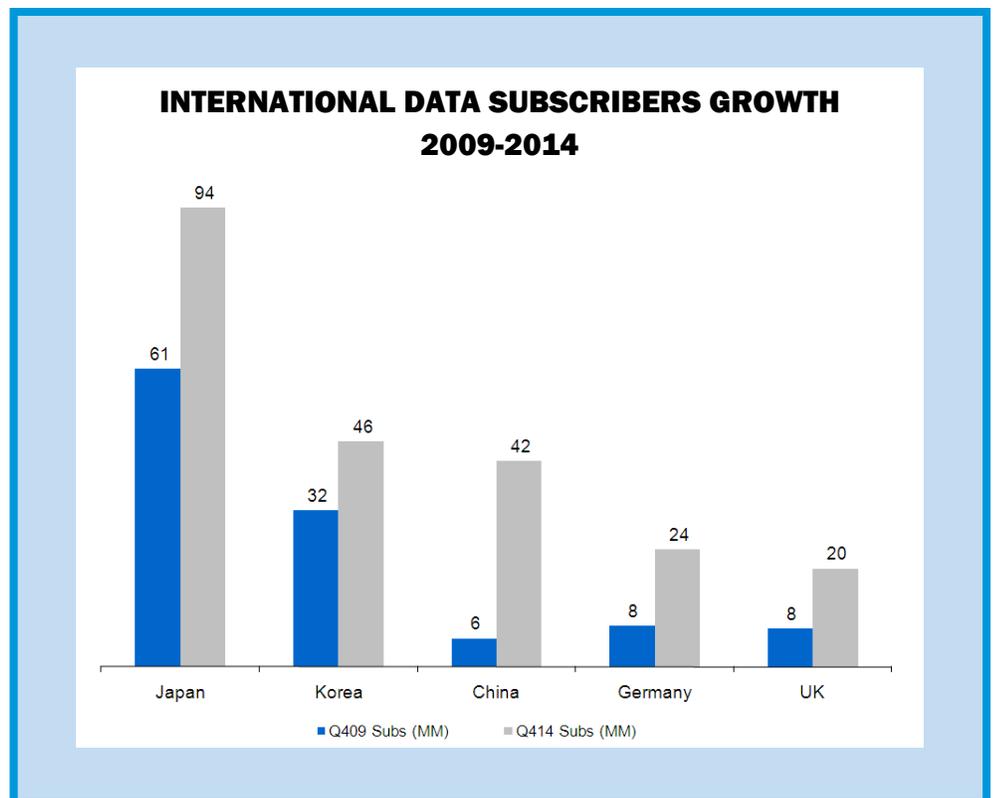
Marconi Pacific recently completed development of a detailed mobile voice and data subscriber growth forecast covering several continents from 2009 to 2014. Using a robust and proprietary forecasting methodology, we individually assessed countries in Asia-Pacific, Europe, the Middle East and Africa and compared them to the US market.

This forecast has important implications not only for wireless carriers and device manufacturers but also for manufacturing, service and financial industries that will be affected by the mobile data revolution.

- Global data subscribers will grow at a rate 2 to 5 times faster than voice subscribers as the mobile handset provides functionality akin to that of an access computer terminal as well as that of a telephone.
- Nevertheless, voice will continue to be the dominant application on the mobile handset in all regions of the world during the forecast period.
- The forecast projects that Asia will remain the dominant geography internationally for mobile data consumption over the next 5 years. However, Asia

will reach an inflection point in 2011 as subscribership rates in India and China begin to slow after years of rapid growth. By 2014 Asia will represent 55% of the total international data subscribers (excluding North and South America).

- Messaging (especially SMS), a form of data communication, will continue its rapid growth and could accelerate as financial transactions from the mobile handset and social networking usage increases.



## MODEL RESULTS

The mobile industry is currently experiencing a revolution. The implications of this transformation permeate broadly and deeply through all industries. Mobile penetration in the U.S. is nearing 80% and is over 100% in Europe. Data users in the United States have grown from 200K at the end of 2006 to over 86M in 2009. The U.S. can expect continued growth. What about the rest of the world?

Worldwide mobile voice penetration is expected to be 22 points higher in 2014 than it is today at about 82% (5.8B mobile SIM cards of a global population of 7.1B people). Expanding markets like Asia and new markets in the Middle East will contribute substantially to this growth. Among countries and carriers that currently offer data services, we expect data penetration to increase from 10% (4Q09) to 20% (4Q14).

## FORECASTING METHODOLOGY

Marconi Pacific (and our clients) often use third party forecasts in our work to serve as a baseline for understanding market opportunities. We frequently find these forecasts to be overly dependent on compound annual growth estimates which results in either a hockey stick style forecast that is overly optimistic or in an incremental forecast that tends to assume that next year will be marginally better than last year and consequently often under-predicts growth.

In forecasting the diffusion and adoption of technologies, such as mobile phones and data adoption,

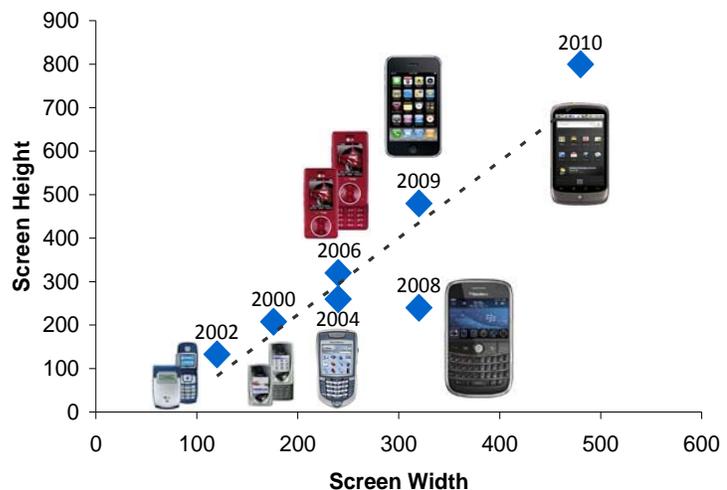
Marconi Pacific has increasingly used S curves. The application of sigmoid function curves requires the application of both math and judgment to the rate of adoption over time. By examining each carrier in each country we have been able to plot mobile data adoption on a variety of S curve shapes. In turn we have then been able to “judge” the place on the curve for each carrier in each country and forecast the adoption level for each future quarter and year.

Our forecast for mobile data adoption is generally more conservative than some other models we have seen. We are confident that region and country specific content availability will blossom but in the next few years many countries will not experience explosive growth.

## THE RISE OF MOBILE DATA

*In the past 5 years services originally found only on corporate Blackberries have come to consumer phones. In 2009 in North America streaming video was the fastest growing media type, far outpacing mobile applications, downloading and browsing. Common screen sizes have increased from 200x200 pixels to 700x500 pixels, enabling greater customer satisfaction in video use. The growth in video and mobile screen size (which are co-dependent) have translated into a significant increase in data demands in the U.S.*

### POPULAR MOBILE PHONE SCREEN SIZES (2000-2010)



## ASIA PACIFIC: EXAMPLE FORECAST

Asia's population growth, rising wealth and tech savvy population ensure that it will remain a heavy user of mobile data. However, affordability will continue to limit adoption of data services as an addition to existing voice services beyond the upper and upper middle classes.

**Voice:** The three largest Asian markets, Korea, China and Japan, have developed and deployed advanced mobile technology more quickly than the U.S. over the past decade. Due primarily to the low base of subscribers, Asia will outpace all other regions with an overall compound annual growth rate of 6% in mobile voice penetration.

**Data:** While Asia is forecasted to double data subscribers by 2011, not every Asian country will experience the same level of growth. China, for example, will increase data subscribers seven-fold, from approximately 10% of voice subs (4Q09) to 30% of voice subs (4Q14).

The Philippines offers a unique but interesting international messaging story. Average monthly SMS per sub numbers reach as high as 125. This is in part due to relatively inexpensive and unlimited usage plans but perhaps more significantly due to the nearly 10% of Filipinos that live abroad and their adoption of SMS as their primary communication method to their friends and family at home.

## EUROPE: EXAMPLE FORECAST

Europeans have consistently been early and steady adopters of mobile technology. European mobile penetration is over 100% due to the prevalence of consumers who carry multiple SIM cards in heavy tourist and business travel areas, multiple device subscriptions related to high inter-network calling rates and personal/work devices. This trend is expected to continue.

**Voice:** Mobile voice subscriptions continue to increase in most Eastern European nations while Western European countries are largely saturated.

**Data:** Europe's data subscribers are expected to triple, predominantly due to increases in the less developed Eastern European countries. Between 2006 and 2008, Northern Europe had over a 500% compound annual growth rate in data consumption. We expect to see largely similar growth curves in some of the developing Eastern European countries.

## ASIA PACIFIC Key Statistics

**Population:** 4.00B (4Q14)

**Mobile Voice Penetration**  
60% (4Q09) – 88% (4Q14)

**Data Penetration**  
6% (4Q09) – 8% (4Q14)  
*(among countries offering data services)*

## EUROPE Key Statistics

**Population:** 0.82B (4Q14)

**Mobile Voice Penetration**  
140% (4Q09) – 160% (4Q14)

**Data Penetration**  
7% (4Q09) – 20% (4Q14) *data services)*

### MOBILE VOICE AND DATA SUBSCRIBERSHIP FORECAST 4Q09 & 4Q10 (Top 5 Countries in Each Region in Data Subscribers in 4Q14)

Region	Country	Voice Penetration		Data Penetration	
		4Q09	4Q14	4Q09	4Q14
Asia Pacific	Japan	86%	105%	55%	70%
	Korea	100%	122%	66%	77%
	Australia	121%	150%	27%	45%
	China	54%	80%	1%	4%
	Taiwan	105%	128%	13%	31%
Europe	Germany	131%	140%	5%	13%
	UK	128%	137%	8%	20%
	Spain	132%	141%	11%	29%
	Italy	151%	162%	7%	17%
	Poland	117%	143%	9%	17%

## **SEVERAL IMPLICATIONS**

The implications of the mobile data revolution are broad and comprehensive, affecting customer behavior, core telecommunications, content and publishing industries as well as most other industries. Marconi Pacific has worked with clients for several years to outline strategies and identify the opportunities and risks of this revolution. Rapid assessment, planning and implementation are key enablers of success.

### **CARRIERS AND HANDSET MANUFACTURERS**

- Quality of Service (QoS) has been a consistent challenge in mobile voice and data networking. Dropped calls and lost SMS messages are a common customer complaint. The surge in data applications will place increasing importance on the need for high QoS.
- Seamless connectivity is vital. 3G (and 4G) voice and data networks must expand and improve to satisfy data-hungry customers and reduce the number of hops for both domestic and international links. Because voice calls are real time, participating parties can immediately experience the failure or success of quality. But data often involves delayed communication, especially with SMS and MMS messages. And as remote “cloud” storage becomes more common, mobile users will demand immediate access to their files.

- Breadth of services is significant. Networks must be able to transport a large variety of data services. Mobile web-based data and video applications are growing rapidly in the developed world. Video was a novelty a few years ago, but is quickly becoming common place. Subscribers will demand both more (multiple paths) and easier ways to interact with their data (social networks, blogs, stored files, etc.).

### **OTHER INDUSTRIES**

- In the banking and finance arena, customers will demand confirmation of electronic transactions over highly secure networks. As mobile banking and credit cards become more common, financial services companies must collaborate with technology companies and carriers to ensure a seamless, secure and real time experience for their customers.
- Travel and leisure companies have already begun offering iPhone applications that enable interaction with their customers. We expect to see these applications vastly increase to include more mobile ticketing and reservations, check-in, and even room access through bar-code scanning.
- Business machines are increasingly networked to take advantage of stored data. Mobile data will place a premium on flexibility of access to files, ability to remote print and ability of users to manage data from mobile handsets as

if they were using a laptop. We anticipate cloud storage and web-based computing to explode because handsets will provide more access than full-functioning computing.

## About Marconi Pacific, LLC

Marconi Pacific, LLC is a strategy and venture consulting firm providing business advisory services in the telecommunications, media, technology, internet, financial services & insurance, hospitality, retail, and real estate industries. We build value for our clients by

providing strategic analysis and practical solutions to complex business issues. In addition, we pursue selected investments in emerging companies, and we identify and pursue our own new venture opportunities.

**Strategy Consulting:** Marconi Pacific provides strategic advisory services to senior management to help build long-term shareholder value. Our clients select us over other consulting firms for our incisive analysis, industry knowledge and creative, yet pragmatic, recommendations. We work with clients to define a differentiated value proposition that can they can offer their customers. We then work to refine the core operational elements of the business to deliver this value. This requires understanding the market in detail; segmenting the customer base; determining demand; making decisions on positioning, pricing and channels of distribution; and then defining the operational processes and structures needed to deliver the value. We take a pragmatic view of our advisory work, recognizing that creating value requires strategies and plans with a singular focus on financial results rather than elegant studies and academic observations.

**Venturing:** The very applied nature of our management consulting work makes us very much "in the market" in which our clients operate. As a result, Marconi Pacific, unlike many professional consulting firms, is very involved in creating new ventures, both with our own capital and in partnership with our clients. We also maintain relationships with venture capital firms, private equity firms and investment banks with which we can work to create value.

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