



OLIVER WYMAN

Navigating Turbulent Waters

Communications, Media,
and Technology | 2009

State
of the
Industry



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About This Report

Oliver Wyman's second annual Communications, Media, and Technology (CMT) State of the Industry report reviews performance by region and industry, highlighting value-migration trends and new global strategies—supported by case studies of top-performing companies. This report is designed to give senior executives insights and information to successfully navigate a highly competitive and uncertain landscape.

Oliver Wyman defines communications, media, and technology broadly. We view CMT as a complex industry with many interrelated sectors—media, software and services, mobile and fixed-line communications, cable, consumer electronics, and hardware equipment and semiconductors. In addition to these sectors, we look at the CMT industry from a global perspective that includes 11 geographic regions: the United States and Canada, Western Europe, Japan, Greater China, South Korea, Latin America including Mexico, India, the rest of Asia, the Middle East and Africa, Central and Eastern Europe, and Australia and New Zealand.

We look beyond the stalwarts and the stars to include upstart firms that may not be well known even in their home markets. Our findings are based on publicly available information, Oliver Wyman's deep CMT expertise, and our proprietary Shareholder Performance IndexSM (SPI).

Oliver Wyman's Shareholder Performance Index

CMT firms pursue opportunities in many different sectors and geographies. Senior executives and boards of directors require an objective measure for tracking performance relative to that of their peers and competitors. Executives must be able to measure risk-adjusted shareholder value relative to their own sectors and regions. Investors have correspondingly broad options when allocating capital in communications, media, and technology. They require a relevant benchmark that compares all CMT firms on an even playing field.

The SPI is that benchmark. Developed by Oliver Wyman in 1997 to track performance of the financial services industry, the SPI is now being used to assess the performance of CMT firms. It is an objective ranking of the world's top 450 publicly quoted CMT firms with a market capitalization of at least \$750 million. By adjusting for the volatility of returns, currency risk, and mergers and acquisitions, the SPI enables apples-to-apples comparison of companies in widely divergent regions and sectors.

Because the SPI calculates shareholder value over a rolling five-year time period, the index identifies longer-term value-migration trends, looking past distortions in the market such as last year's volatility. The present edition of the SPI for the CMT industry is calculated over the period December 31, 2003, through December 31, 2008. (See the Appendix to this report for a fuller explanation of the SPI and its methodology.)

Executive Summary

“In crisis, cleverness is born.” That Chinese proverb is one way to sum up this State of the Industry report. But the proverb is not prescriptive. It’s good to be clever, but how? That’s why we dug deeper and examined cases of top performers from the 2008 Oliver Wyman Shareholder Performance Index to cull the most relevant broad themes, summarized below. When margins are under pressure, the need for new and anticipatory thinking is paramount.

Cost reduction is not a short-term fix; it’s a long-term solution. Managing costs is an obvious first reaction to thinning margins, which have afflicted virtually every company in every industry. But reactive rather than proactive cuts, such as layoffs, plant closings, and cutbacks on marketing, will only do so much, because your competitors are doing the same thing. Reactive cuts may temporarily save the bottom line, but they won’t necessarily prepare you for future competition. Companies that initiated “evergreen,” sustainable, and strategic company-wide cuts years ago are now maintaining market value.

You can grow while you shrink. Playing defense to protect margins doesn’t mean you can’t play offense. New growth creation is possible without major capital expenditures. How? By serving more customers and consumers with the same assets; by collaborating with your competitors to share assets; and by refocusing offer engineering on the demand side to provide rich choices for customers while improving your cost structure. The winners are likely to be those firms that compete in advance, that use their rivals and customers as points of leverage—and that continually calibrate their “offense/defense” and “compete/collaborate” ratios.

You may be more than you think you are. You may have pigeonholed yourself as a company that does X and a little Y, but has never thought about Z. But CMT companies have wide latitude—anything digital is in play. The microchip is multifaceted; as worlds collide, technology is the driver in industries as diverse as finance, retailing, and education. Similarly, the customer is

multifaceted; customer needs morph, merge, and converge, particularly in CMT industries. Whether in a mature market or an emerging market, the imperative to grow is the same, and moving laterally into another space may be the answer. Boundary-blurring between industries is increasingly common, and often necessary for survival and growth.

Emerging markets require new thinking. For those adventurous enough to enter emerging markets with mobile telephony and related services several years ago, the rewards have been immense. With subscriber levels starting from close to zero, the growth rates have been spectacular. But as penetration of mobile phones and the value-added services they offer has risen exponentially, many of the easy customers in big markets have already been picked off. Now the battle centers on further growth and retention, leading to second-generation business models to keep old customers and attract new. Hint: Emerging-market consumers are sophisticated and like smartphones. And large, growing businesses need support.

Mature markets attract new players. Everyone knows that market globalization opens new markets. But what if that new market is a mature one where you are protecting a core business? Everyone knows that the open-ended growth is in emerging markets, and in the frontier markets beyond them. But what if cash-rich players from emerging markets are looking to create new growth in mature markets? These new entrants have a different mindset, honed by hands-on managers catering to consumers looking for low-cost solutions in volatile market conditions. That sounds like Western markets—and makes the new players formidable competitors.

In the world of physics, for every action there is an equal and opposite reaction. In the world of business, for every threat there is an equal and opposite opportunity. Look at the various SPI lists, and marvel at the new entrants, while admiring the stalwarts that continue to grow despite the competition. Opportunity for new growth creation abounds. ❖

State of the Industry

It was an *annus horribilis* for the CMT industry. After significant growth during 2006 and 2007, the combined market value of the top 450 CMT companies (according to Oliver Wyman's SPI¹) dropped 43% in 2008, shedding \$3.1 trillion of market value (from \$7.3 trillion to \$4.2 trillion)—erasing all of the gains that had been made since July 2003. Exhibit 1 shows the 2008 market value map of the top 450 CMT companies.

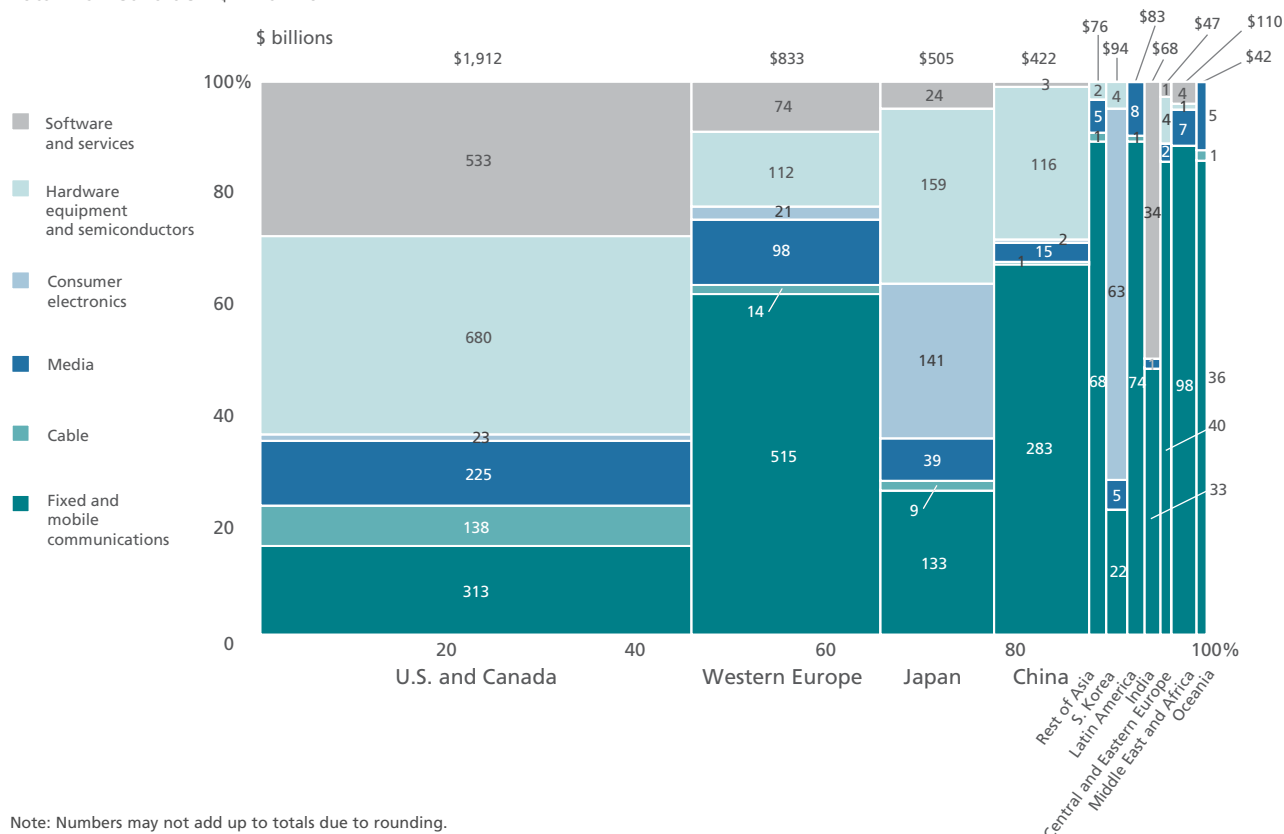
Unlike the 2000-2001 bursting of the Internet bubble, however, when the NASDAQ stock index (one proxy for the CMT industry) lost value at an annual rate four times greater than the broader market, this year's wealth-crippling losses in the CMT industry (as defined by the SPI 450) were comparable to those in the broader public markets: The Dow Jones Industrial Average lost around 34% of its value in 2008, the Deutsche Börse's DAX equity index dropped by 40%, the Nikkei 225 lost 42%, and emerging market indices saw their value drop by more than 50%.

Within GMT, the market certainly played no favorites: Every sector and every region lost heavily, as shown in Exhibit 2. Among sectors, media, hardware and semiconductors, and consumer electronics were hit the hardest, posting losses of 47%, 48%, and 49%, respectively. Among regions, India—where IT services firms relied on financial services for nearly 30% of their revenues before the crash—and Central and Eastern Europe were hit the hardest in 2008, posting average market value losses of 54% and 65%, respectively. A mere 26 firms managed to increase market value.

The magnitude and scope of this year's losses have captivated analysts around the globe and dominated headlines. But the implosion of financial markets and the related credit crunch in 2008 have not altered five-year value-migration trends that are moving billions of dollars among sectors and regions.

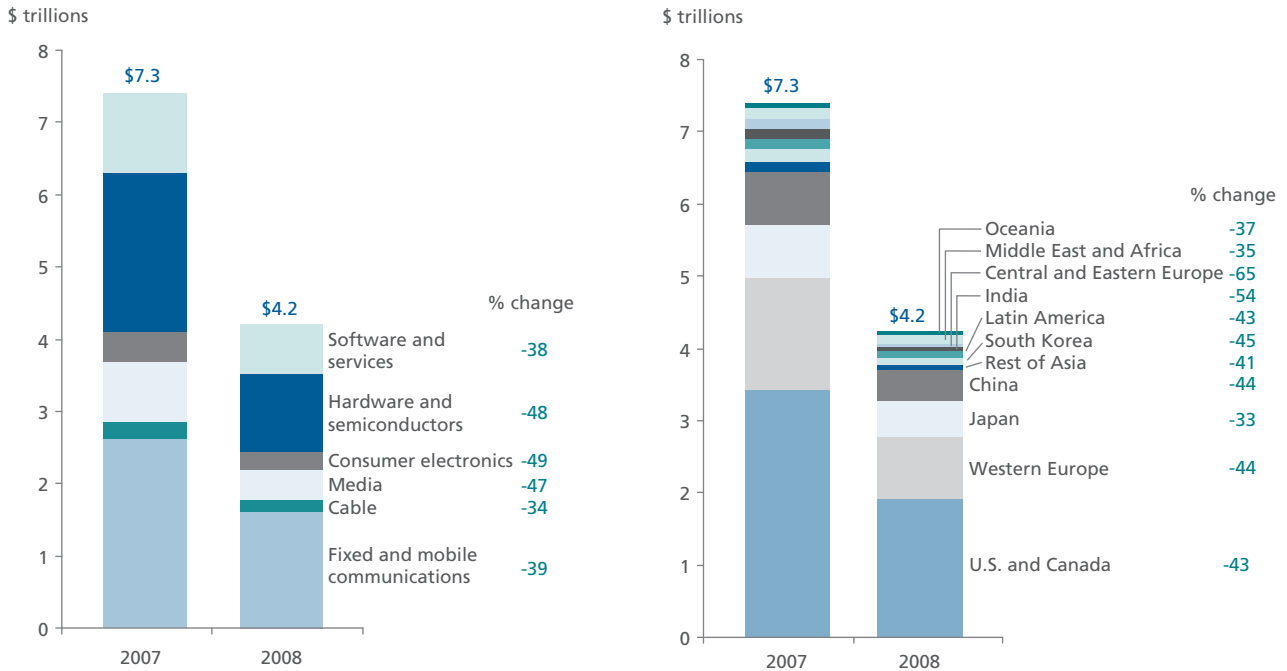
Exhibit 1 2008 market value map of top 450 CMT companies

Total market value = \$4.2 trillion



¹ The Oliver Wyman SPI is a five-year measure of shareholder value that accounts for volatility of returns, local market risk, and mergers and acquisitions. See the appendix of this report for more information.

Exhibit 2 Market value by CMT sector and region



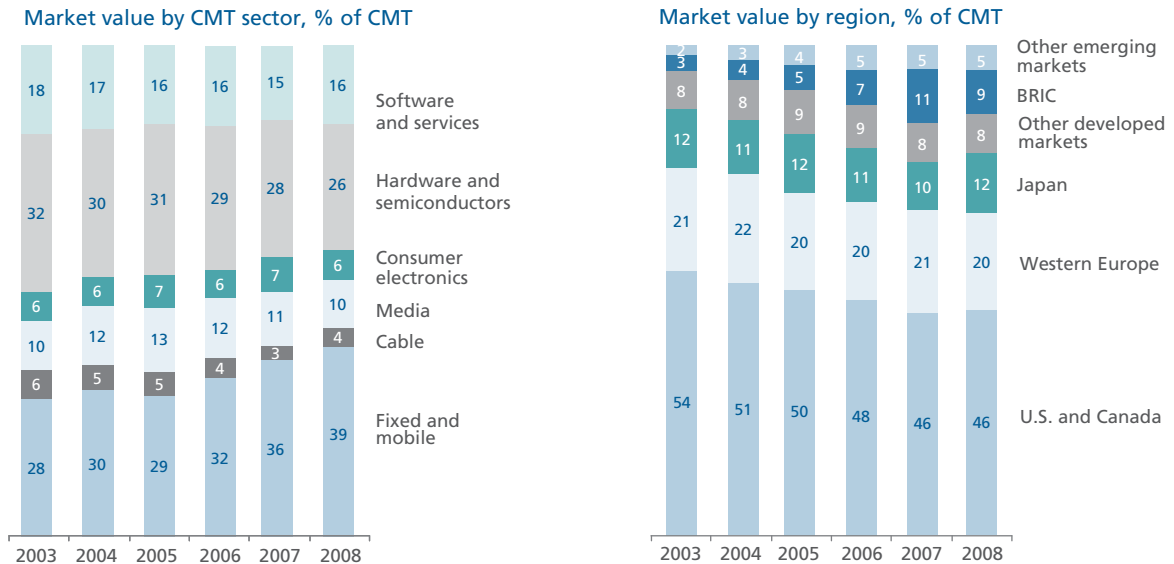
Source: Datastream, Oliver Wyman analysis.

Five-Year Value Migration

Stepping away from the crisis to take the five-year view, as shown in Exhibit 3, fixed and mobile communication's share of the total CMT market value climbed from 28% in 2003 to 39% in 2008, riding the wave of emerging market growth. Fixed and mobile market value in China alone grew from 2% of the total CMT market value in 2003 to 7% in 2008, driven in large part by China Mobile, which now has a higher market cap than Microsoft.

On the other hand, the global semiconductor sector saw its share of market value decrease during four of the past five years, as research and development cycles compressed and all but the top-end processors became commoditized. Semiconductors represented 13% of the total CMT market in 2003 but just 7% by 2008. This is mostly due to large losses in the U.S. and Canada, where semiconductors' share of the total CMT market fell from 10% in 2003 to 5% in 2008.

Exhibit 3 Five-year value migration



Note: Numbers may not add up to 100 due to rounding.
Source: Datastream, Oliver Wyman analysis.

Regionally, value is shifting to emerging economies, although developed markets are still much larger. At the end of 2008, companies in emerging markets accounted for about 14% of the total market value, up from around 5% five years ago, taking share away from the U.S. and Canada, where market value fell from 54% in 2003 to 46% in 2008.

2008 SPI Results

Our SPI results, at regional, sector, and firm levels, reflect the underlying CMT value migration. In the 2008 SPI rankings, communications companies significantly outperformed those in the media and technology sectors. The average SPI score for communications companies was 166 versus 104 for media and 82 for technology companies. The technology sector was dragged down by the flagging hardware and semiconductor industry, which had an average SPI of 59. (The semiconductor industry alone had an average SPI of 20.) Within communications, fixed and mobile was the strongest sector at 174. Media would have fared far worse were it not for the inclusion of online content and services, which averaged 167 (Exhibit 4).

Among regions, Latin America and the Middle East and Africa posted the highest SPI (both with a regional average of 203). Continued growth in emerging markets has fueled strong SPI scores in those markets, as well as Greater China (135) and India (117), despite the losses suffered this year. Indeed, all emerging markets posted average scores greater than the overall CMT average of

107. By contrast, developed economies, which saw significant value erosion, did not hold up as well. Oceania and Japan posted the lowest SPI (74), with the US and Canada not faring much better (86).

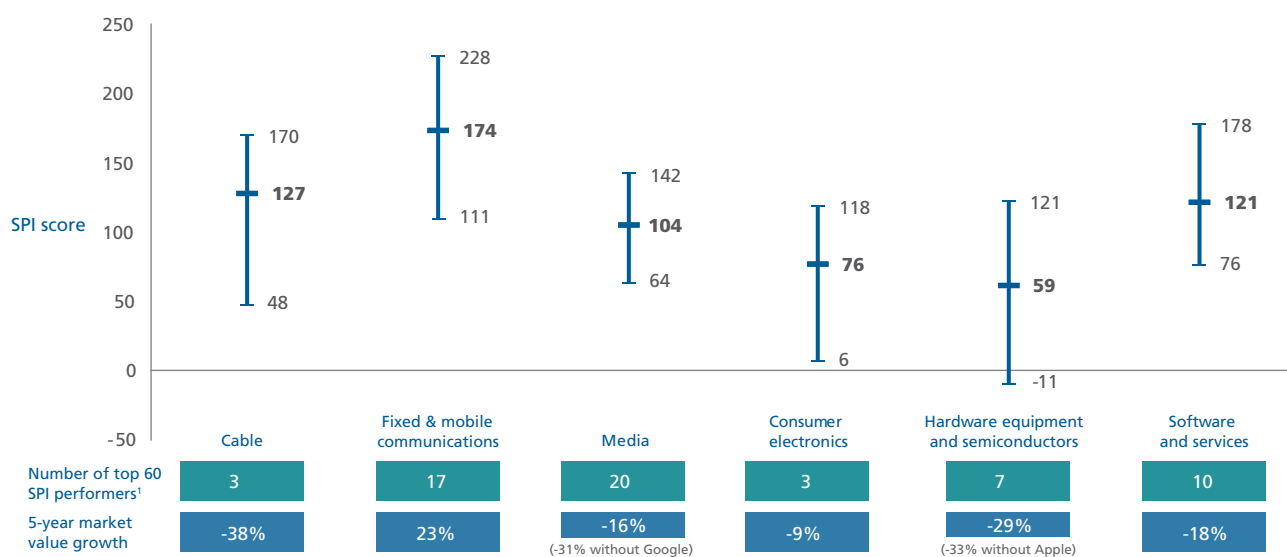
Top 20 SPI Performers in 2008

At the firm level, the broader trends also apply. Several mobile and emerging market stars retained their top-20 status from last year—including Starhub, Bharti Airtel, Tencent Holdings, América Móvil, Rogers, MTN Group, and China Mobile. But 11 of the top 20 are new, as shown in Exhibit 5. Notable new entrants to the top 20 SPI list include Entel, the Chilean telecommunications firm, which improved its rank by nearly 100 spots; HTC, the Taiwanese mobile-device manufacturer, which moved up 71 spots; and Maroc Telecom, which improved by 50 spots. For a look at the top players by sector, see Exhibit 6.

Beyond the strong growth in mobile communications and emerging markets, what distinguishes these exemplars from less-stellar performers? There are several factors:

- **Operational excellence on the cost side and demand side.** Sustainable cost reductions come through targeted programs such as flexibility in fixed-cost spending and asset-light strategies. Customer-focused offer engineering grows top-line revenues and improves overall pricing and cost structure (see “Managing in a Down Market” on page 10).

Exhibit 4 Average, top, and bottom quartile performance by sector



Source: Datastream, Oliver Wyman analysis.

1 Top 20 in each of the three industry sectors: communications, media, and technology.

- **Successful deployment of second-generation strategies in emerging markets.** As the rapid growth possible exclusively through increased adoption has slowed, companies with new business models—in particular, a focus on higher-end services and business-to-business (B2B) services—have been rewarded (see “Second-Generation Emerging Market Strategies and Opportunities” on page 15).
- **Targeted innovation for mobile-Internet offers.** The dramatic global growth in mobile

Internet access took hold in 2008, especially in emerging markets with low PC-penetration levels. Network suppliers, device manufacturers, and content providers continue to benefit. As television and other services are offered seamlessly across mobile- and fixed-access technologies, this trend has implications for the convergence battles between cable carriers and telecommunication operators—and beyond (see “New Routes to Innovation” on page 19).

Exhibit 5 Top 20 SPI Performers in 2008

Name	Industry	2008 SPI	2008 market value (\$ billions)	2008 SPI Rank	2007 SPI Rank
Tencent Holdings	Media	442	11.6	1	6
Bharti Airtel	Fixed and mobile	421	27.9	2	1
Chunghwa Telecom	Fixed and mobile	398	18.9	3	93
Apple	Hardware eqpt. and semiconductors	381	75.9	4	4
Rogers Communications	Cable	374	15.5	5	18
Starhub	Fixed and mobile	371	2.3	6	10
América Móvil	Fixed and mobile	369	32.3	7	3
Maroc Telecom	Fixed and mobile	365	16.8	8	58
Nintendo	Consumer electronics	350	52.7	9	28
HTC	Hardware eqpt. and semiconductors	349	7.5	10	81
Naspers	Media	347	7.3	11	32
China Mobile	Fixed and mobile	345	201.3	12	14
NHN	Media	344	5.0	13	26
Entel	Fixed and mobile	344	2.6	14	102
Hutchison Telecommunications Int'l	Fixed and mobile	339	1.3	15	34
MTN Group	Fixed and mobile	337	21.9	16	7
Shaw Communications	Cable	337	7.1	17	73
American Tower	Hardware eqpt. and semiconductors	327	11.6	18	11
Vivo Minas	Fixed and mobile	324	0.8	19	NA
KPN Kon	Fixed and mobile	323	24.7	20	60

Note: Companies new to the Top 20 are shown in bold. Vivo Minas was formerly Telemig Cellular, which was acquired by Vivo in the second half of 2008. Source: Datastream, Oliver Wyman analysis.

Exhibit 6 Top 20 SPI performers by communications, media, and technology

Communications			Media			Technology		
Name	SPI	Market value (\$ billions)	Name	SPI	Market value (\$ billions)	Name	SPI	Market value (\$ billions)
Bharti Airtel	421	27.9	Tencent Holdings	442	11.6	Apple	381	75.9
Chunghwa Telecom	398	18.9	Naspers	347	7.3	Nintendo	350	52.7
Rogers Communications	374	15.5	NHN	344	5.0	HTC	349	7.5
Starhub	371	2.3	Eutelsat Communications	278	5.2	American Tower	327	11.6
América Móvil	369	32.3	Google	270	73.7	ANSYS	317	2.5
Maroc Telecom	365	16.8	Jetix Europe	233	1.3	Autonomy	315	3.0
China Mobile	345	201.3	Interactive Data	231	2.3	SBA Communications	310	1.9
Entel	344	2.6	Dun & Bradstreet	222	4.2	Quality Systems	300	1.2
Hutchison Telecommunications Int'l	339	1.3	Toho	222	4.0	Concur Technologies	292	1.6
MTN Group	337	21.9	Televisa	221	7.2	Indra Sistemas	283	3.7
Shaw Communications	337	7.1	TVN	219	1.6	VTech	278	1.0
Vivo Minas	324	0.8	Factset Research Systems	215	2.1	Software AG	268	1.6
KPN Kon	323	24.7	Hunan TV & Broadcast	204	0.8	Aisino	255	2.3
Taiwan Mobile	303	5.6	Morningstar	199	1.7	SES	255	9.5
Empresas Cablevision	289	0.9	So-Net M3	186	0.9	Asseco Poland	253	1.2
Far Eastone Telecommunications	289	3.7	Gartner	180	1.7	RIM	249	22.7
Philippine Long Distance Telephone Co.	286	8.3	Dolby Laboratories	168	1.7	Activision	246	11.4
Iliad	283	4.7	TV Tokyo	168	1.0	UFIDA Software	244	1.5
Telmex	281	10.4	Teleperformance	162	1.6	NAVTEQ	242	7.7
Carso Global Telecom	281	13.9	Sohu.Com	160	1.8	Cerner	241	3.1

Source: Datastream, Oliver Wyman analysis.

The SPI 450's Most-Improved Companies

Several companies in our index significantly increased their SPI score and rank in 2008. Capcom, a Japanese game software developer, has capitalized on the mobile Internet, as have other companies profiled in the section, "New Routes to Innovation." U.S. software firm McAfee has benefited from strong recurring revenue streams and a relatively recession-resistant security product. Brasil Telecom's converged triple-play package has expanded its market and helped it gain market share.

Name	2008 SPI	Increase in rank, 2007-2008
Brasil Telecom (Fixed and mobile)	250	274
Open Text (Software)	163	230
Capcom (Software)	202	228
DIRECTV (Cable)	173	218
McAfee (Software)	240	210
Teleperformance (Media agencies)	162	200
Telekom Malaysia (Fixed and mobile)	221	198
Wolters Kluwer (Publishing)	159	185
Gartner (Publishing)	180	183
Gemalto (Hardware)	121	179
Telstra (Fixed and mobile)	110	177
Verizon (Fixed and mobile)	163	172
Reed Elsevier (Publishing)	125	170
Compuware (Software)	121	152
Pearson (Publishing)	128	141
Intuit (Software)	98	136
Qwest (Fixed and mobile)	89	122
Deutsche Telekom (Fixed and mobile)	106	119

Source: Datastream, Oliver Wyman analysis.

Navigating Rough Waters

In last year's report, we identified three major forces reshaping the CMT industry:

- Strategic risks are increasing along with shifts in consumer preferences, advances in technology, and changing regulatory trends worldwide.
- Value is migrating to emerging markets and mobile communications.
- Winning companies are using innovative business designs—including reintegration of the value chain, customer re-segmentation, and new advertising models—to gain market share.

We find that these broad industry trends still hold. However, changes in market conditions and continued evolution of the CMT industry have changed the way successful companies respond to these trends, and have spawned new trends.

The "Managing in a Down Market" section that follows analyzes the cost-reduction and growth-enhancement strategies SPI leaders have used to navigate through today's unfavorable economic conditions. Historically, economic downturns have raised specific strategic risks. Since the end of World War II, U.S. recessions have lasted from six to 16 months, with real GDP falling 0.5%-2% versus more typical gains of 3%-4.5% per year.

Planning for the future amid this type of uncertainty is difficult for any firm. Many companies focus on reducing costs where possible. Yet surviving a slowdown also requires smart investments for growth, particularly those that anticipate changing customer or client needs.

Growth in emerging markets continues to outpace that of developed markets. Nevertheless, as adoption rates and competition in emerging markets increase, some companies have found that they can no longer count on unfettered increases in penetration rates to drive performance. SPI winners have improved their offerings—some by moving toward higher-value services such as data and content, others by focusing on specific market segments or customer needs. The "Second-Generation Emerging Market Strategies and Opportunities" section explores those strategies in greater detail.

In hard times, companies are far less likely to make the investments required to launch new business models. Indeed, an analysis of first half of fiscal 2008 financial data of the top 450 SPI performers shows that the ratio of capital expenditures to sales dropped by 7% as companies began to prepare for a slowdown. Still, we have uncovered innovative models that allow companies to address key customer trends, which we present in the "New Routes to Innovation" section.

Managing in a Down Market

Faced with a severe economic and financial crisis, most companies naturally react by streamlining operations with across-the-board cost cuts. This is true for companies with strong balance sheets and cash flows, as well as companies whose balance sheets are in disarray. But in either case, one-time cost reductions such as layoffs, while often necessary, are not always the most effective strategy, and their benefits may be short-lived. More than half of employers who lay off staff eventually re-hire some of those staff.²

In fact, smart companies with strong balance sheets are likely to have already implemented an ongoing culture of examining and cutting costs in a strategic and proactive fashion. For those that have not yet developed such an ever-green culture, a prolonged recession presents an opportunity to rethink all operations. But that's just playing good defense.

It's equally important to play good offense. One way to do that without expending too much capital is by collaborating with competitors and sharing assets. Another is by practicing demand-side excellence. That means rethinking product offers and customer segments to increase revenues while adjusting prices and improving overall cost structure through complexity management.

We identify top-performing companies—in different sectors and regions—that have taken a new approach to cutting costs and growing revenues in several broad areas:

- Targeted operational excellence initiatives that change the offense/defense ratio
- Asset-light strategies that alter the compete/collaborate ratio
- Customer-focused offer engineering

We will examine each approach with specific case examples of successful implementation.

Targeted Operational Excellence Initiatives: What's Your Offense/Defense Ratio?

Ongoing improvements in cost structure can be an alternative to top-line growth for increasing profitability, especially in mature or highly cost-competitive industries. Although the approaches vary, two key areas stand out: reducing IT costs and spending, and strategic workforce management.

As an example of the headway that can be made, even without the forced pressure of a recession, Oliver Wyman's International Telecommunications Benchmarking, a bi-annual survey of worldwide telecommunications firms, indicates that average operational costs have decreased significantly since 2005, and best practices of the top firms far outpace the mean (Exhibit 7).

Reduction of IT costs in particular has received increasing attention of late. During the past 10 or 15 years, companies added and experimented with different IT solutions in a drive toward greater productivity. As solutions have matured and been replicated, companies can consolidate and refine their overall approach, saving millions in the process.

Hewlett-Packard (HP), one of our SPI leaders, has made IT consolidation a key driver of bottom-line growth. For example, the company has decreased active IT projects from 1,200 to 500 and reduced the number of applications in use from 5,000 to 1,500. It has also redeployed IT staff, allocating 80% to development and 20% to support, as opposed to a previous 50/50 split.

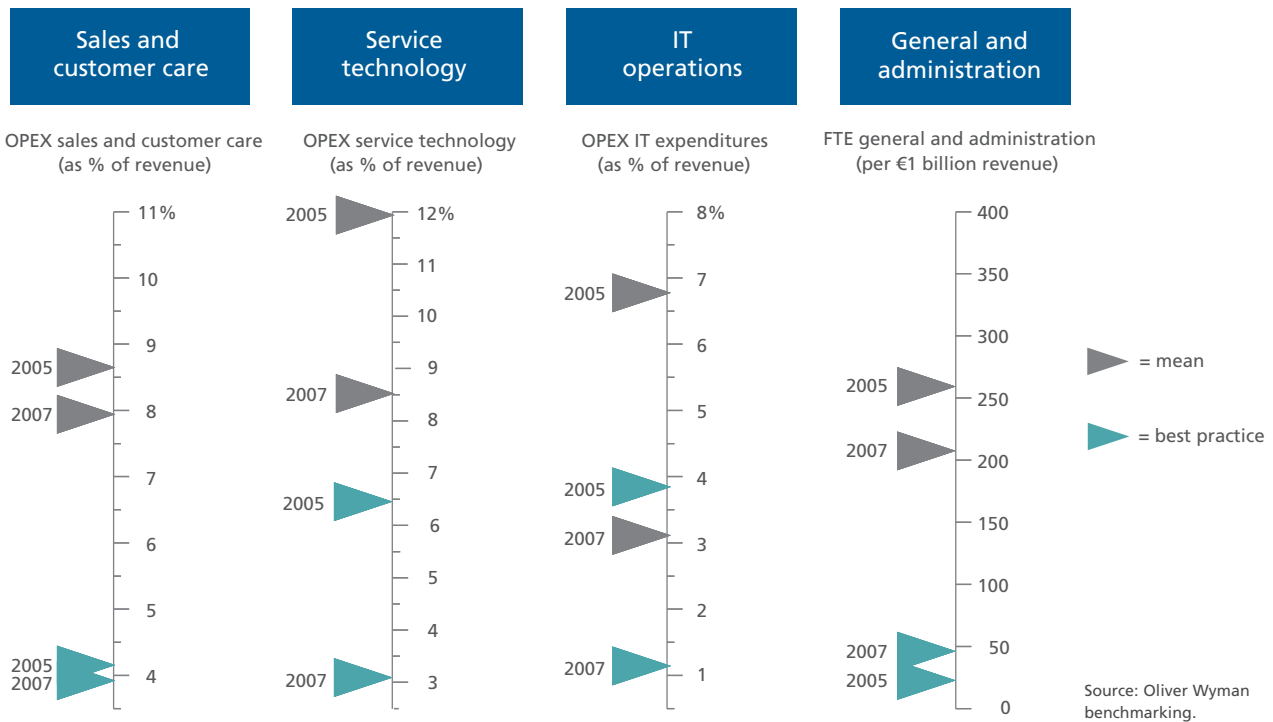
As a result of HP's operational excellence drive, operating expenses as a percentage of revenue have decreased from 96% in the third quarter of 2005 to 90% in the fourth quarter of 2008. Executives estimate an additional \$1 billion in cost reductions in 2009.³

Implementing environmentally "green" policies can also translate into significant and sustainable IT cost savings. This is particularly true for global IT businesses that rely on server farms that require massive amounts of electricity to run and cool.

² Philadelphia Business Journal, February 2005.

³ Sources: HP annual and quarterly reports, Oliver Wyman analysis.

Exhibit 7 Operational expense improvement at Oliver Wyman telecom benchmarking firms



In addition to many other energy-related improvements at its server farms, **Google**, a top SPI performer, has outfitted its corporate campus in California with solar panels. Using the 1.6 megawatts of power provided by the solar photovoltaic panels, Google hopes to eventually offset almost one-third of its peak electricity consumption in those buildings.

Similarly, **IBM**, a leading super-large-cap company, has incorporated environmentally friendly energy pitches into its advising business, helping its clients save money on operating costs (energy costs can make up 30-40% of a company's IT budget, according to IBM). Some IBM clients have reduced their energy consumption by as much as 95%.

Dun & Bradstreet (D&B), a top performer in the slumping media sector, attributes its success in controlling costs to its "Financial Flexibility" process. By examining its entire budget, not just its variable costs, to find cost-savings opportunities, D&B identifies low-return projects and reallocates funds. A key focus of this initiative is simplifying the IT environment by consolidating or eliminating systems. D&B has implemented nine separate Financial Flexibility initiatives since 2000, generating more than \$650 million in cost savings and a 50% reduction in D&B's workforce.

Generally, companies that have undertaken a radical transformation of their IT environment have taken a similar approach to managing their workforce. D&B, for example, gives fewer managers larger spans of control, and reduces non-selling time for its salespeople. HP has relocated many

The Cash Premium

When money is tight and stocks are plunging, cash is king, making cost-saving initiatives all the more important. The market has amply rewarded stable, cash-rich companies in this downturn. In Q4 2008, for example, France Telecom (€3.9 billion in cash on its balance sheet), Deutsche Telekom (€3.1 billion), and Telecom Italia (€5.6 billion) lost only 6%, 10%, and 2% of their market values, respectively, while the CMT industry as a whole suffered losses greater than 30%.

McAfee, a California-based security software firm that jumped more than 200 spots in this year's SPI, is debt-free and has over \$1 billion in deferred revenue as a result of its licensing-fee structure. In Q3 2008, 70% of its record-breaking \$410 million in revenue was from deferred revenue.

facilities to take advantage of lower costs by, for example, moving facilities serving the Chinese market closer to that country.

Partnerships and Alliances: What's Your Compete/Collaborate Ratio?

Another strategy that contributes to lower operating costs is embracing partnerships and alliances—with friends and foes—to share resources. CEOs are born to compete; today, they may have to collaborate.

Judicious alliances can often lead to expeditious expansion, granting companies access to assets, markets, and customers without the need for major capital investments. In growing business categories such as wireless communications, alliances with competitors or players from other sectors can increase the overall business and result in wins for multiple players.

One approach to collaborating with competitors is sharing fixed assets to multiply each company's reach. **Bharti Airtel** is one of India's leading mobile operators and a repeat top SPI performer. In December 2007, it finalized an agreement with competitors Vodafone India and Idea Cellular to establish an independent wireless tower company, Indus, to serve these companies.

The joint venture will lower overall tower development and leasing costs by pooling them across the three companies. While Bharti will transfer 30,000 of the 52,000 towers it owns to the new entity, it will gain access to 40,000 of its competitors' towers, increasing Bharti's total number of towers by 75% and improving its access to rural markets.⁴ At a cost of Rs 1.8 million-3.0 million (\$36,000-\$60,000) per tower,⁵ an expansion of that size would have cost Bharti on its own between Rs 72 billion and 120 billion (\$1.5-\$2.4 billion).⁶ Likewise, Vodafone India and Idea Cellular, which gain access to each other's towers as well as Bharti's, also expand their network capabilities without major capital outlays.

Qualcomm, the world's largest provider of wireless chipset technology and a top SPI performer

in the technology sector, has long been known for its tight control over proprietary technology. Recently, however, the U.S.-based company has begun working more closely with its clients to develop highly tailored solutions. For example, it has helped Major League Baseball create a platform for downloading baseball-related content to mobile phones. It has worked with Hutchinson to develop a Skype-enabled mobile phone. And it has created customized technology for Warner Music's personalized artist downloads to handheld devices.

In a broader strategic move, Qualcomm has also begun promoting open-source technologies through participation in the Open Handset Alliance (OHA), a partnership developing an open mobile platform. The platform should reduce handset and mobile device costs and consequently drive sales, which in turn will stimulate demand for Qualcomm's chipsets.

By altering its business model to include widespread partnerships, Qualcomm has added new revenue streams and increased revenues from its core business. These moves helped Qualcomm jump 80 spots in the 2008 SPI rankings.

UFIDA (formerly USoft), a leading Chinese enterprise software developer, has used partnerships to trade its local-market knowledge for technical expertise. The company has successfully sold software packages designed for all segments of Chinese business. Its low-cost business offerings, for enterprises of any size, compete with SAP and Oracle in China. For the first nine months of 2008, UFIDA's revenues increased 27% from the year earlier, and recurring profit was up 14%.

To help it expand worldwide, UFIDA built partnerships to minimize development costs. For example, the company founded a Service-Oriented Architectures (SOA) creative center in Beijing in partnership with IBM to promote SOA technologies. IBM offered to train several SOA engineers on UFIDA's staff. In August 2008, UFIDA launched U9, an SOA enterprise product with Chinese, English, and Japanese user interfaces.⁷

4 Bharti Airtel annual and quarterly reports.

5 ABN AMRO Indian Wireless Telecommunications Overview, July 2008.

6 Throughout this report, we have used currency exchange rates based on the date associated with the financial transaction.

7 China IT Watch, April 2008.

Instead of sharing assets with competitors, top SPI performer **American Tower** has found a new way to collaborate that improves its demand-side operations: sharing its assets with different customers. American Tower, a U.S.-based wireless tower developer and top SPI performer among large-cap companies, has maximized its asset base of wireless towers by offering more services from each tower and entering into innovative co-location agreements—allowing more than one wireless company to use its towers. These clients, in turn, benefit from lower leasing costs.

There is a clear economic advantage to such sharing. By offering the same product to more customers, American Tower has reduced outlays, altered its cost structure, and increased revenues. American Tower’s operating margins have improved every year since 2003, and for the year ending September 2008 the company posted industry-leading gross margins of around 35%.

Customer-Focused Offer Engineering: What’s Your “Evolved” Value Proposition?

Enhancements to product lines, including elimination or consolidation, can cut costs and increase revenue. In-depth customer and product analysis can help streamline the mix of products or develop new SKUs to serve specific sub-segments more cheaply. With a keen eye on changes in customer behavior and channels of delivery, astute marketers can provide rich choices and more options for customers, allowing them multiple ways to pay for and use their products and services.

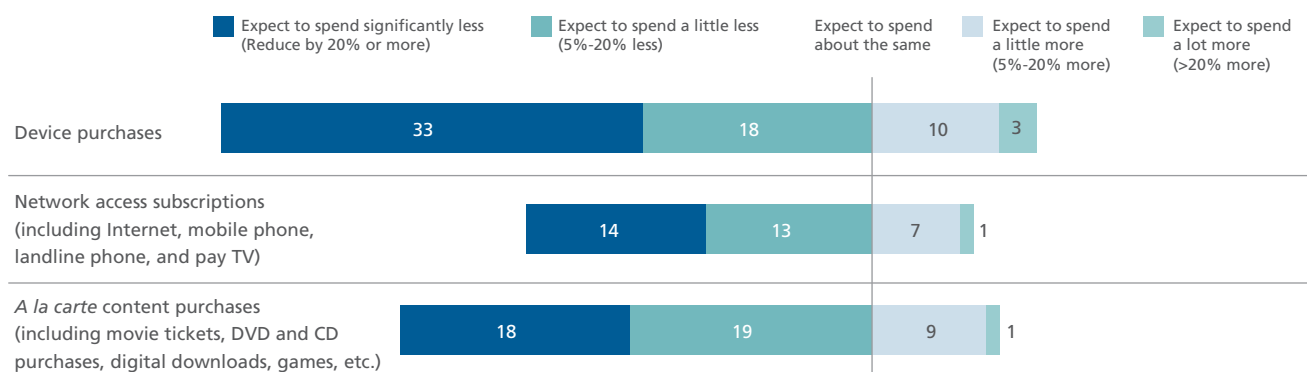
The relevance of a company’s offer is especially important in a downturn, when all companies are competing for scarce consumer dollars. In recent Oliver Wyman surveys, 55% of U.S. consumers said their financial health had worsened in the six months ending November 2008; 27% expected it to continue declining at least through May 2009. Consumer spending is expected to reflect these negative consumer outlooks (Exhibit 8).

One company with keen insight into the triggers of its low-income customer base is top SPI performer **Philippine Long Distance Telephone Company (PLDT)**. Through its SMART mobile subsidiary, PLDT has continually found ways to lower the internal (production, distribution, maintenance) costs of its low-cost product offerings, which has enabled it to keep growing even though its primary consumer base is extremely cost-sensitive.

In general, the Philippines is a difficult operating environment for mobile operators. With a penetration rate of 68%, significantly higher than the Asian and emerging markets averages (42% and 51%, respectively), there is less room for growth. Average revenue per user (ARPU) per month is among the lowest in the world, at PhP 247 (about \$5), and over 98% of mobile users are pre-paid customers who can easily switch carriers—and do so based on the “offer of the week.” In this highly price-sensitive market where GDP per capita is only PhP 85,700 (less than \$2,000), companies struggle to retain customers.⁸

Exhibit 8 Expected future spending on communications and entertainment devices, access, and content

Expected spending levels by U.S. consumers for the next 12 months compared to the last 12 months, % of respondents



Note: For purposes of illustration, “about the same” responses are not shown.
Source: Oliver Wyman Communications, Media, and Technology Consumer Spending Survey, November 2008.

SMART employs a portfolio of targeted value propositions to differentiate itself from the pack and offer a rich palette of choices for its customers, including substituting cheap but restricted SMS (text messages) for voice; varied and segmented channel offers; and micro recharge options. For example, SMART offers recharge increments based on channel used. Subscribers willing to use self-serve channels, such as electronic vouchers or SMS recharge, can recharge for as little as \$0.03 at a time. They essentially share in the savings that SMART generates from this low-cost channel. Other channels have segmented pricing and benefits based on each channel's cost to operate.

SMART also prices SMS at 1/30th the cost of voice time. Since SMS requires virtually no incremental network bandwidth—one minute of voice traffic corresponds to over 5,000 SMS messages—SMART attracts extremely price-sensitive customers with no worries about straining network capacity. To prevent higher-end users from switching away from voice calls to SMS, these offers are time-constrained, such as a 100 SMS “top up” good for one day only. SMS now represents 63% of SMART revenues.⁹

Top-20 SPI-ranked **KPN**, a Netherlands-based wireless, TV, and Internet provider, has multiple customer segments. But its success shows how its customer-centric expertise in brand management has helped launch well-segmented and targeted new products in international markets

without tremendous capital outlays. It has also entered new markets by using others' networks.

KPN brands are distinctive and simple, with clear value propositions for different market segments. For example, in the Netherlands, the mainstream KPN brand, for high-use customers, emphasizes reliability and quality. KPN's Telfort brand, on the other hand, offers no-frills value. The Hi brand targets youths.

KPN entered the Spanish market in 2008, and plans to expand to the French market in 2009 as a mobile virtual network operator (MVNO) using the Orange network. By using this virtual network to launch its no-frills Simyo brand in Spain, modeled after its no-frills brands in the Netherlands, KPN extends its footprint in Europe without significant capital expenditures. Thanks to its low start-up costs and web-based customer-service portal, KPN charges a flat rate of €0.09 per minute for calls to all networks, all the time. This integrated asset-light expansion strategy has enabled KPN to improve its balance sheet as it expands. At the end of September 2008, KPN had €1.3 billion (\$1.8 billion) in cash, a 16% increase since December 2007.¹⁰

Finally, **Zain** shows how customer-centric product offerings can increase sales and revenues even in a mature and saturated market. Zain, which since 2003 has expanded and grown from a single operation in Kuwait to 22 countries across the Middle East and Africa, now serves close to 60 million customers. While the Kuwaiti operation today contributes just 3% of overall subscribers, it generates about 20% of group revenues and 50% of net profits (as of the first half 2008). As a result, Kuwait remains a key asset in the portfolio, and Zain actively seeks to defend its position in that market.

Kuwait is a mature market with a 115% penetration rate and three mobile carriers. To compete, Zain relies on a value-driven approach to exhaustively target “micro” customer segments within its base and exploit untapped pockets in the market. By quickly responding to key performance indicators, Zain can adjust retention offers quickly, moving from impact calculation to system readiness

Telecom Powerhouses in the Middle East and Africa

Often building from very small home markets, the top telecom players in the Middle East and Africa have created almost \$100 billion of market value; all but three are above-average SPI performers.

Name	2008 SPI	SPI Rank	2008 market value (\$ billions)
1 MTN Group	337	16	21.9
2 Maroc Telecom	365	8	16.8
3 Etisalat	165	123	16.2
4 Zain	105	222	14.1
5 Telkom	210	78	6.4
6 Orascom Telecom	214	73	5.7
7 Telecom Egypt	59	318	5.0
8 Qtel	90	254	4.4
9 BEZEQ	241	49	4.3
10 Mobinil	227	58	2.7

Source: Datastream, Oliver Wyman analysis.

9 Oliver Wyman analysis, Merrill Lynch Global Wireless Matrix, Pyramid Research.
10 Source: KPN 1H 2008 Report.

and media communication in as little as one day. This is achieved by a strong data mining backbone (covering data availability and analytical capabilities) to simulate impact, and supported by a lean decision-making process regarding offers, processes, and communication channels.

Partly as a result of their customer-focused offer engineering efforts, Zain Kuwait's Q3 2008 rev-

enues increased 16% compared to Q3 2007, with EBITDA increasing by 18% over the period.

Supply- and demand-side cost reductions are more than short-term fixes, as the case studies in this section show, but they may not be enough to drive sustained long-term customer growth. For that, companies can turn to second-generation strategies and opportunities.

Second-Generation Emerging Market Strategies and Opportunities

Emerging markets, whose aggregate market value has grown at a CAGR of 18% over the past five years, now represent 14% of all of CMT market value. Growth opportunities have been especially prominent in the communications sector—with nine of our top 20 SPI performers (Bharti Airtel, Starhub, América Móvil, Maroc Telecom, China Mobile, Entel, Hutchison Telecommunications, and MTN Group) from that sector (Exhibit 9).

Exhibit 9 Top-performing companies in emerging markets

Communications	2008 SPI	Market value (\$ billions)
Bharti Airtel (India)	421	27.9
América Móvil (Mexico)	369	32.3
Maroc Telecom (Morocco)	365	16.8
China Mobile (Greater China)	345	201.3
Entel (Chile)	344	2.6
Hutchison Telecommunications International (Greater China)	339	1.3
MTN Group (South Africa)	337	21.9
Vivo Minas (Brazil)	324	0.8
Empresas Cablevision (Mexico)	289	0.9
Philippine Long Distance Telephone Company (Philippines)	286	8.3

Media	2008 SPI	Market value (\$ billions)
Tencent Holdings (Greater China)	442	11.6
Naspers (South Africa)	347	7.3
Televisa (Mexico)	221	7.2
TVN (Poland)	219	1.6
Hunan TV & Broadcast (Greater China)	204	0.8

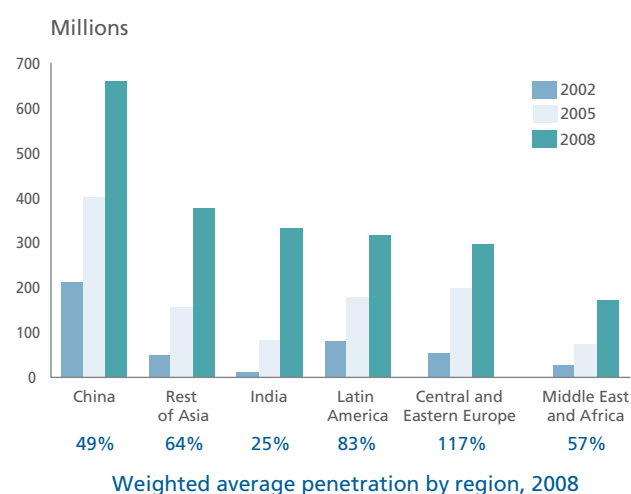
Technology	2008 SPI	Market value (\$ billions)
VTech (Greater China)	278	1.0
Aisino (Greater China)	255	2.3
Asseco Poland (Poland)	253	1.2
UFIDA Software (Greater China)	244	1.5
ZTE (Greater China)	232	4.5
Byd Company Ltd (Greater China)	221	0.9
Neusoft (Greater China)	213	1.6
Infosys Technologies (India)	177	13.1
Tsinghua Tongfang (Greater China)	100	1.4
Tata Consultancy Services (India)	85	9.6

Source: Datastream, Oliver Wyman analysis.

Much of these carriers' success has been a function of getting a head-start when penetration rates were extremely low and poised to grow rapidly. **América Móvil**, for example, entered new Latin American markets during the economic downturn in 2001-2003, when other investors were pulling out. Its acquisitions and investments paid off, as América Móvil's market share in Latin America jumped from 37% in 2003 to 49% in 2007. Operations in markets where América Móvil expanded during the last downturn now account for close to 25% of its revenues, which grew at a CAGR of 112% between 2003 and 2007.

As penetration rates and competition increase, however, the opportunities for new entrants shrink. Latin America and Central and Eastern Europe are now close to saturated, and Asia is not far behind (Exhibit 10).

Exhibit 10 Emerging-markets wireless subscribers



Note: Rest of Asia does not include Japan and South Korea, and Middle East and Africa does not include the Gulf states. Source: Merrill Lynch Wireless Matrix, 2Q 2008.

Although there is still ample room for growth in huge markets such as China, India, Indonesia, and much of Africa, many of the remaining unserved customers live in remote, rural regions that are difficult and expensive to reach. Thus, smart players are beginning to look for second-generation value-creation opportunities, such as:

- Differentiated products and services for increasingly sophisticated consumers
- Services and support for business customers
- Reverse expansion into new markets, both close to home and in the developed world

Second-Generation Offers: Giving Customers a Rich Palette of Choices

How do companies adjust when penetration levels increase and services quickly become commoditized? One region to consider is Taiwan, which is often seen as a leading indicator for emerging markets. As an industrialized market Taiwan has more than 100% penetration levels for mobile phones, broadband penetration of around 80%, and pay-TV penetration above 60%.

Chunghwa Telecom, a top-20 performer on our SPI 450, has managed to stand out in a fiercely competitive market by extending its product reach into other industry verticals.

Chunghwa has partnered with financial institutions, universities, online music companies and other specialized content providers such as U.S. Major League Baseball—affiliations it knew its customers valued. By allying with these specialized content providers, Chunghwa has added multimedia-on-demand and content services to its traditional telecommunications offering—and expects to add family banking, online learning, shopping, and other services for its high-value customers. Such targeted offers only launched in 2007, but the early returns are impressive. Chunghwa has added 570,000 media-on-demand users with an incremental monthly ARPU of \$3.25. Finally, Chunghwa has added IPTV to its lineup, and is expected to reach 1 million subscribers by the end of 2008, a remarkable achievement given that only 4.7 million households subscribed to any pay TV service in 2007.

Brasil Telecom, which improved more than 250

spots in our SPI rankings this year, also operates in a fast-maturing market—Brazil had 72% mobile penetration in 2008—and more than 80% of subscribers are prepaid customers who can switch carriers at any time. Brasil Telecom has focused on key features and offer elements that improve share of wallet and retention to attract customers from other carriers. Specifically, Brasil Telecom offers a modified triple-play: Internet users can choose to get access through either DSL or dial-up service (the latter service has around 4 million subscribers, four times the number that use DSL); TV and video is delivered through IPTV or satellite; and some voice plans come with free access to public pay phones. Flexibility extends to payment terms: Customers can pre-pay or post-pay their accounts, and minutes can be shared over wireless and wireline phones. From Q3 2007 to Q3 2008, the number of Brasil Telecom's mobile and broadband users grew by 30% and 15%, respectively, and revenues and net income increased by 3.4% and 9.2%, respectively.

Byd, a top SPI performer, has moved beyond second- to third- and fourth-generation offers in order to address evolving customer demand. Founded in 1995, the Chinese company established a name for itself as a leading manufacturer of rechargeable lithium-ion batteries for handsets. Until 2005, batteries accounted for the vast majority of Byd's revenues, but using the relationships it had built with international handset manufacturers, Byd began supplying other handset components. Revenue from handset components doubled from 2004 to 2005 and then tripled from 2005 to 2006, replacing batteries as the leading source of revenue for the company.

In 2006 Byd recognized that the needs of handset manufacturers were changing and began offering handset assembly services. Handset assembly rose to 9% of revenue in 2007 (despite strong revenue growth in Byd's battery and component businesses). Byd's handset component and assembly business was so successful that the company spun it off in 2007 as a wholly-owned subsidiary, Byd Electronic.

Byd has already begun preparing for its next transformation. Using its knowledge of batteries and manufacturing, the company is developing a plug-in hybrid electric car. Autos accounted for 23% of revenues in 2007, and experts predict

How Cell Phones Promote Economic Development

Improved global access to information carries important implications for development. Mobile phones have become a critical cog in running small businesses across the world, especially in emerging markets with very limited fixed-line networks. The UN Conference on Trade and Development reports that 80% of Egyptian and South African small businesses rely on mobile phones. For example, farmers and fishermen in developing economies can use their mobile phones to access the latest market prices for crops and fish.

Mobile banking, or m-banking, is another example of an innovation from the developing world that is accelerating development. In Kenya, where less than 10% of the population has a bank account, Safaricom, in conjunction with Vodafone, has enabled mobile financial transaction processing via its M-Pesa (“pesa” means money in Swahili) service. Customers load money into their phones at cash-in/cash-out centers, which are often housed in gas stations or other local shops. They then can send

money to relatives in villages, buy goods, and pay bills by SMS texting.

Launched in Q1 2007, M-Pesa now accounts for nearly half of Safaricom’s non-voice revenue, with 4.1 million registered users (out of 12 million total Safaricom customers) as of September 2008. M-Pesa has processed over KSh 50.4 billion (\$640 million) worth of transactions since its launch. The service has expanded to offer ATM integration and bill and merchant payment. In 2008, the M-Pesa service won Safaricom the World Business and Development Awards in support of the Millennium Development Goals, awarded by the International Chamber of Commerce.

Because of such usage, researchers have estimated that adding an additional 10 mobile phones per 100 inhabitants in a poor country increases its annual GDP growth rate by 0.6%.¹

1 The Impact of Telecoms on Economic Growth in Developing Countries, Leonard Waverman, Meloria Meschi and Melvyn Fuss, London Business School, 2005.

strong growth in the electric car market over the next few years. At least one notable investor thinks the move will pay off: Warren Buffett bought a 10% stake in Byd in September 2008, propelling the company's share price up 42% in one day.

Second-Generation Customers: A New B2B Market Emerges

As industries achieve scale in emerging markets, businesses grow and require deeper and more sophisticated supply chains—for network devices, hardware, software, and services such as back-office operations, supply-chain optimization, and local distribution chains.

That creates opportunities for companies to shift from serving consumers to serving businesses, which often means larger and more reliable long-term contracts.

For instance, **ZTE**, historically a leading Chinese handset manufacturer for China Mobile, has built on its expertise in developing handsets and solutions for emerging markets to move into other

markets. Vodafone has tapped ZTE to provide low-cost handsets to Vodafone companies in Egypt, South Africa, and Romania.

Likewise, **Bharti Airtel**, the leading Indian mobile operator, has recently revved up its B2B revenues. In 2005, revenues from its enterprise customers were Rs 5.4 billion (\$124 million), but by 2008 they had risen to Rs 30.5 billion (\$641 million), 11% of total revenues at a CAGR of 78%. Bharti has expanded offers to its enterprise and carrier customers with end-to-end telecom services to help achieve these results. Similarly, **China Mobile**, which traditionally focused on wireless customers, is making investments to support B2B products, such as broadband lines and application solutions.

To capitalize on the B2B opportunities in emerging markets, **Infosys**, the Indian-based IT services, consulting, and outsourcing firm, reorganized last year to further its goal of increasing revenues from business customers in Latin America, Asia, and its home market, India. Infosys announced its intent to double revenues from customers in these markets over the next three

to five years to 20% of its overall revenues, as it lessens its dependence on key developed markets. (North America currently accounts for 62% and Europe for 28% of its business, tied to its original business model of providing low-cost IT consulting and outsourcing.) Specifically, Infosys created a “new growth engine” business unit and an Indian business unit to take advantage of the increasing B2B opportunities in its local and regional markets. So far, Infosys has established new offices in Mexico and the Middle East.

Second-Generation Markets: Globalization Is Now a Two-Way Street

An increasing number of companies that have cut their teeth in emerging markets now see value-creation opportunities outside their country and region, although they may not be household names outside their home market—yet. These players find their world-class experience in serv-

ing price-sensitive customers is valuable as they consider broader investments outside their respective regions.

For instance, **ASUSTek**, a Taiwanese computer manufacturer, has focused its R&D efforts on creating computers that deliver high value at low cost. Its netbooks can be as small as seven inches wide, offer nearly eight hours of battery life, and retail for as little as \$250.

ASUSTek truly arrived in Europe and North America with the launch of its Eee (“easy, excellent, exciting”) product line in 2007. The company was the sixth-largest seller of laptops in the first half of 2008. As a result, ASUSTek has been able to deliver an impressive 20%+ gross margin in an industry known for razor-thin margins. The original ASUSTek offer appeals to European and U.S. consumers looking for a low-cost second home

Busting Five Myths about Emerging Markets

Companies in developed markets often enter emerging markets with gross misperceptions. Consequently, they often fail to adapt their offers, prioritization, and investments to actual emerging market realities. The stereotypical notion of emerging markets is based on a set of five myths:

Myth 1: Emerging markets are technology backwaters. This assumption results in the export of stripped-down versions of products from developed markets. However, emerging-markets research documents rapid technology adoption that often leapfrogs key steps in technology adoption in developed markets. Take the example of mobile and smartphones. In India, Oliver Wyman research indicates that more than 60% of consumers say that their next phone purchase will be a smartphone, not more basic mobile offers.

Myth 2: Emerging-market consumers can’t afford technology purchases. This is simply not true. In emerging economies such as India and Brazil, middle-income consumers (those who have some discretionary spending) make up more than 60% of total consumer spending. Both consumers and small businesses, research shows, will pay price premiums of 20-30% for features that matter to them.

Myth 3: Customers in emerging markets won’t pay a brand premium. Both among consumers and businesses in emerging markets, brand is more important than in developed markets. A strong, well-known brand is viewed as safer than newer and less-tested options.

Myth 4: Technology offerings from mature markets will succeed in emerging markets. Products and business models that work in developed markets do not necessarily succeed in emerging markets. Localizing products for emerging markets will pay off—as it did for Nokia when it designed phones with flashlight features, dustproof keypads, and multiple address books and call-time tracking for shared phones.

Myth 5: Emerging-market consumers focus on products, not services. Services are often a neglected aspect of emerging market offers, but research shows that offering support services and automated replenishment can drive product sales and increase them by as much as 10%. This is especially true among business customers.

For more information, see Oliver Wyman’s article in the August 2008 edition of *Harvard Management Update* entitled “Five Myths about Emerging Markets.”

computer—a potentially new consumer segment created by sophisticated demand-side engineering. ASUSTek also has several new models designed specifically for the developed market, including fully-powered PCs that use less energy and fewer toxic components than most PCs.

América Móvil, the Latin American mobile market leader, has brought its emerging-market prepaid subscriber model to the U.S., targeting a lower-end customer than the big contract providers such as AT&T, T-Mobile, and Verizon. America Móvil's Tracfone subsidiary offers only prepaid cell minutes, selling phones with minutes for as little as \$9.99 (phone with 20 minutes preloaded). There is no credit check, no service contract, and no hidden fees—as the company says, “no surprises.” While all the major carriers offer a prepaid option, it is still a small segment overall, accounting for only 16% of total wireless subscriptions. Tracfone, however, has a 28% share of that market, with 10.5 million subscribers.

Emerging-market companies are examining developed markets not only for customers, but also for investments. **Lenovo**, the Chinese computer maker that purchased IBM's computer business in 2004, recently lost its bid to buy Packard Bell (The Netherlands) in 2008 to **Acer**, a Taiwanese PC manufacturer. Acer had bought Gateway (U.S.) in 2007 to expand its presence in the U.S.

Another foreign investor that operates in a variety of emerging markets but is looking to

developed markets is **Orascom Telecom Holding** (OTH), headquartered in Egypt. OTH has about 80 million subscribers in the Middle East, Africa, and South Asia. Orascom has operated mobile networks in Egypt, Pakistan, Bangladesh, Algeria, Tunisia, and North Korea, after an initial joint venture with France Telecom in Egypt in the early 2000s. OTH, as both a public and family-run business, is operating with a unique governance and operating model. The central management team is very close to local operations and strongly involved in key strategic and operational decisions. Thus, OTH manages to achieve two orthogonal objectives—tight central control and strong local execution.

A few years ago, given the success of its initial regional geographical expansion, the group decided it had accumulated enough strength and experience to begin to make inroads outside emerging markets. Specifically, in Europe the group acquired operations in Italy and, shortly after, in Greece. OTH succeeded in transferring its operational expertise to mature markets and has built a solid platform to embrace the next level of challenges, including launching a greenfield operation in Canada.

Clearly, emerging market players are pursuing a range of avenues to meet the next waves of consumer needs and wants. Likewise, investment opportunities and business needs in key emerging markets afford both local players and foreign investors openings for new growth.

New Routes to Innovation

How can you grow when you're shrinking? That's the dilemma for companies that are forced to cut operating expenses and are unable to increase capital expenditures—but are in real need of revenue increases. Companies in the CMT space must react to market developments while at the same time actively seeking new ways to compete and grow. The only way out of this dilemma is by adopting new ideas about serving customers and shifting business models.

Based on examples from the top performers in our SPI rankings, we have identified three routes to business innovation:

- Mobile Internet
- Sector boundary-blurring
- Free-riding innovations

Both mobile Internet and sector boundary-blurring reflect significant changes in consumer demand and in how businesses interact with each other. Free-riding innovations, meanwhile, has allowed companies to trade off control over one component of a company's business design (strategic control, customer selection, value capture, or scope) for lower R&D, product launch,

marketing, sales or support costs, and have enabled them to realize returns quickly.

Mobile Internet: Smartphones Epitomize the New Paradigm

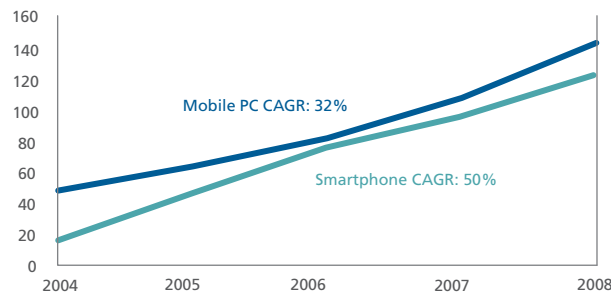
Between 20 and 25% of the world's population uses the Internet, more than double the penetration rate of just five years ago. Users increasingly access the Internet through mobile devices. A review of Q1 2008 data for leading telecommunications firms in 57 countries shows that more than half of their \$8 billion in monthly data revenues comes from wireless Internet access plans, up from 40% a year ago.¹¹ Through wireless and Wi-Fi networks and data cards, users can connect via laptops or netbooks; largely as a result, global laptop sales are growing at around three times the rate of traditional PCs. Laptop sales now account for 40% of all PCs sold. The growth is even more dramatic in emerging markets: In Latin America, laptop sales have been growing at a CAGR of around 50% for the past three years; in the Middle East and Africa, their growth rate is 10 times that of traditional computers.¹²

As telecommunications firms deploy 3G networks, consumers are also accessing the Internet through smartphones, which now make up an estimated 15% of global cell phone sales, up from 3% in 2004. Smartphone shipments grew from 16 million in 2004 to 120 million in 2008, and through the first half of 2008, grew more than three times the rate of regular cell-phone shipments. Oliver Wyman research shows that consumers in emerging markets are leapfrogging regular mobile phones in favor of smartphones in startling numbers. Further growth is likely: In the Middle East and Africa, subscriptions on a 3G network now account for half of total mobile subscriptions.¹³ Exhibit 11 shows the growth in mobile Internet devices.

Industry leaders are responding to the mobile-Internet migration. Among our top 20 SPI performers, 17 earn at least some of their revenue from products or services tied to the mobile Internet. For instance, **Tencent** has created a mobile version of its Internet portal, as well as mobile instant messaging, games, and content. While **Nintendo's** Wii rightfully grabbed head-

Exhibit 11 Growth in mobile Internet devices

Worldwide shipments of mobile PCs and smartphones, in millions of units



Source: Gartner Dataquest Forecast: PC Installed Base, Worldwide, 2004-2012, and CIBC World Markets 2008 Market Guidebook.

lines for its user-friendly design, its wireless Internet-enabled portable DS console sold 70 million units (nearly three times the sales of Wii consoles), along with 370 million related games.

The wireless Internet also has convergence implications for pay TV, telephony, and data-access providers as consumers are demanding seamless content and applications across multiple fixed and mobile devices and means of access. South Korea's **SK Telecom**, which jumped 200 spots in our SPI rankings, offers its mobile customers typical web-based services such as music downloads, news and information services, bill-paying, and videoconferencing. The company also offers new services through the Internet. Its roughly 800,000 MelOn music subscribers can listen to music on PCs, mobile phones, and MP3 players. Through H-view, a real-time video monitoring system, users can view live webcam shots on their wireless devices or through a PC-based Internet connection. Similarly, users can monitor traffic, including live feeds from heavily traveled routes, on their phones, PCs, or GPS devices. In 2007, 2.5 million subscribers, or 10% of SK Telecom's total subscribers, signed up for these services. The company's continuous focus on expanding offerings and products has earned it first place in South Korea's National Customer Satisfaction Index for 11 years in a row.

The gold rush to the mobile Internet, however, has sparked competitive clashes between once-

¹¹ Economist Intelligence Unit.

¹² Gartner Dataquest Forecast: PC Installed Base, Worldwide, 2004-2012.

¹³ Pyramid Research, Africa Middle East Mobile Data, CIBC World Markets 2008 Handset Market Guidebook.

separate industry sectors. The value proposition of smartphones and netbooks overlap in a way that cell phones and laptops never did. **HTC's** website touts its Touch Diamond smartphone, for example, by saying that “the HTC Touch Diamond offers a rich online experience to rival a notebook computer, allowing you to interact with Google, YouTube, and Wikipedia as freely as you would with a broadband connection.” Wireless providers are seeing the flip side. Their exclusive control of the customer relationship is slipping as they must now contend with consumers making a carrier decision based on devices like the iPhone or a Blackberry Storm. Device manufacturers are expanding their shares of the customer wallet—in December 2008, Apple announced that users had downloaded over 300 million applications for the iPhone and the iPod Touch, and none of the associated revenues went to carriers.

The mobile Internet epitomizes and has intensified the momentum behind the next topic in our discussion, sector boundary-blurring.

Sector Boundary-Blurring: The Three-Chain World and Beyond

Last year's report highlighted sector boundary-blurring as a future trend that would impact the CMT space. This year, the impact was felt, both across CMT sectors and across entirely new industries. The links between telecommunications, media, and technology have strengthened, and the distinctions among the three have become fuzzier.

In a trend that arguably started with convergence among telecommunications sectors—cable-TV companies moving into voice and data and fixed-telephone carriers delivering TV and Internet connectivity—companies in what used to be clearly delineated sectors and industries have begun to trespass into new areas, expanding the products and services they offer and competing with incumbents. Next-generation products no longer simply extend the basic functionality of the earlier version, but incorporate new capabilities, services, or content. Device manufacturers, for example, now compete with media companies to deliver content, as do broadcasters with mobile carriers that have launched their own TV channels.

Ad-Funded Models and Their Effect on Traditional Advertising

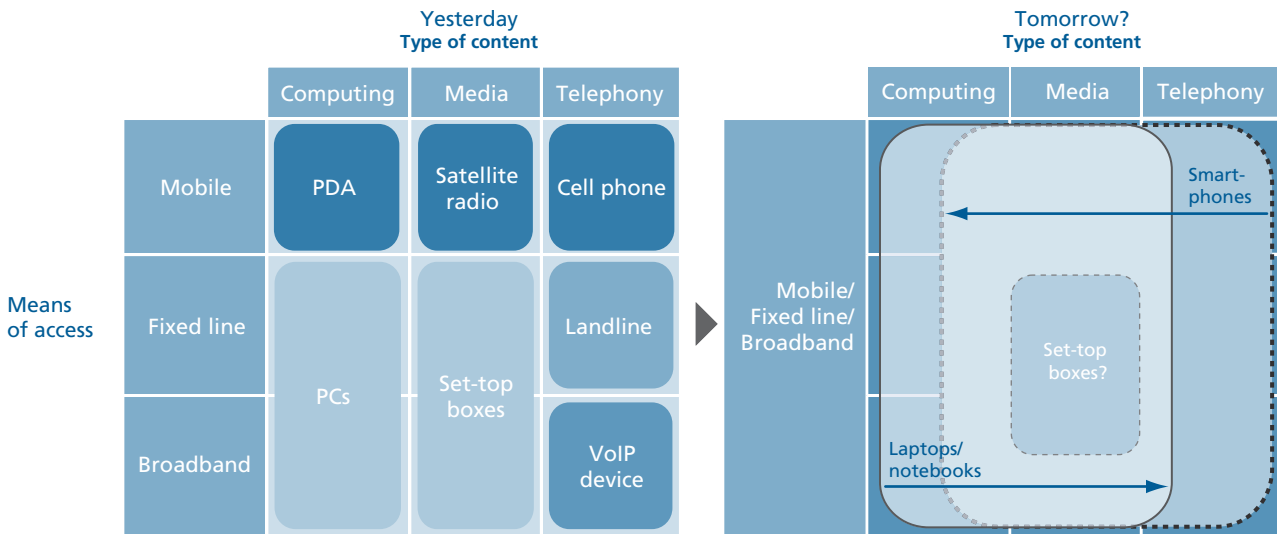
The Internet has created a vehicle through which advertisers can deliver micro-focused advertising that responds dynamically to user activity. Increased Internet mobility is creating opportunities for even more focused location-based Internet ads. Google, ranked 36th on our SPI list, is the poster child for ad-based business models: Advertising revenues provide hefty profits for its search, software, and online video services. But other companies, such as Tencent and Sohu, ranked No. 1 and 131, respectively, have also taken advantage of this opportunity.

The emergence of ad-funded business models has altered the competitive landscape, and companies that have relied on traditional ad streams as a main source of revenue are feeling the pinch. Around 15% of all U.S. advertising revenue is devoted to Internet and mobile media, up from less than 5% in 2002 (a CAGR of 25%). Traditional advertising, on the other hand, grew at a CAGR of only 3% from 2002 through 2006 and actually declined from 2006 to 2007.

Top European performer **Iliad Group**, the French broadband provider, exemplifies sector boundary-blurring through its Free brand. Understanding the compelling value proposition of a triple-play offer, Iliad entered the market with a triple-play package in 2002, a daring move at the time. Iliad delivers ADSL, pay-TV, video-on-demand (VoD) and VoIP-telephony services to its customers through its Freebox modem. Iliad's revenues have grown at a CAGR of 9% since 2003, and it has approximately 20% market share through organic growth only. Despite adding services, such as VoD and TV-based web surfing, Iliad has held its triple-play price steady at €30 (\$43).

In a kind of reverse triple-play strategy, mobile carriers are providing music, video, software, banking solutions, and even live TV on handheld devices. **France Telecom**, for example, offers Ligue 1 French soccer matches—including exclusive highlight shows and in-studio commentary—on mobile, PC, or TV through its Orange brand, and even produces its own content. But

Exhibit 12 Device convergence: from many to few devices



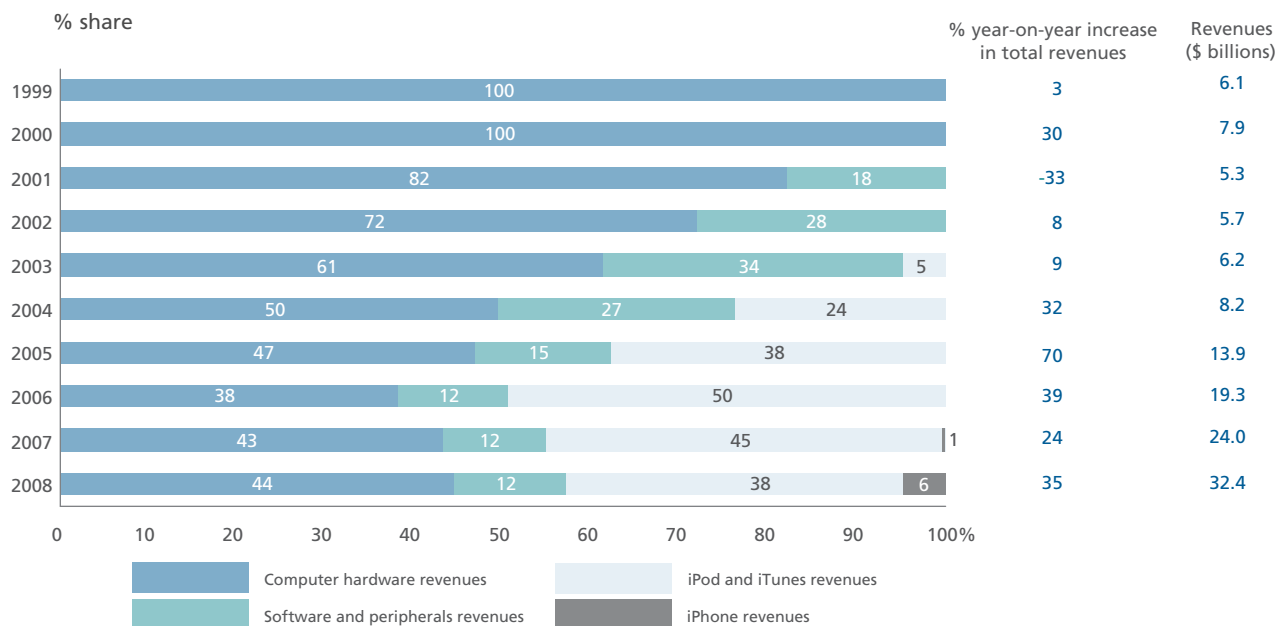
Source: Oliver Wyman research and analysis.

the blurring is not limited to the telecommunications space. Device manufacturers are developing software, along with service divisions to help customers install and run the whole package. And integrated device manufacturers are now offering multiple types of content through multiple means of access (Exhibit 12).

The best example of a company crossing into other industries is **Apple**. Computer hardware

accounted for 100% of its revenues in 1999; today, that category accounts for only 44%. Revenue growth remained relatively flat until the introduction of the iPod in 2003. Since then, Apple's revenues have increased from \$6 billion to \$32 billion, as shown in Exhibit 13. Apple's transformation of the music and entertainment industry has had a halo effect on its computer hardware sales: In 2007, for the first time since the introduction of the iPod, hardware revenue

Exhibit 13 Apple revenue breakdown by category 1999-2008



Note: Numbers may not add up to 100 due to rounding.
Source: Apple annual reports, Oliver Wyman analysis.

grew as a percentage of total Apple revenues; in 2008 revenue from computers grew by 38% year-over-year. Not content to sidestep into media, Apple entered the communications sector in 2007; the iPhone accounted for \$1.8 billion of revenues in 2008.

Other top performers also operate across more than one sector and earn significant portions of their revenue from their cross-boundary activities. Specifically, all 13 communications firms among the top 20 SPI performers offer some form of packaged Internet, voice, and/or TV services, much as Iliad does. Some firms have innovated even further to deliver truly converged packages that seamlessly integrate voice, Internet, and TV services across devices and means of access.

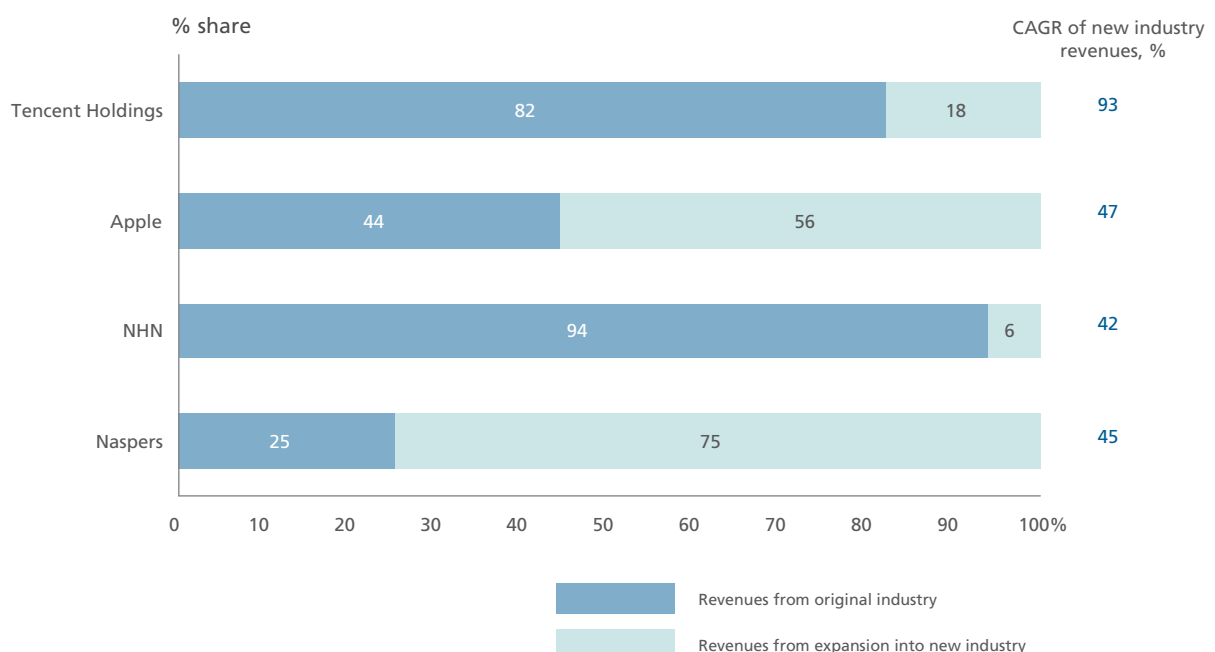
StarHub, the Singaporean telecommunications provider, captured a larger share of customer wallet by providing a truly unified user experience. For example, customers can watch their pay-TV offering online, on a TV, or on mobile devices. StarHub’s customers value the unified experience, with more than half of its customers subscribing to more than one service, and 38% subscribing to more than two services. These rates compare favorably to rates in the U.S., where, Oliver Wyman research indicates, only 20% of consumers purchase more than one ser-

vice from the same vendor, and fewer than 10% of users purchase double-plays. StarHub’s product innovations allowed it to increase revenues per household by 9% in 2007.

Beyond communications firms, four of the remaining seven top 20 SPI performers earn large percentages of their revenues from industries into which they have “trespassed,” and these revenues are growing rapidly (Exhibit 14).

As industries blur, aggressive companies need to understand ancillary or related industries as early as possible when developing new products or searching for growth opportunities. Defensive companies need to be wary of new competitors from other industries redefining their competitive environment. For example, spotting the growth in mobile connectivity and capability, **Qualcomm**, the handset chip manufacturer, is developing its Kayak chip to allow Internet access for home computing devices through cellular data networks without requiring a broadband connection. The chip can be installed in a TV or computer monitor. The move, if successful, has implications for semiconductor companies, PC manufacturers, and telecommunications firms alike. Similarly, Google’s Android mobile-phone platform robs mobile carriers of crucial customer information, such as usage and location.

Exhibit 14 SPI leaders’ revenues from boundary-blurring



Source: Company annual reports, Oliver Wyman analysis.

Free-Riding Innovations: A Quick Path to a New Business Model

As offers get more complex and varied, companies must think much harder about where to build capacity in-house and where to leverage external resources to create a sophisticated combination of assets that addresses customer needs and priorities. Rather than aiming to create the customer offer alone, companies need to think much harder about involving others and leveraging their own assets. Changing the compete/collaborate ratio within your industry or with your customers is one approach to achieving this. Another approach is to free-ride on other companies' asset bases, customers, or expertise, as the companies described in this section have done. This can be done within or outside of your sector, through formal partnerships, informal agreements, or through innovative product offerings.

Free-riding innovations are not totally new. **Netflix**, which redefined the video-rental sector with new delivery methods, took advantage of low-cost DVD players and the postal service's cheap, efficient distribution system to mail DVDs to its 8.7 million subscribers, without the asset-intensive store-based model of rival Blockbuster.

Brazilian mobile operator **Telemar** (through its Oi brand) shifted away from selling subsidized handsets to providing SIM cards—a new business model implemented through free-riding. Oi took advantage of the large installed base of subsidized handsets in Brazil—conveniently provided by Oi's competitors. Abandoning the handset-subsidized business model and using the 130 million cell phones already in use to reach their customers has allowed Oi to grow its market share to more than 15%, up from 10% in 2005, in the competitive Brazilian mobile market.

Some companies have taken a more collaborative approach to asset free-riding. **HTC**, the Taiwan-based smartphone manufacturer behind the T-Mobile G1 Android phone, recently released in partnership with Google, Qualcomm, and others, used the brand equity of its partners to help build an international brand for itself. The media attention that the Open Handset Alliance (OHA) garnered because of its high-profile member companies

helped draw attention to the former original device manufacturer (ODM). Leveraging its participation in the OHA, HTC launched its flagship Touch™ line of handsets, which sold over 3 million units within 11 months of its launch. In some Asian markets, the Touch Diamond phone now enjoys iconic status comparable to that of the iPhone in Western markets. As branded shipments increase, recent ODM orders accounted for less than one-tenth of overall shipments, highlighting the successful shift in HTC's customer base. Following strong growth in 2007, revenues continued to grow in 2008. In the third quarter, they reached NT\$37.9 billion (\$1.1 billion), a 30% increase on Q3 2007. In 2008, Taiwan's Bureau of Foreign Trade ranked HTC the fourth-most valuable brand in Taiwan, at \$1.2 billion.¹⁴

Free-riding CMT companies have looked beyond their own industry for opportunities. Casas Bahia, a major department-store chain in Brazil, has built in-house capabilities for assessing customer credit-worthiness. The chain was one of the first companies in Brazil to offer credit sales to low-income customers—and it has enjoyed very low rates of delinquency. **Grupo Positivo**, the top PC seller in Brazil, has capitalized on Casas Bahia's credit-checking capabilities to expand the market. Conventional wisdom in Brazil held that low-income consumers would never be able to afford a PC. By allying with the retailer (and offering an affordable \$12/month PC payment plan in Casas Bahia stores), Grupo Positivo has gained access to customers whom other PC manufacturers had ignored.

Grupo Positivo has a 15% overall market share, with a 34% market share in retail channels, and is now the No. 2 seller in all Latin America. From 2004 through 2007, Positivo's EBITDA grew at a 90% CAGR, and in 2007, the total units the company sold increased by 66% over 2006.

Whatever the economic climate, managers cannot ignore how market dynamics are evolving. As the companies profiled in this section illustrate, firms have continued to innovate and respond to changing consumer preferences and competitive threats. The more that a company can anticipate change, the better positioned it will be when the market picks up again.

¹⁴ HTC annual and quarterly reports.

Summary: Surviving the Storm and Setting a New Course

A crisis is a terrible thing to waste. Crisis presents the impetus and opportunity to act boldly and reposition your company to take advantage of the new winds of change in the CMT industry.

The challenges laid out in this report—the economic crisis, evolving global market demands, blurring of sector boundaries, new competitors in and from emerging markets—are difficult to manage individually, never mind concurrently. Staying the course is clearly not an option, but deciding which course to take is hardly clear. Companies that consciously consider how to chart their position and play to their natural strengths will be better positioned to change course as the winds shift—and achieve new growth and create shareholder value.

Chart Your Position

Reef the sails and batten down the hatches—that is the first order of business to survive the current storm. But one-time cost-cutting in reaction to a crisis is not often the only or best move. More long-term benefits will derive from setting in place strategic long-term, sustainable cuts that stretch across all operating divisions and are part of an overall operational excellence initiative.

Embracing asset-light strategies that leverage internal and external resources can help companies to serve customers and markets from a lower cost basis. Strategic workforce planning is equally important and clearly tied to real-estate and geographic operating decisions. Several large players are now relocating plants and employees closer to the emerging markets they serve, and have even created autonomous divisions to enable independent decision-making.

Demand-side operational excellence requires elimination or consolidation of less profitable product lines or services, or targeting high-value existing or new customer segments with a palette of rich choices. Provide customers with a more evolved value proposition that lets them choose their channel of delivery and method of payment. Respond to evolving customer needs, including demand for mobile Internet access, with higher-value packages in finance, retailing, or education.

Beyond the current economic crisis, longer-term underlying trends are radically altering the nature of the CMT industry, and bringing all sectors into closer conflict, competition, and potential collaboration.

Scan the Horizon

Competitors on your radar screen are likely getting larger and closer. And they may be coming at you from different directions. The larger global technology business, never a slow-moving or clear-cut arena, is getting faster and fuzzier. Geographic and sector boundaries are blurring, bringing new competitors and collaborators into your line of sight. The time has come to face the reality of new competition. Competing in advance is one antidote to the blurring of boundaries.

Beyond cost-cutting, benefits derive from longer-term initiatives such as embracing asset-light strategies and providing customers with a more evolved value proposition.

A few years ago, it would have been hard to imagine Apple in the music business, Google in the operating-system business, or Comcast in the phone business. Today, sector boundary-blurring has become more prevalent. Most telecommunication firms offer some sort of triple-play convergence with Internet, voice, and TV. All but three companies in the SPI top 20 derive some revenue from more than one industry sector, and several derive more than half their revenues from sectors into which they stepped without warning to incumbents. The most dramatic example, although for now on a relatively small scale, comes from emerging markets in Asia and Africa, where the boundaries between banking and telephony are blurring with mobile-banking products—people who a few years ago had neither phones nor bank accounts are now transferring money by phone.

Emerging-market players, expert in delivering to low-income consumers, are starting to encroach on developed markets.

The spread of market globalization has for years blurred once-static geographic boundaries, but it has usually been a one-way street from developed into developing markets. Today, a nascent variant of foreign-direct investment is emerging-market players encroaching on developed markets. Having honed customer offerings to appeal to low-income consumers, these new upstarts may prove very competitive with today's frugal Western consumers—if they adjust to the different operating environment of Western markets. Once these new entrants have established a beachhead, how long will it be before they use their customer-centric product design to quickly move up the value chain to attract high-end consumers?

But both sector and geographic boundary blurring create as many opportunities as threats. New entrants need allies and partners while they build their brands and distribution channels. Which strength can your company offer to support them—in exchange for reaching into new markets, customer segments, or product categories with your own branded offerings?

Anticipate Sea Change

Understanding how value is migrating within the CMT space will allow companies that can adapt or quickly retool to grow revenues. The fast and erratic pace of change requires constant re-evaluation and fine-tuning of strategy—to simultaneously react and anticipate.

In emerging markets, where both local and foreign investors have made massive investments in networks and other infrastructure and are now entrenched institutions, opportunities arise to provide new B2B services. Upside growth potential still abounds, given the huge and often underserved populations who are quickly turning into sophisticated, albeit low-end, consumers.

And the new cellular infrastructure opens up possibilities for content and service providers to leverage these golden new assets.

In the hardware sector, surging demand for mobile-Internet service creates opportunities for mobile, integrated, multiple-function devices that offer global connectivity. Demand for smartphones is surging everywhere, particularly in emerging markets such as India. Meanwhile, netbooks that are a cross between smartphones and laptops add a new sub-category to the already crowded mobile-device sector.

In the media sector, it's no secret that print and traditional advertising models have been lagging, which is a threat to stand-still companies. But a major opportunity is emerging on a new platform: Demand for content-rich and micro-targeted Internet applications and services that can be distributed on multiple devices is burgeoning.

That demand is a function of potentially the biggest sea change in the CMT space—the number of people around the world who use the Internet has doubled in the past five years, to around 1.5 billion. Many of these new users use mobile broadband connections, a far cry from the PC-bound first-generation users. A whole new cohort of all ages now depends on the Internet for services and transactions. Already, the Internet is a key distribution and transaction channel for virtually every industry. The customer relationship, once owned by the access provider, is now just as likely to be owned by the device provider. How long will it be before content providers gain more control?

As small-screen user interfaces evolve, mobile devices are becoming viable distribution platforms for film, advertising, music, and gaming, which may continue to create wrenching change within those sectors. As pay-by-mobile, which allows customers to wave their cell phones like wands to buy goods, becomes more prevalent, how will credit card and banking companies be affected? And how long will it be before a small mobile device replaces the wallet?

Boundary-blurring between industry sectors is becoming the norm, and anyone in the digital

world is a potential competitor—or partner. And customers, despite their current retrenchment, and whatever their income level, are continually moving upstream toward more sophisticated, integrated, transaction-oriented, devices—often leapfrogging technologies in their push toward the future.

Set a New Course

“A crisis is an opportunity riding a dangerous wind,” says another Chinese proverb. Assume you’ve reacted by cutting costs and expenditures as a percentage of revenues. That’s defense. Now it’s time to be anticipatory, to set a new course that will help you steer toward new markets and customers, and take advantage of new opportunities before your competitors do. That’s offense.

Business-model innovation—which may require no more than slyly stepping into another sector—is the best way to differentiate your company in a short period of time. Companies have moved from being an OEM or ODM to selling branded products; from selling hardware devices to selling SIM cards that alter those devices; to challenging incumbents in their home markets; and switching from postpaid to prepaid subscriber models.

Clearly, in a world of scarce resources, piggybacking on assets already deployed or infrastructure in place is a brilliant tactical move. The concept of leveraging others’ assets, of course, is not totally new. MVNOs have been using other companies’ frequency allocations to operate cell phone services for a decade. But companies are becoming more creative and bold about leveraging assets that belong to others, with or without consent.

What does all this bode for the CMT industry? In 2008, the industry lost 43% of shareholder value. That means it has to grow by 75% in 2009 just to get back to even. A daunting challenge indeed—but there are several hopeful signs.

In a world of scarce resources, piggybacking on assets already deployed or infrastructure in place can be a brilliant tactical move.

First, unlike the NASDAQ crash in 2001, when technology stocks were truly overvalued after the initial Internet craze, the current decline in market value in many cases is decoupled from financial results. Cisco is just one player that reported solid financial results in late 2008 (8% increase in year-on-year Q3 revenues, and earnings of \$2.2 billion, down only 0.2%) but whose stock price has taken a beating (down 45% in 2008). The global Internet age, propelled in large part by cellular technology, has finally arrived for real. Markets will continue to grow.

Second, the rapid spread of global connectivity via the cell phone and broadband technologies has created a broader information highway. This opens the gates for all GMT sectors and foreign investors to serve new markets—and makes it easier for emerging market companies to become foreign investors in developed economies. Even companies that missed the first phases of mobile and Internet expansion can easily grab the much larger opportunities that now await.

Third, companies with strong balance sheets entering the recession should be primed to exit in a position of enhanced power, perhaps after acquiring weaker competitors and entering new markets.

Finally, 2009 has to be better. Or does it? As we prepare for the year ahead, it would be wise to keep in mind the Chinese proverb that opened our report: “In crisis, cleverness is born.” ❖

Appendix

Oliver Wyman's Shareholder Performance Index

The Shareholder Performance Index (SPI) is a measure of adjusted shareholder returns over a five-year period. It is adjusted for risk, volatility, and mergers and acquisitions. It is an ideal measure for senior executives, boards of directors, and investors who want to compare the medium-term performance of companies across sectors and regions.

The SPI Top 450 are the 450 top performing CMT companies in the world based on their SPI scores.

Advantages of the SPI over Other Performance Measures

Adjusted for Risk

The SPI is adjusted for risk using the risk-free interest rate for each company's home country. (For the U.S., that is the 3-month Treasury bill rate.) If two companies have the same returns and volatility, the company in the country with the lower risk-free rate will receive the higher SPI score.

Adjusted for Volatility

The SPI is adjusted for volatility using the standard deviation of the monthly excess returns

(monthly returns less the relevant risk-free interest rate). If two companies in the same country have the same returns, the company whose returns displayed less volatility will receive the higher SPI score.

Adjusted for Mergers and Acquisitions

The SPI is adjusted for M&A financed at least in part with stock. This provides a more accurate view of the medium-term performance of companies that have been involved in an M&A transaction in the past five years.

Five-Year Time Horizon

The SPI is designed to measure performance over the medium term, so it is calculated over a five-year window (Dec. 31, 2003 to Dec. 31, 2008). This has two important consequences:

- Changes in a company's SPI score from year to year do not solely reflect performance in the last year; rather, they reflect a shift in that company's performance over the last five years.
- Short-term market turbulence does not exert undue influence on the SPI.

Calculation of the SPI

$$\text{SPI (firm)} = [\text{Sharpe Ratio (firm)} - \text{Sharpe Ratio (median firm)}] \times 1000 + 100$$

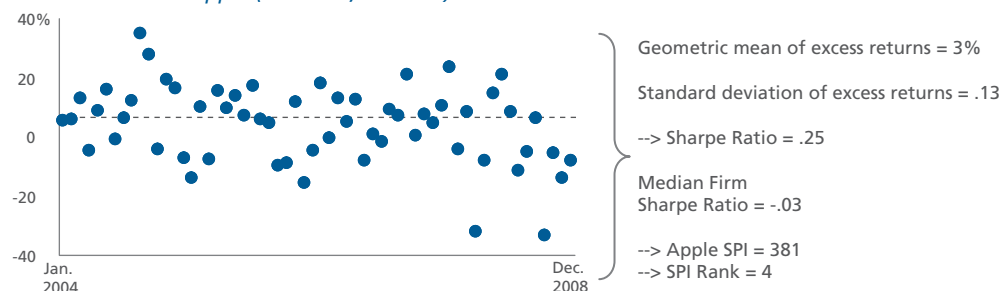
$$\text{Sharpe Ratio} = \frac{\text{Geometric mean (Excess returns)}}{\text{Standard deviation (Excess returns)}}$$

Excess return = monthly shareholder returns minus the relevant risk free interest rate

In cases where the geometric mean is negative, the Sharpe ratio is multiplied by an adjustment factor to control for volatility in down markets. The adjustment factor equals the standard deviation squared divided by the median standard deviation squared.

Illustration of the SPI

Excess returns for Apple (SPI = 381; rank = 4)



The largest 25 companies by market value, year-end 2008

Name	SPI	Market value (\$ billions)	Market value growth*
1 China Mobile (Greater China)	345	201.3	27%
2 Microsoft (U.S.)	94	172.9	-10%
3 AT&T (U.S.)	204	168.0	5%
4 IBM (U.S.)	111	113.1	-7%
5 Vodafone Group (U.K.)	125	104.9	-9%
6 Telefonica (Spain)	252	103.7	7%
7 Verizon (U.S.)	163	96.3	-1%
8 Cisco (U.S.)	63	95.4	-11%
9 Oracle (U.S.)	164	89.5	5%
10 Hewlett-Packard (U.S.)	224	87.7	5%
11 Intel (U.S.)	23	81.5	-17%
12 Nippon Telgraph & Telephone (Japan)	124	81.3	1%
13 Apple (U.S.)	381	75.9	57%
14 Google (U.S.)	270	73.7	101%
15 France Telecom (France)	127	72.5	1%
16 Deutsche Telekom (Germany)	106	65.1	-3%
17 Qualcomm (U.S.)	166	59.3	7%
18 Nokia (Finland)	93	58.6	-7%
19 Nintendo (Japan)	350	52.7	32%
20 Samsung Electronics (South Korea)	109	52.7	-2%
21 SAP (Germany)	86	42.7	-4%
22 Disney (U.S.)	124	42.0	-4%
23 Canon (Japan)	116	40.8	0%
24 Time Warner (U.S.)	58	36.1	-14%
25 Comcast (U.S.)	85	34.8	-5%

*The CAGRs for these companies were calculated from Dec. 31, 2003 to Dec. 31, 2008, except for Google, which was calculated from its IPO in August 2004.
Source: Datastream, Oliver Wyman analysis.

Top 60 CMT performers, by size of market capitalization

Super-large cap: >\$35 billion			Large cap: Between \$5 billion and \$35 billion			Medium cap: <\$5 billion		
Name	SPI	Market value (\$ billions)	Name	SPI	Market value (\$ billions)	Name	SPI	Market value (\$ billions)
Apple (U.S.)	381	75.9	Tencent Holdings (Greater China)	442	11.6	Starhub (Singapore)	371	2.3
Nintendo (Japan)	350	52.7	Bharti Airtel (India)	421	27.9	NHN (South Korea)	344	5.0
China Mobile (Greater China)	345	201.3	Chunghwa Telecom (Greater China)	398	18.9	Entel (Chile)	344	2.6
Google (U.S.)	270	73.7	Rogers Communications (Canada)	374	15.5	Hutchison Telecomm. Int'l (G.Ch.)	339	1.3
Telefonica (Spain)	252	103.7	America Movil (Mexico)	369	32.3	Vivo Minas (Brazil)	324	0.8
Hewlett-Packard (U.S.)	224	87.7	Maroc Telecom (Morocco)	365	16.8	ANSYS (U.S.)	317	2.5
AT&T (U.S.)	204	168.0	HTC (Greater China)	349	7.5	Autonomy (U.K.)	315	3.0
Qualcomm (U.S.)	166	59.3	Naspers (South Africa)	347	7.3	SBA Communications (U.S.)	310	1.9
Oracle (U.S.)	164	89.5	MTN Group (South Africa)	337	21.9	Quality Systems (U.S.)	300	1.2
Verizon (U.S.)	163	96.3	Shaw Communications (Canada)	337	7.1	Concur Technologies (U.S.)	292	1.6
France Telecom (France)	127	72.5	American Tower (U.S.)	327	11.6	Empresas Cablevision (Mexico)	289	0.9
Vodafone Group (U.K.)	125	104.9	KPN Kon (Netherlands)	323	24.7	Far Eastone Telecommunications (G.Ch.)	289	3.7
Nippon Telgraph & Telephone (Japan)	124	81.3	Taiwan Mobile (Greater China)	303	5.6	Indra Sistemas (Spain)	283	3.7
Disney (U.S.)	124	42.0	Philippine Long Distance Tel. Co.(Philippines)	286	8.3	Iliad (France)	283	4.7
Canon (Japan)	116	40.8	Telmex (Mexico)	281	10.4	VTech (Greater China)	278	1.0
IBM (U.S.)	111	113.1	Carso Global Telecom (Mexico)	281	13.9	Software (Germany)	268	1.6
Samsung Electronics (South Korea)	109	52.7	Eutelsat Communications (France)	278	5.2	Aisino (Greater China)	255	2.3
Deutsche Telekom (Germany)	106	65.1	SES (Luxembourg)	255	9.5	Asseco Poland (Poland)	253	1.2
Microsoft (U.S.)	94	172.9	Brasil Telecom (Brazil)	250	5.9	CompleTel (France)	248	0.9
Nokia (Finland)	93	58.6	RIM (Canada)	249	22.7	UFIDA Software (Greater China)	244	1.5

Source: Datastream, Oliver Wyman analysis.

Sector classifications

As stated above, Oliver Wyman defines CMT broadly. We view CMT as a complex, global industry with many interrelated sectors. For the purposes of evaluating performance between and within sectors, however, we have classified our SPI 450 firms into one of the three sectors (Communications, Media, and Technology) and twelve sub-sectors described in the table below.

As discussed in the New Routes to Innovation section, in many cases companies earn revenues from

a number of CMT sectors, and because of this, classifying companies can be difficult. We based our classification taxonomy on industry classification codes from Datastream supplemented with a review of the revenue mix at individual companies. Over time, these classifications are evolving: for instance, although Apple is classified as a hardware company in this year's report, if its revenue mix changes sufficiently in the future, it could be re-categorized as a communications hardware firm or an online content and services provider.

Sector descriptions

Sector	Sub-sector	Explanation	Company examples
Communications	Cable	Offer television access through subscriptions (includes satellite TV)	Comcast, DirecTV, Time Warner
	Fixed and mobile	Operate fixed-line and/or wireless telecommunications services (includes Internet service providers)	América Móvil, AT&T
Media	Broadcast and entertainment	Offer channel broadcasting and/or entertainment media	Discovery, Netflix, TV Tokyo
	Media agencies	Advertising and media consultancy agencies	Ipsos, Teleperformance, WPP Group, Omnicom Group
	Online content and services	Internet-based businesses providing content access or services	Google, So-Net M3, Tencent
	Publishing	Publishers of news media or other information	Dun & Bradstreet, Gartner
Technology	Communications hardware	Provide telecommunications equipment and devices	American Tower, Alcatel-Lucent, Cisco, Nokia
	Computer services	Provide IT services to businesses	Accenture, Infosys
	Consumer electronics	Offer consumer-targeted electronic products	Nintendo, Samsung Electronics
	Hardware	Provide computer and electronic equipment	Acer, Dell, Lenovo
	Semiconductors	Manufacturers of semiconductors	AMD, Intel, Texas Instruments,
	Software	Provide computer software	McAfee, Oracle, Autodesk

Performance tables by sector, 2008

■ Fixed and mobile communications

Top 20, ranked by SPI

Name	SPI	Market value (\$ billions)
1 Bharti Airtel (India)	421	27.9
2 Chunghwa Telecom (Greater China)	398	18.9
3 Starhub (Singapore)	371	2.3
4 América Móvil (Mexico)	369	32.3
5 Maroc Telecom (Morocco)	337	16.8
6 China Mobile (Greater China)	345	201.3
7 Entel (Chile)	344	2.6
8 Hutchison Telecommunications International (Greater China)	339	1.3
9 MTN Group (South Africa)	365	21.9
10 Vivo Minas (Brazil)	324	0.8
11 KPN Kon (Netherlands)	323	24.7
12 Taiwan Mobile (Greater China)	303	5.6
13 Far Eastone Telecommunications (Greater China)	289	3.7
14 Philippine Long Distance Telephone Company (Philippines)	286	8.3
15 Iliad (France)	283	4.7
16 Telmex (Mexico)	281	10.4
17 Carso Global Telecom (Mexico)	281	13.9
18 Telefónica (Spain)	252	103.7
19 Brasil Telecom (Brazil)	250	5.9
20 CompleTel (France)	248	0.9

■ Media

Top 20, ranked by SPI

Name	SPI	Market value (\$ billions)
1 Tencent Holdings (Greater China)	442	11.6
2 Naspers (South Africa)	347	7.3
3 NHN (South Korea)	344	5.0
4 Eutelsat Communications (France)	278	5.2
5 Google (U.S.)	270	73.7
6 Jetix Europe (Netherlands)	233	1.3
7 Interactive Data (U.S.)	231	2.3
8 Dun & Bradstreet (U.S.)	222	4.2
9 Toho (Japan)	222	4.0
10 Televisa (Mexico)	221	7.2
11 TVN (Poland)	219	1.6
12 Factset Research Systems (U.S.)	215	2.1
13 Hunan TV & Broadcast (China)	204	0.8
14 Morningstar (U.S.)	199	1.7
15 So-Net M3 (Japan)	186	0.9
16 Gartner (U.S.)	180	1.7
17 Dolby Laboratories (U.S.)	168	1.7
18 TV Tokyo (Japan)	168	1.0
19 Teledperformance (France)	162	1.6
20 Sohu.Com (Greater China)	160	1.8

■ Cable

Top 18, ranked by SPI

Name	SPI	Market value (\$ billions)
1 Rogers Communications (Canada)	374	15.5
2 Shaw Communications (Canada)	337	7.1
3 Empresas Cablevision (Mexico)	289	0.9
4 Cogeco Cable (Canada)	236	0.9
5 DIRECTV (U.S.)	173	24.1
6 Beijing Gehua Catv Network (Greater China)	161	1.5
7 Jupiter Telecommunications (Japan)	155	7.2
8 Cablevision Systems (U.S.)	120	3.9
9 Comcast (U.S.)	85	34.8
10 Sky Network Television (New Zealand)	84	0.8
11 British Sky Broadcasting (U.K.)	78	12.1
12 Liberty Global (U.S.)	78	2.3
13 Time Warner (U.S.)	58	36.1
14 Astro All Asia Networks (Malaysia)	45	1.2
15 Zon Multimedia (Portugal)	37	1.6
16 SKY Perfect JSAT (Japan)	20	1.6
17 Viacom (U.S.)	-6	10.6
18 Dish Network (U.S.)	-33	2.3

Note: there are only 18 cable companies in the SPI 450.

Top 20, ranked by market value

Name	SPI	Market value (\$ billions)
1 China Mobile (Greater China)	345	201.3
2 AT&T (U.S.)	204	168.0
3 Vodafone Group (U.K.)	125	104.9
4 Telefónica (Spain)	252	103.7
5 Verizon (U.S.)	163	96.3
6 Nippon Telgraph & Telephone (Japan)	124	81.3
7 France Telecom (France)	127	72.5
8 Deutsche Telekom (Germany)	106	65.1
9 Telstra (Australia)	110	33.2
10 América Móvil (Mexico)	369	32.3
11 KDDI (Japan)	149	31.4
12 China Unicom (Greater China)	172	28.5
13 Singapore Telecom (Singapore)	239	28.2
14 Bharti Airtel (India)	421	27.9
15 KPN Kon (Netherlands)	323	24.7
16 TeliaSonera (Sweden)	190	22.1
17 MTN Group (South Africa)	337	21.9
18 Telecom Italia (Italy)	64	21.4
19 Softbank (Japan)	167	19.1
20 Chunghwa Telecom (Greater China)	398	18.9

Top 20, ranked by market value

Name	SPI	Market value (\$ billions)
1 Google (U.S.)	270	73.7
2 Disney (U.S.)	124	42.0
3 Thomson Reuters (Canada)	126	18.6
4 Yahoo (U.S.)	-16	16.9
5 News Corporation (U.S.)	22	16.5
6 Tencent Holdings (Greater China)	442	11.6
7 RTL Group (Luxembourg)	113	8.9
8 Omnicom Group (U.S.)	80	8.4
9 Reed Elsevier (U.K.)	125	8.0
10 Dai Nippon Printing (Japan)	98	7.6
11 Pearson (U.K.)	128	7.5
12 McGraw-Hill (U.S.)	77	7.3
13 Naspers (South Africa)	347	7.3
14 WPP Group (U.K.)	89	7.3
15 Televisa (Mexico)	221	7.2
16 Mediaset (Italy)	61	6.7
17 Dentsu (Japan)	79	5.4
18 Wolters Kluwer (Netherlands)	159	5.4
19 Lagardère Groupe (France)	85	5.3
20 Toppan Printing (Japan)	84	5.3

Top 18, ranked by market value

Name	SPI	Market value (\$ billions)
1 Time Warner (U.S.)	58	36.1
2 Comcast (U.S.)	85	34.8
3 DIRECTV (U.S.)	173	24.1
4 Rogers Communications (Canada)	374	15.5
5 British Sky Broadcasting (U.K.)	78	12.1
6 Viacom (U.S.)	-6	10.6
7 Jupiter Telecommunications (Japan)	155	7.2
8 Shaw Communications (Canada)	337	7.1
9 Cablevision Systems (U.S.)	120	3.9
10 Dish Network (U.S.)	-33	2.3
11 Liberty Global (U.S.)	78	2.3
12 SKY Perfect JSAT (Japan)	20	1.6
13 Zon Multimedia (Portugal)	37	1.6
14 Beijing Gehua Catv Network (China)	161	1.5
15 Astro All Asia Networks (Malaysia)	45	1.2
16 Cogeco Cable (Canada)	236	0.9
17 Empresas Cablevision (Mexico)	289	0.9
18 Sky Network Television (New Zealand)	84	0.8

■ Consumer electronics

Top 20, ranked by SPI

Name	SPI	Market value (\$ billions)
1 Nintendo (Japan)	350	52.7
2 VTech (Greater China)	278	1.0
3 Activision (U.S.)	246	11.4
4 Ubisoft (France)	224	1.8
5 Samsung Techwin (South Korea)	196	1.7
6 LG (South Korea)	142	8.6
7 Samsung Electronics (South Korea)	109	52.7
8 Panasonic (Japan)	101	30.1
9 Sega (Japan)	100	3.2
10 Konami (Japan)	94	3.6
11 Olympus (Japan)	92	5.2
12 Namco Bandai (Japan)	87	2.7
13 Philips Electronics (Netherlands)	70	18.7
14 Lite-On Technology (Greater China)	67	1.5
15 Nikon (Japan)	53	4.7
16 Garmin (U.S.)	37	3.9
17 Sony (Japan)	29	21.3
18 Konica Minolta (Japan)	6	4.0
19 Casio Computer (Japan)	4	1.7
20 Sharp (Japan)	-1	7.8

■ Software and services

Top 20, ranked by SPI

Name	SPI	Market value (\$ billions)
1 ANSYS (U.S.)	317	2.5
2 Autonomy (U.K.)	315	3.0
3 Quality Systems (U.S.)	300	1.2
4 Concur Technologies (U.S.)	292	1.6
5 Indra Sistemas (Spain)	283	3.7
6 Software (Germany)	268	1.6
7 Asseco Poland (Poland)	253	1.2
8 UFIDA Software (Greater China)	244	1.5
9 NAVTEQ (U.S.)	242	7.7
10 Cerner (U.S.)	241	3.1
11 McAfee (U.S.)	240	5.3
12 Micro Focus International (U.K.)	219	0.8
13 Neusoft (Greater China)	213	1.6
14 Wincor Nixdorf (Germany)	212	1.5
15 Capcom (Japan)	202	1.5
16 Otsuka (Japan)	200	1.4
17 Salesforce.Com (U.S.)	194	3.9
18 Equinix (U.S.)	193	2.0
19 Temenos (Switzerland)	186	0.8
20 Cognizant Technology Solutions (U.S.)	180	5.3

■ Hardware and semiconductors

Top 20, ranked by SPI

Name	SPI	Market value (\$ billions)
1 Apple (U.S.)	381	75.9
2 HTC (Greater China)	349	7.5
3 American Tower (U.S.)	327	11.6
4 SBA Communications (U.S.)	310	1.9
5 Aisino (China)	255	2.3
6 SES (Luxembourg)	255	9.5
7 RIM (Canada)	249	22.7
8 ZTE (Greater China)	232	4.5
9 Harris (U.S.)	231	5.1
10 Hewlett-Packard (U.S.)	224	87.7
11 Powertech Technology (Greater China)	223	1.0
12 Byd Company Ltd (Greater China)	221	0.9
13 Comtech Telecommunications (U.S.)	213	1.1
14 Crown Castle International (U.S.)	194	5.1
15 Hittite Microwave (U.S.)	192	0.9
16 NCR (U.S.)	183	2.2
17 F5 Networks (U.S.)	180	1.8
18 Micros Systems (U.S.)	177	1.3
19 Acer (Greater China)	172	3.4
20 Tandberg (Norway)	169	1.2

Top 20, ranked by market value

Name	SPI	Market value (\$ billions)
1 Nintendo (Japan)	350	52.7
2 Samsung Electronics (South Korea)	109	52.7
3 Panasonic (Japan)	101	30.1
4 Sony (Japan)	29	21.3
5 Philips Electronics (Netherlands)	70	18.7
6 Activision (U.S.)	246	11.4
7 LG (South Korea)	142	8.6
8 Sharp (Japan)	-1	7.8
9 Olympus (Japan)	92	5.2
10 Electronic Arts (U.S.)	-76	5.1
11 Nikon (Japan)	53	4.7
12 Konica Minolta (Japan)	6	4.0
13 Garmin (U.S.)	37	3.9
14 Konami (Japan)	94	3.6
15 Sanyo Electric (Japan)	-122	3.4
16 Sega (Japan)	100	3.2
17 Namco Bandai (Japan)	87	2.7
18 Ubisoft (France)	224	1.8
19 Eastman Kodak (U.S.)	-80	1.8
20 Samsung Techwin (South Korea)	196	1.7

Top 20, ranked by market value

Name	SPI	Market value (\$ billions)
1 Microsoft (U.S.)	94	172.9
2 IBM (U.S.)	111	113.1
3 Oracle (U.S.)	164	89.5
4 SAP (Germany)	86	42.7
5 Accenture (U.S.)	162	19.9
6 Infosys Technologies (India)	177	13.1
7 Symantec (U.S.)	36	11.3
8 Adobe Systems (U.S.)	134	11.3
9 CA (U.S.)	74	9.6
10 Tata Consultancy Services (India)	85	9.6
11 NAVTEQ (U.S.)	242	7.7
12 Intuit (U.S.)	98	7.6
13 Wipro (India)	61	7.0
14 Cap Gemini (France)	76	5.6
15 Computer Sciences Corporation (U.S.)	81	5.3
16 Dassault Systèmes (France)	110	5.3
17 McAfee (U.S.)	240	5.3
18 Cognizant Technology Solutions (U.S.)	180	5.3
19 BMC Software (U.S.)	176	5.0
20 Trend Micro (Japan)	148	4.8

Top 20, ranked by market value

Name	SPI	Market value (\$ billions)
1 Cisco (U.S.)	63	95.4
2 Hewlett-Packard (U.S.)	224	87.7
3 Intel (U.S.)	23	81.5
4 Apple (U.S.)	381	75.9
5 Qualcomm (U.S.)	166	59.3
6 Nokia (Finland)	93	58.6
7 Canon (Japan)	116	40.8
8 Taiwan Semiconductor Manufacturing (Greater China)	127	34.7
9 RIM (Canada)	249	22.7
10 Ericsson (Sweden)	103	22.2
11 EMC (U.S.)	78	21.4
12 Texas Instruments (U.S.)	29	20.1
13 Dell (U.S.)	-62	19.9
14 Corning (U.S.)	88	14.8
15 Hon Hai Precision Industry (Greater China)	141	14.5
16 Kyocera (Japan)	119	13.5
17 Applied Materials (U.S.)	23	13.5
18 Toshiba (Japan)	121	13.1
19 Hitachi (Japan)	48	12.8
20 American Tower (U.S.)	327	11.6

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