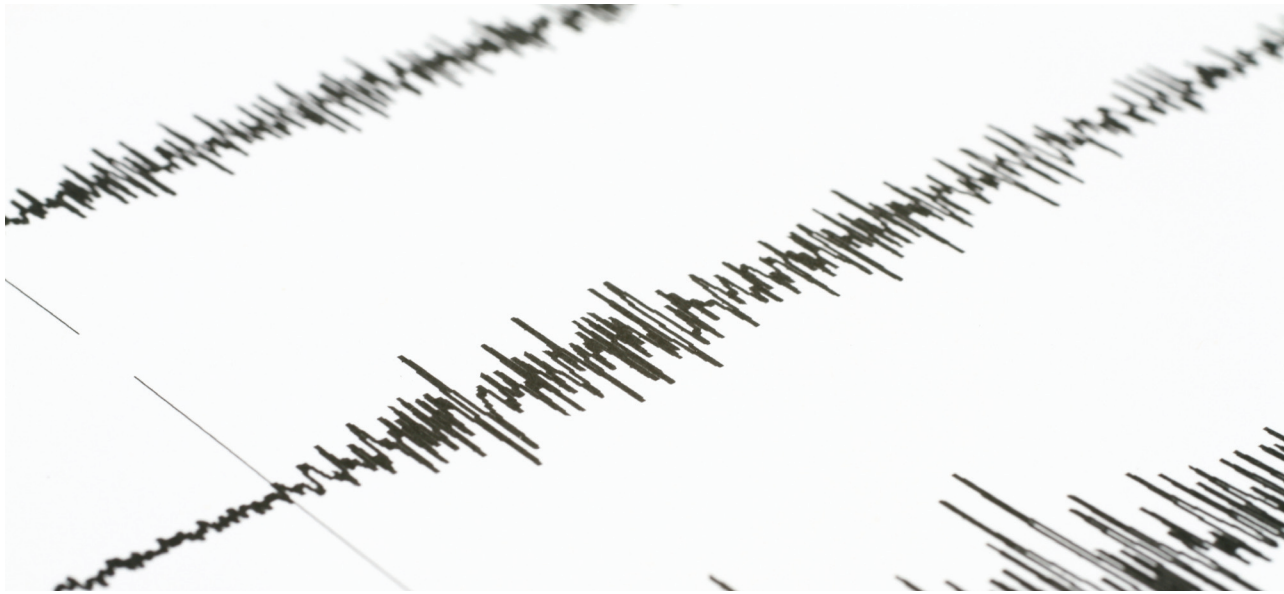


Research

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# Value Shifts in the Telecom, Media, and Technology Industries

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## EXECUTIVE SUMMARY

*Between 2006 and 2010, revenues in the telecom, media, and technology (TMT) industry grew 38 percent, from US\$3.15 trillion to \$4.36 trillion. Yet that impressive rate of growth—an average of 8.4 percent annually—hides a critical fact: Despite all appearances, the industry’s sources of revenues and profits from sector to sector remained relatively stable. Still, a closer examination of the data suggests several subtler shifts in value that will have long-term consequences for every player in the industry.*

That is the primary finding of Booz & Company’s recent study of how and where value is shifting in the TMT industry. This study provides a detailed, data-driven analysis of the industry’s winners and losers over the past five years, and of the primary sources of revenue in each of the industry’s five sectors—network operations, hardware, IT services and software, content, and intermediation—across the globe. We also examine how players in each sector are attempting to move into adjacent sectors in search of growth.

Network operations remains the largest sector in the industry, the study reveals, but efforts by network operators to expand into other sectors have

been slow to bear fruit. Content and hardware companies and IT services and software players have similarly struggled to expand. Meanwhile, despite attempts by various players to move into intermediation, this sector has become increasingly dominated by just a few players. The hardware infrastructure sector had an extraordinary rebound in 2010, growing more than any other TMT sector, including intermediation. Such growth in infrastructure investments is usually a sign of a new wave of growth for the industry as a whole. Finally, although the share of revenues derived from emerging markets has increased slightly, the vast majority of the industry’s overall revenue growth, in absolute terms, came from mature markets.

## KEY FINDINGS

- Despite a 2 percent decline in 2009, the TMT industry grew at an average annual rate of 8.4 percent over the past five years.
- Revenues in emerging markets have grown at 12.6 percent annually since 2006, significantly above the rate of mature markets. In absolute terms, however, developed markets captured most of the added revenues.
- Network operators took in the lion's share of total TMT revenues—41 percent in 2010, up from 39 percent in 2006.
- The content sector grew just 4.9 percent over the period, due to new digital business models and the impact of the recession on advertising.
- The intermediation sector grew more than 17 percent per year over the period, with the pure intermediation players capturing most of that growth.

## REAL GROWTH IN TMT

The past five years have witnessed considerable turmoil in the TMT industry. New entertainment and social networking platforms appear on the Internet almost daily. Sales of smartphones have skyrocketed in mature markets since their introduction just a few years ago, while new devices such as tablet computers have become consumer favorites. The amount of data

flowing over cable, satellite, and fixed and mobile networks has exploded, even as traditional media grapples to defend its current model and devise new ways of generating profits online. And emerging markets are experiencing rapid growth in mobile subscriptions and the use of the Internet.

Despite all the activity, however, companies in every sector of the TMT industry continue to struggle to understand where the real sources of value in their businesses lie, how that value is shifting from company to company and from sector to sector, and where to place their bets for future growth. To help TMT executives better understand these value shifts, Booz & Company has analyzed how the total revenue in the TMT industry is distributed among its five sectors—

network operations, hardware, IT services and software, content, and intermediation—and how that revenue is shifting from one sector to another over time. The index is based on an analysis of financial information reported by the top publicly traded companies participating in each sector over the past five years.

Most of the sectors are dominated by a specific type of company; the vast majority of companies in the network operations sector, for instance, are telecom operators (*see Exhibit 1*). Still, every sector includes a mix of participating companies—almost half of the revenue from the IT services and software sector goes to companies whose

primary source of revenue is network operations—and many companies in the TMT industry operate in more than one sector.

Therefore, in this Research, we consider the TMT industry from two different perspectives:

**Exhibit 1**  
*Sector Descriptions and Participating Companies*

Sector	Description	Examples of Companies with Primary Focus in Sector
<b>Network Operations</b>	Revenues derived from providing access to fixed and mobile voice and data networks, and from operating cable and satellite TV broadcasting networks.	AT&T, Comcast, Deutsche Telekom, Orange, Telefónica, Verizon, Vodafone
<b>Hardware</b>	Revenues stem from manufacturing hardware products, including telecommunications equipment, computers and peripherals, mobile handsets, and other consumer electronics.	Alcatel-Lucent, Apple, IBM, Intel, Nokia
<b>IT Services &amp; Software</b>	Revenues come from developing enterprise and consumer software and applications, and from providing telecom and IT services.	Infosys, Microsoft, NTT Data, Oracle, SAP
<b>Content</b>	Sources of revenue include content production and aggregation, including movies, TV shows, books, music, news, and games.	News Corp., Thomson Reuters, Time Warner, Viacom, Walt Disney
<b>Intermediation</b>	Revenues stem from intermediation between people and merchants.	AOL, eBay, Google, IAC Interactive, Yahoo

Source: Bloomberg data; Booz & Company analysis

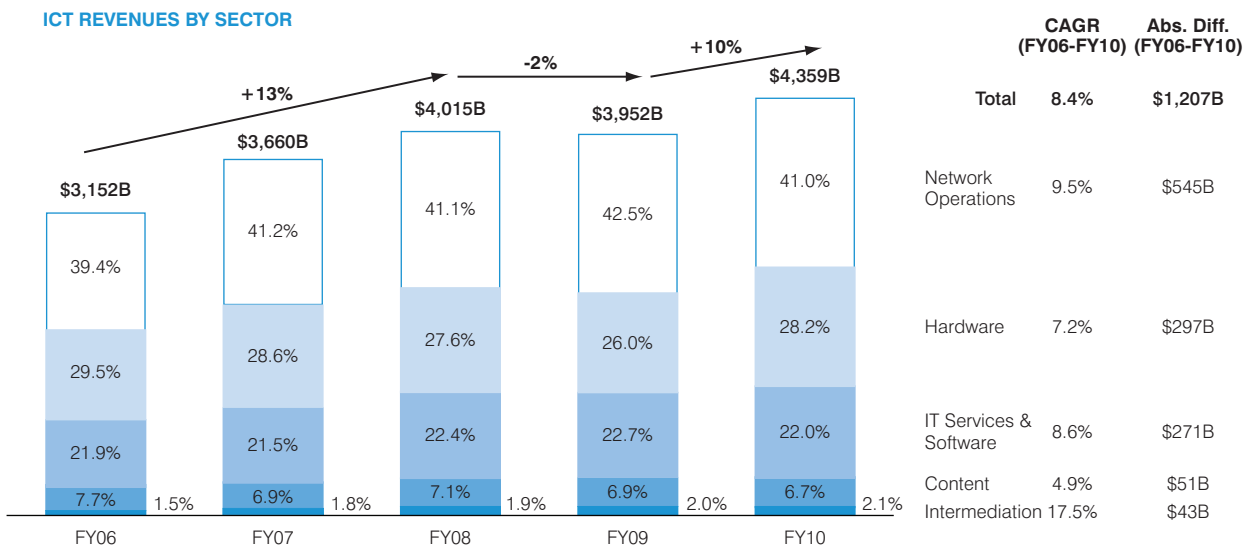
- *The company view:* Here we look at value from the perspective of the players, no matter what sector they derive revenues from. The total revenues taken in by the network operators, for example, could include revenues from online advertising, as is the case with Orange. This view lets us analyze how companies whose primary business is in one sector are gaining ground as they encroach on other sectors.
- *The sector view:* Here we look at value as the revenues generated in any given sector, without taking into

account the primary sector of the players that derive these revenues. Thus, Orange’s online advertising revenues would be included in the intermediation sector, not in network operations. This allows us to see the overall changes in revenue in each sector, without considering which companies are creating that value (see “Methodology,” page 16).

Overall, in 2010, revenues in the TMT industry totaled almost \$4.4 trillion. Of that total, the network operations sector took in the largest portion (41

percent), followed by hardware (about 28 percent), and software and services (22 percent). The other two sectors, content and intermediation—which includes search, portals, and e-commerce companies—brought in just 6.7 and 2.1 percent, respectively. Despite a 2 percent drop in revenues between 2008 and 2009, the TMT industry grew a robust 8.4 percent a year, on average, over the entire period (see Exhibit 2). In 2010, mature markets accounted for 76 percent of total revenues, a decline of four percentage points from their 80 percent share in 2006.

Exhibit 2  
TMT Industry Revenue Growth, 2006-10



Source: Bloomberg data; Booz & Company analysis

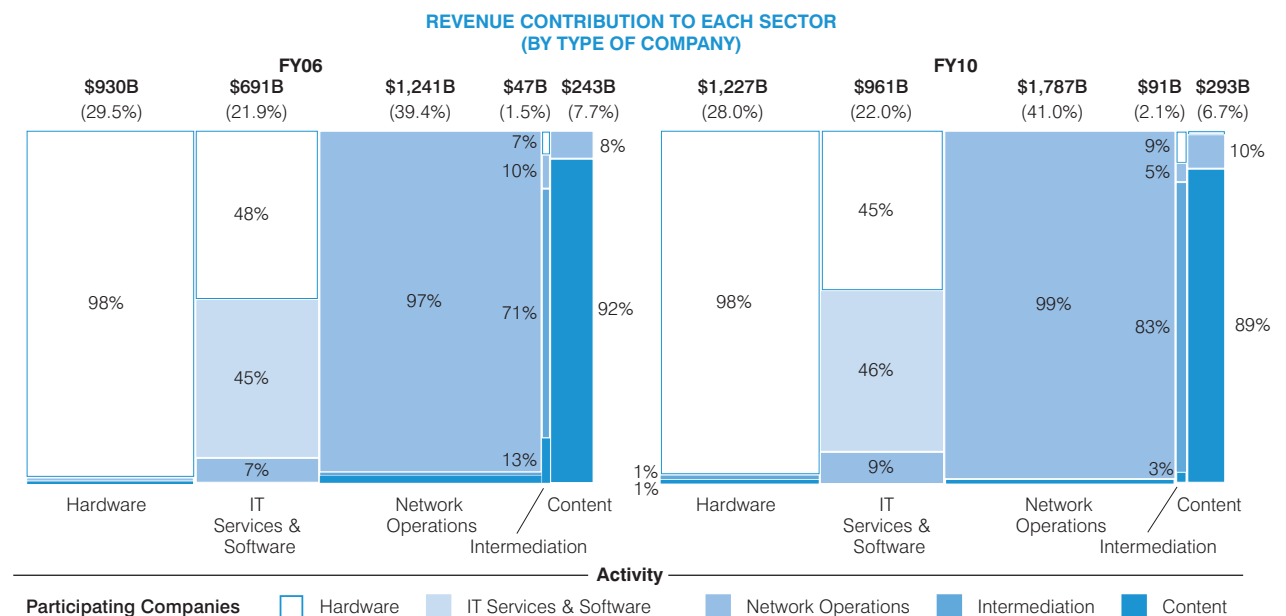
A high-level view of these results reveals several critical observations. First, we see a subtle shift in the geographic sources of value in the industry over the past five years. Although most of the industry's growth, in absolute terms, is still being generated by companies in mature markets, emerging markets saw their overall share of total TMT revenues grow from 20 to 24 percent.

An analysis of the revenue contributed by companies in each of the five sectors reveals several other critical trends (see Exhibit 3). First, companies continue to generate most of their growth in their core activities. Network operators, for instance, continue to increase their share of the industry's overall value, but they are losing the battle for new value-added services to specialist companies in the intermediation sector.

And overall, the hardware and content sectors have lost share, while Internet players have established their dominance in the intermediation sector.

A closer examination reveals how each sector is faring as it looks for new sources of growth in the rapidly evolving TMT arena.

**Exhibit 3**  
**Comparison of Value in the TMT Industry by Sector, 2006 and 2010**



Note: Numbers may not add up due to rounding.  
 Source: Bloomberg data; Booz & Company analysis

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## NETWORK OPERATIONS STILL DOMINATES

Network operations continues to be the largest sector in the industry—indeed, it has increased its share of revenues from 39.4 percent in 2006 to about 41 percent in 2010. Five large operators—AT&T, Deutsche Telekom, NTT, Telefónica, and Verizon—dominate the sector, accounting for more than \$500 billion of revenue, or 29 percent of the sector’s total value. And the sector has also grown the fastest in absolute terms, with \$545 billion more in revenues in 2010 than in 2006. The share of revenues generated in emerging markets is growing at almost three times the rate in mature markets—20.1 versus 7.3 percent. However, absolute revenues for

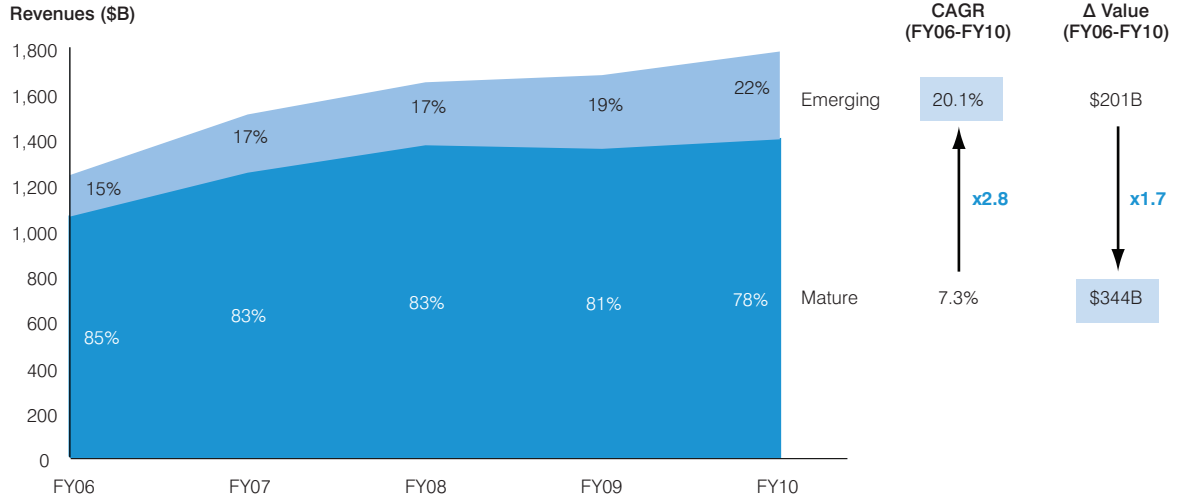
telecom operators in mature markets increased by \$344 billion between 2006 and 2010, significantly more than the \$201 billion increase for operators in emerging markets (*see Exhibit 4*).

Despite their size and robust growth, however, network operators have not succeeded in diversifying their sources of revenues significantly. Some operators, including AT&T, BT, and Deutsche Telekom, have managed to maintain their presence in IT services, still the largest area of diversification, at 4.5 percent of operator revenues. But again, few have succeeded in boosting noncore revenues (*see Exhibit 5*).

*Despite their size and robust growth, network operators have not succeeded in diversifying their sources of revenues significantly.*

**Exhibit 4**  
**Network Operations Growth, Mature vs. Emerging Markets, 2006-10**

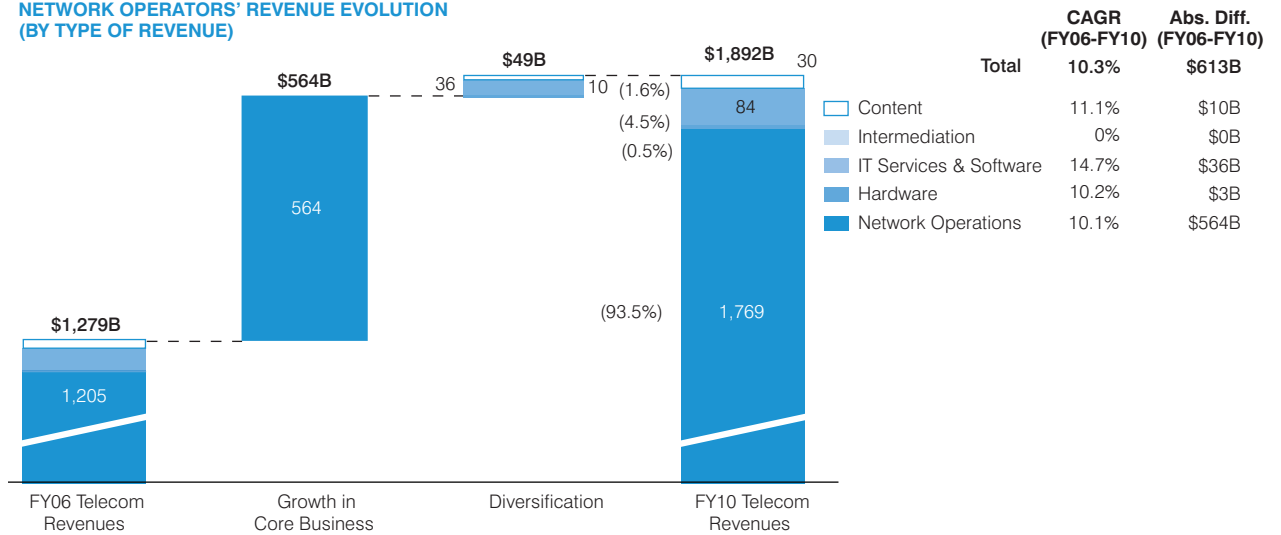
**NETWORK OPERATIONS REVENUES  
 (BY TYPE OF MARKET)**



Source: Bloomberg data; Booz & Company analysis

**Exhibit 5**  
**Diversification of Network Operator Revenues, 2006-10**

**NETWORK OPERATORS' REVENUE EVOLUTION  
 (BY TYPE OF REVENUE)**



Note: Numbers may not add up due to rounding.  
 Source: Bloomberg data; Booz & Company analysis

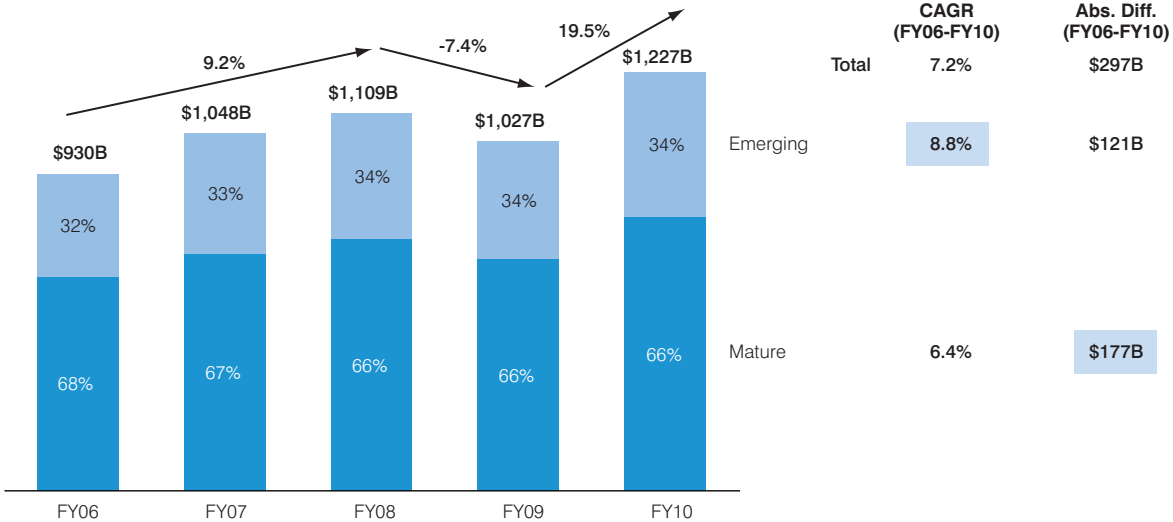
# HARDWARE GETS A BOOST

A significant portion of the growth in the hardware sector has come from emerging markets, where revenues have increased 8.8 percent annually since 2006, compared with 6.4 percent in mature markets (see Exhibit 6). This is a result of

two trends: In developed markets, network equipment manufacturers face increasing competition and price pressure, thus limiting growth. Meanwhile, the success of emerging new categories of devices, most notably smartphones and tablets, is

*Exhibit 6*  
Hardware Sector Growth, Mature vs. Emerging Markets, 2006-10

## HARDWARE SECTOR REVENUE EVOLUTION (BY TYPE OF MARKET)



Source: Bloomberg data; Booz & Company analysis

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fueling growth for manufacturers (see “Google Moves into Hardware,” page 10). That, combined with increased investments in broadband infrastructure on the part of network operators, allowed the sector to grow astonishingly by roughly 20 percent in 2010, outpacing even the intermediation sector’s 17 percent growth rate. Such high levels of investment are usually a good sign for the future growth of the TMT industry as a whole.

Telecom equipment manufacturers such as Alcatel-Lucent and Ericsson, and device suppliers such as Apple and Nokia, frequently play a dual role in this sector, as both hardware manufacturer and provider of services such as integration, managed services, and the like—an increasingly important activity that now represents 26 percent of overall hardware player revenues.

The consumer electronics portion of this sector, on the other hand,

is made up primarily of pure players who focus on designing, manufacturing, and distributing their products. Some players in this space are trying to move into intermediation, including Apple, whose revenues from iTunes continue to grow, and Nokia, following its acquisition of location services provider Navteq. Overall, however, the revenues that hardware players derive from intermediation remain negligible, at just a couple of percentage points.

*The high level of investment in the hardware sector is likely a good sign for the future growth of the TMT industry as a whole.*

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### **Google Moves into Hardware**

The giant Internet player Google, after having established its search ad business model over the past decade, recently made a significant move to acquire Motorola Mobility. The deal closely follows a similar strategic move by Microsoft and Nokia, which partnered to integrate the Windows Phone platform with Nokia's range of smartphone devices.

While these transactions were made by companies with very different business models, the two deals support the same paradigm. In today's world of increasing competition in both smartphones and tablets, control of a greater share of the entire value chain is critical if companies are to impose their vision on their ecosystems and support their partners by building prototypes and leading-edge devices. In addition, these companies need to offset the power of the network operators, which are simultaneously working to stimulate competition both in devices and in mobile operating systems.

## SERVICES GAINS IN THE IT SECTOR

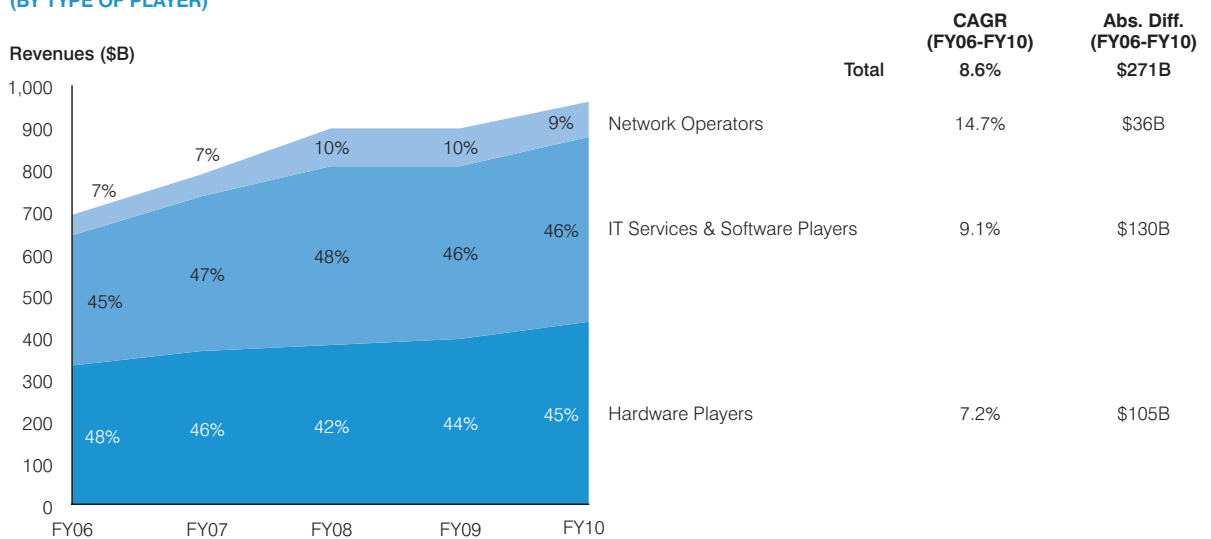
This sector is made up of not just the pure-play IT services and software firms, but also hardware players and network operators that derive their

revenues here. The core of the sector contains two kinds of companies. The first are the pure software companies like Microsoft, which make packaged software such as operating systems and applications, and the producers of customized enterprise software like Oracle. The second kind are IT services companies, such as Accenture and NTT Data, which also often develop software for their clients. Together,

these companies grew their revenues an average of 8.6 percent annually from 2006 to 2010, while the hardware players saw their revenues from this sector grow just 7.2 percent (see Exhibit 7). Emerging markets accounted for a steady 7 percent of the sector's total revenues throughout the period, though the overall rate of growth in emerging markets was 9.9 percent, compared with 9.3 percent in mature markets.

*Exhibit 7*  
IT Services and Software Sector, Growth by Type of Player, 2006-10

**IT SERVICES & SOFTWARE SECTOR REVENUE EVOLUTION (BY TYPE OF PLAYER)**



Source: Bloomberg data; Booz & Company analysis

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## NEW PLAYERS IN THE CONTENT SECTOR

Over the past five years, the content sector, which includes players such as Time Warner, News Corp., and Walt Disney, has been losing share of the overall TMT revenue pool while still showing moderate growth in absolute terms. This mainly reflects the ongoing and fundamental changes in many content business models triggered by digitization and shifts in consumer behavior, as well as the highly cyclical nature of many of the players' advertising-dependent business models in times of recession.

For instance, advertising revenues declined between 10 and 20 percent in most mature markets during the 2008–09 recession, and though they are continuing to rebound, they have yet to reach the levels seen in the peak years of 2006 and 2007. Moreover, while consumer spending on content is much less cyclical than advertising, consumers' overall

media budget is growing only moderately—and shifting between different types of content and distribution channels, thanks to the rise of social networks and increased gaming.

As the trend to digitization continues, the content industry is facing huge changes in how audiences consume content and how to monetize these new consumption patterns. The music industry, for example, has lost as much as 50 percent of its revenues over the past 10 years, driven by digital distribution of recorded music. Only recently has the industry started to show moderate growth, as a result of new consumer-friendly distribution channels and monetization models such as iTunes. Over the past few years, the print industries have begun facing the same challenges as the music industry did 10 years ago, as they try to cope with significantly

*The content industry faces huge changes in how audiences consume content and how to monetize the new patterns.*

declining circulation numbers and advertising revenues driven by the shift to digital channels. Although there are high hopes for tablet PCs and e-books, they still have far to go in offsetting lost revenues from the decline in classified and other forms of advertising, circulation, and printed books.

Even the relatively stable TV and video industries are coming under increasing pressure as a result of the shift in consumer behavior. Promising new user-friendly business models such as Hulu and

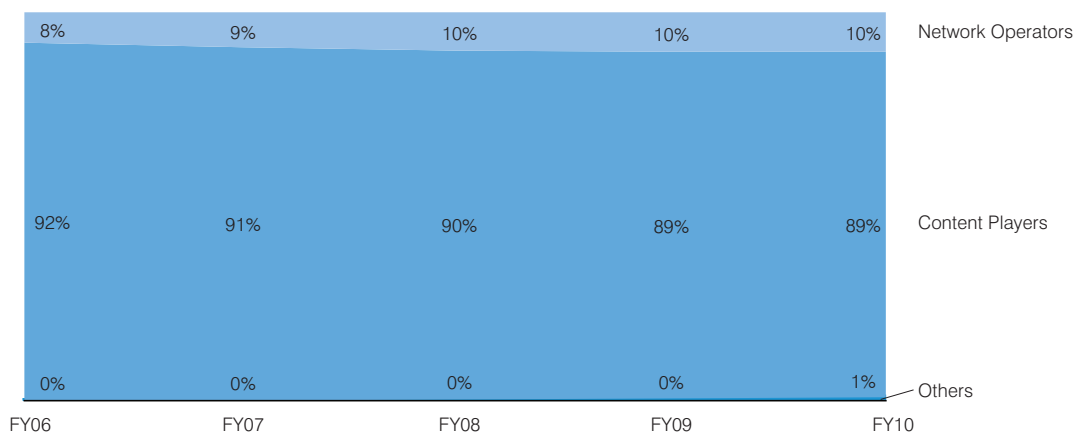
Netflix are already working hard to generate revenues. The long-term sustainability of these business models, and their overall financial impact on the industry, is still in doubt, given the competing interests of the many stakeholders involved in the TV and video ecosystems. Even so, these trends are already drawing the sector closer to the network operations sector, as players from outside the traditional boundaries of content production and distribution look to monetize new digital alternatives (*see Exhibit 8*). Between 2006 and 2010, for example,

Telefónica and Vivendi grew their content activities by 14.2 and 8.8 percent, respectively.

Several other factors are working in favor of these new players as the trend toward digitization grows. Digitization will increasingly enable a much more direct relationship with consumers, offering them a wider variety of ways to use content. And it will provide greater flexibility in pricing and distribution, creating more retail opportunities and dramatically lowering distribution costs.

**Exhibit 8**  
Content Sector Revenues by Type of Player, 2006-10

**CONTENT SECTOR REVENUE EVOLUTION  
(BY TYPE OF PLAYER)**



Note: Numbers may not add up due to rounding.  
Source: Bloomberg data; Booz & Company analysis

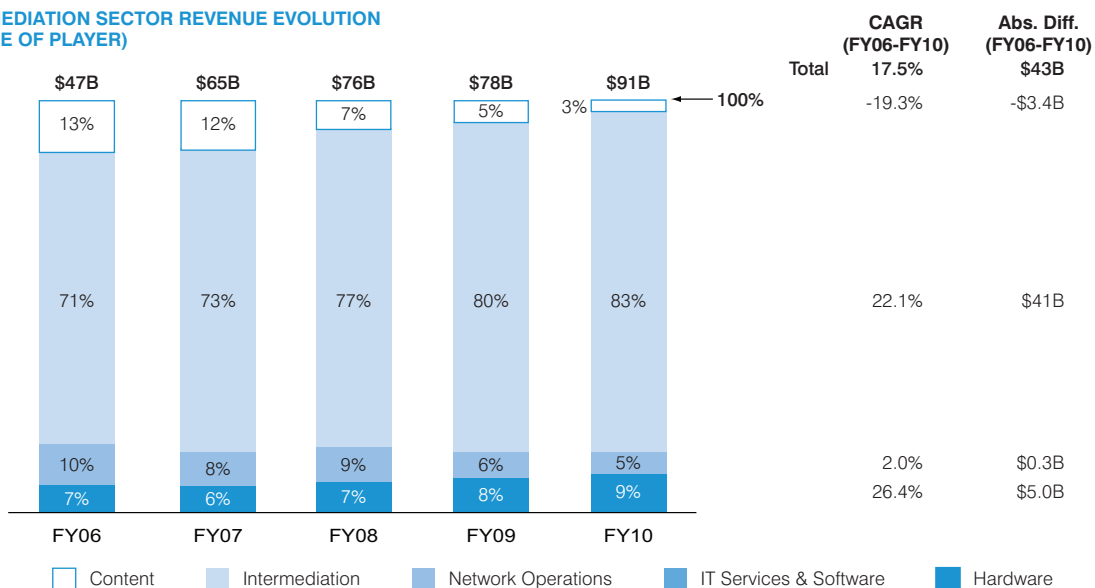
## PURE INTERMEDIATION PLAYERS GAIN STRENGTH

Over the past five years, the intermediation sector has seen sustained growth of 17.5 percent annually. More and more of the revenues in the sector are coming from pure players in Internet services, which generate most of their revenues from advertising. Thus, Google, which generated \$30 billion in revenues in 2010, alone represents 30 percent of the sector's revenues, reflecting the "winner-take-all" dynamic of the digital economy. As these Internet players

increase their influence in the sector, the role of other players has been stalled or significantly reduced. Content players, in particular, have seen their share decline from 13 percent in 2006 to just 3 percent last year, due in part to such deals as Time Warner's divestiture of AOL (*see Exhibit 9*). And while the revenue share stemming from emerging markets is growing, those markets still contributed just 9 percent of 2010 revenues to the sector.

*Exhibit 9*  
Intermediation Sector Revenues by Type of Player, 2006-10

### INTERMEDIATION SECTOR REVENUE EVOLUTION (BY TYPE OF PLAYER)



Numbers may not add up due to rounding.  
Source: Bloomberg data; Booz & Company analysis

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## LOOKING AHEAD

Clearly, the TMT industry is in flux, and companies in each of its sectors are positioning themselves to capture as much value as possible. Yet our analysis shows that despite all the attention the industry has garnered, the sources of value overall are shifting at a slower pace than a quick glance might indicate. Network operators continue to generate the majority of the industry's revenues, and though they have been working hard to diversify into other sectors, so far the impact on the top line remains limited. Moreover, while the Internet players remain the darlings of the stock markets, the actual threat they pose to the established players in terms of revenue share is much less than it would seem.

Still, the Value Shift Index does suggest the existence of several trends that need to be watched, even if they have not yet had a significant effect on where the value in the industry lies. The loss in overall share of value by the hardware sector is only one indication that value-added services will become increasingly important for long-term growth. And though emerging markets have not yet captured a sizable share of value, the trend is upward, and it appears to be accelerating.

Looking ahead, all players should pay close attention to the data we have put together in the Value Shift Index in order to optimize their overall portfolios and to plan for where their future growth will come from.

*Though emerging markets have not yet captured a sizable share of value, the trend is upward and appears to be accelerating.*

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## **Methodology**

The Value Shift Index is based on a sample of publicly traded companies chosen to represent 60 percent of the total value of each of the five sectors, using financial data from Bloomberg analyzed by segment and by geography for the past five years. All companies were classified using GICS, and the TMT sectors were selected for further examination. In each sector, we selected a sample consisting of the largest companies by 2010 revenues; a total of 119 companies were analyzed in detail. To ensure that the sample accurately represented each sector during the entire period, we weighted the sector figures to generate comparable figures for each year.

Each company's revenue segments were then examined and allocated to the appropriate sectors. Similarly, revenues were analyzed by geography, in order to assess the proportion of revenues coming from emerging versus mature markets for each company. Finally, the company figures were aggregated to capture the trends in both overall sectors and geographies.

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