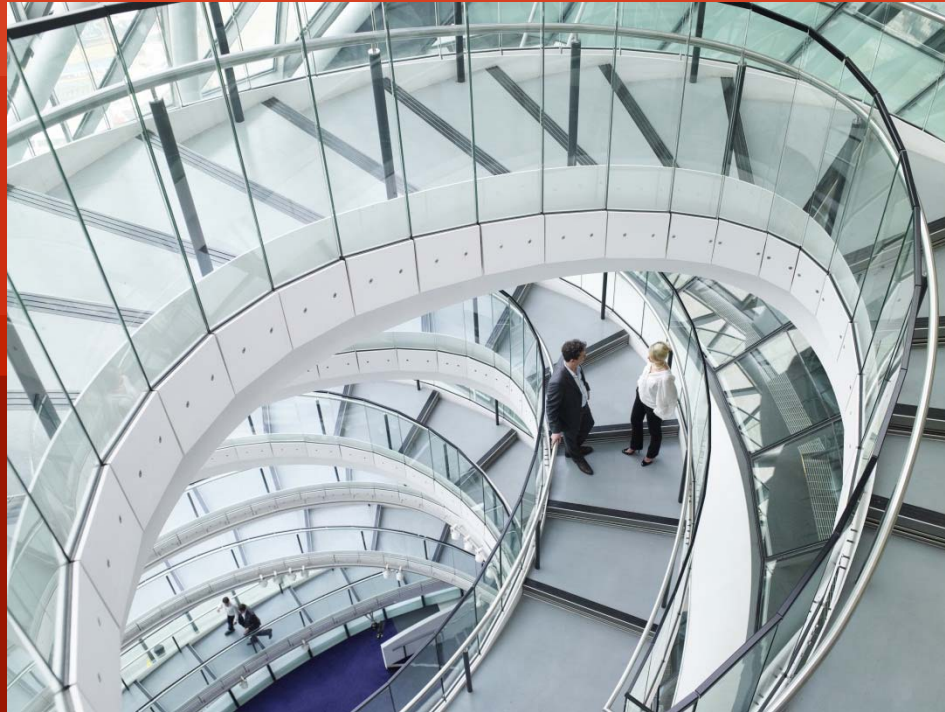


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# *Technology Sector Scorecard*

## Q4 2015



**pwc**

# ***Q4 2015 Executive summary***



## ***Q4 2015 Executive summary***

**Internet sector is the only shining star in an otherwise lackluster earnings season for technology companies**

- The technology sector posted quarter-over-quarter growth of 5.6% in the fourth quarter of 2015 and a marginal year-over-year growth of 0.2%. Year-over year performance by subsector:

Internet	+ 19.7%
Software Services	+ 5.3%
Software	- 1.9%
Consumer Electronics	- 4.4%
PC & Systems Hardware	- 2.9%
EMS	- 6.6%
Semiconductors	- 7.6%
Communications	- 10.6%

- Geographically, North America remained the strongest region for revenue growth, followed by Western Europe and Asia-Pacific.

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## ***Q4 2015 Executive summary (continued)***

- **Services remained the growth driver for technology companies** in the fourth quarter. However, continuing currency volatility impacted revenues for technology companies.
- **Significant transformational activities continued in the fourth quarter.** Ingram Micro announced that it would be acquired for US\$6 billion by the Chinese aviation and shipping conglomerate HNA Group. Nokia sold off its HERE business to a consortium of leading automotive companies, comprising AUDI, BMW and Daimler. Motorola completed its US\$1 billion acquisition of Airwave Communications, the largest private operator of public safety networks in the world. Hewlett-Packard split its enterprise products and services division into Hewlett Packard Enterprise and renamed the slimmed-down Hewlett-Packard HP Inc. Computer Sciences Corp (CSC) separated its North American Public Sector business into the separate entity CSRA Incb, which in turn merged with SRA International, Inc. CSC also entered into an agreement to acquire UXC Limited, the largest independent and publicly owned IT services company in Australia.
- The quarter was marked by **mixed economic performance across major markets**. The effect of global financial turmoil impacted the US economy. Businesses in the US reported US\$81.7 billion worth of inventory, up 44% against US\$56.8 billion in the previous quarter. Falling oil prices forced oil field companies to slash capital expenditure budgets.<sup>1</sup> US manufacturing, which makes up 10% of the economy, is considered in recession.<sup>2</sup> On the consumption side, unusually mild weather hurt sales of winter apparel and undermined demand for heating through the quarter.<sup>1</sup> The Eurozone on the other hand is continuing to show signs of mild recovery, thanks to the ongoing stimulus carried out by the European Central Bank. With unemployment steadily falling and consumer expectations on the rise, the outlook for the Eurozone economy is positive.<sup>3</sup>

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## ***Q4 2015 Executive summary (continued)***

- **Chinese stocks**, which underwent massive price correction in the last two quarters, **made gains in Q4 2015**. The Shanghai Composite Index started the quarter at 3,143.4 on 1<sup>st</sup> October and gained 13% to end at 3,539.2 on 31<sup>st</sup> December. Data released in mid-December showed that industrial output, retail sales and fixed-asset investment beat estimates after policy makers unleashed several rounds of monetary and fiscal stimulus. China's leaders signaled they will take further steps to support growth and put a floor under the economy's slowdown, including widening the fiscal deficit and stimulating the housing market.<sup>4</sup>
- **The VIX (Volatility Index) mirrored the mixed performance of the major capital markets**. It began the quarter at 22.55 on 1<sup>st</sup> October and shed 19% to close at 18.21 on 31<sup>st</sup> December. During this time, it reached a quarter low of 14.15 on 2<sup>nd</sup> November, buoyed by short-term gains by energy stocks.<sup>5</sup>
- **The US equity market made gains in the first half of the quarter, but subsequently slumped amidst global concerns**. The Dow Jones Industrial Average opened the quarter at 16,272.01 on 1<sup>st</sup> October and gained 10% to reach 17,918.15 by the first week of November, buoyed by positive US economic data, the start of the earnings release season, and good performance of healthcare stocks.<sup>6, 7, 8</sup> However, global economic concerns such as falling oil prices, rising inflation, a strong dollar, and the state of the Chinese economy soon overshadowed an interest rate rise by the Federal Reserve, and the Average shed 3% to settle at 17,425.03 on 31<sup>st</sup> December.<sup>9</sup>

4. Bloomberg Business, Dec 2015  
5. Financial Times, Nov 2015  
6. International Business Times, Oct 2015  
7. The Denver Post, Nov 2015  
8. Money Morning, Oct 2015  
9. International Business Times, Dec 2015

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## ***Q4 2015 Executive summary (continued)***

- High volatility in the US market during the quarter created uncertainty and the **fourth quarter PMI (Purchasing Managers Index) slipped to 48.6% from 51.3% in Q3 2015, signaling contraction in the manufacturing sector for the first time since Q2 2009.**
- Against this backdrop, **2015 was the second best year for tech IPOs in five years in terms of amounts raised and number of listings.** The technology sector recorded 22 new initial public offerings (IPOs) globally in Q4 2015, down from 34 IPOs in Q4 2014. However, total proceeds of US\$10.8 billion in Q4 2015 increased 44% year over year due to two big-ticket IPOs that collectively raised US\$6.4 billion. On a sequential basis, the proceeds increased 163%. Overall, 2015 was the second-best year for tech IPOs in five years in terms of amounts raised and number of listings. Full-year 2015 saw 92 technology IPOs with US\$27.1 billion in proceeds, a decline of 22% in terms of listings and 47% in proceeds compared to 2014.<sup>10</sup>
- **Macroeconomic factors for the tech industry in the fourth quarter were weak, with the biggest consumer—the US economy—expanding by just 1.0%.** The Eurozone economy grew as expected at 0.3%, matching growth in the previous quarter.<sup>11</sup> In Asia, China grew at 6.8%, down from 6.9% in the previous quarter.<sup>12</sup> In contrast, Japan shrank by 1.4%, which is worse than the 1.2% contraction estimated by economists.<sup>13</sup>

10. Q4 Global Tech IPO Review, PwC

11. MarketWatch, Feb 2016

12. CNBC, Jan 2016

13. The Wall Street Journal, Feb 2016

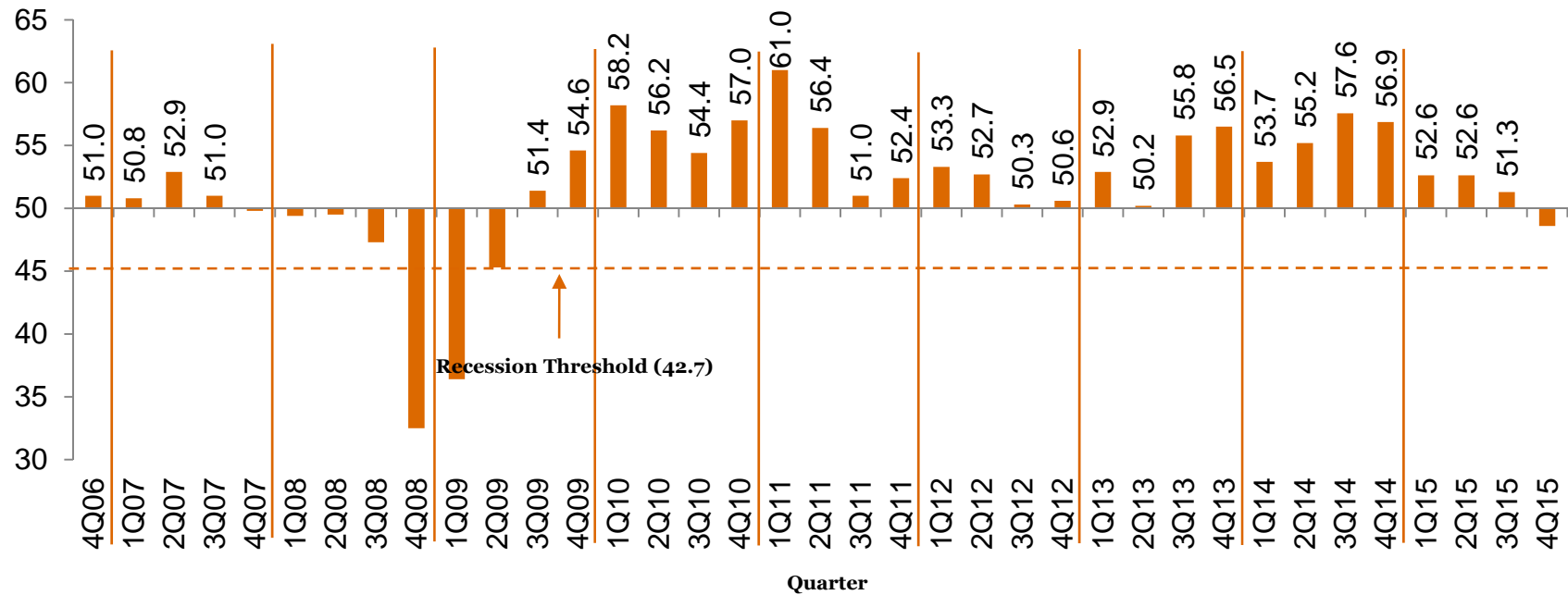


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## ***Q4 2015 Executive summary (continued)***

- **Consistent with past quarters, the Internet subsector reported the highest revenue growth at 13% quarter over quarter.** Amazon led with 41% growth, Google followed with 14% and eBay and LinkedIn with 10% each. As usual for the Internet subsector the growth in revenue was not positively reflected by net income as Google was the only company which reported a positive growth in net income both sequentially (+24%) and year over year (+4%).
- **The global outsourcing market delivered one of its best quarterly performances in Q4 2015, capping a year that saw a record number of contracts.** However, as more enterprises revamp their processes around cloud, digitalization and automation, they are pushing for smaller contracts at lower costs. The shorter timelines and lower costs are in turn encouraging enterprises to restructure their older, more expensive contracts.<sup>14</sup>
- **The global semiconductor industry registered total sales of US\$335.2 billion in 2015, a dip of 0.2% compared to last year's total sales.** Global sales for the month of December 2015 reached US\$27.6 billion, down 4% compared to the previous month and 5% lower than sales from December 2014. Q4 2015 sales of US\$82.9 billion were 5.2% lower than the total of US\$87.4 billion from the fourth quarter of 2014.<sup>15</sup>

## US Purchasing Manager's Index (PMI) trends Q4 2006 – Q4 2015



The Purchasing Manager's Index (PMI®) dropped to 48.6% in Q4 2015. Since this is below the 50% mark, it signals contraction in manufacturing.

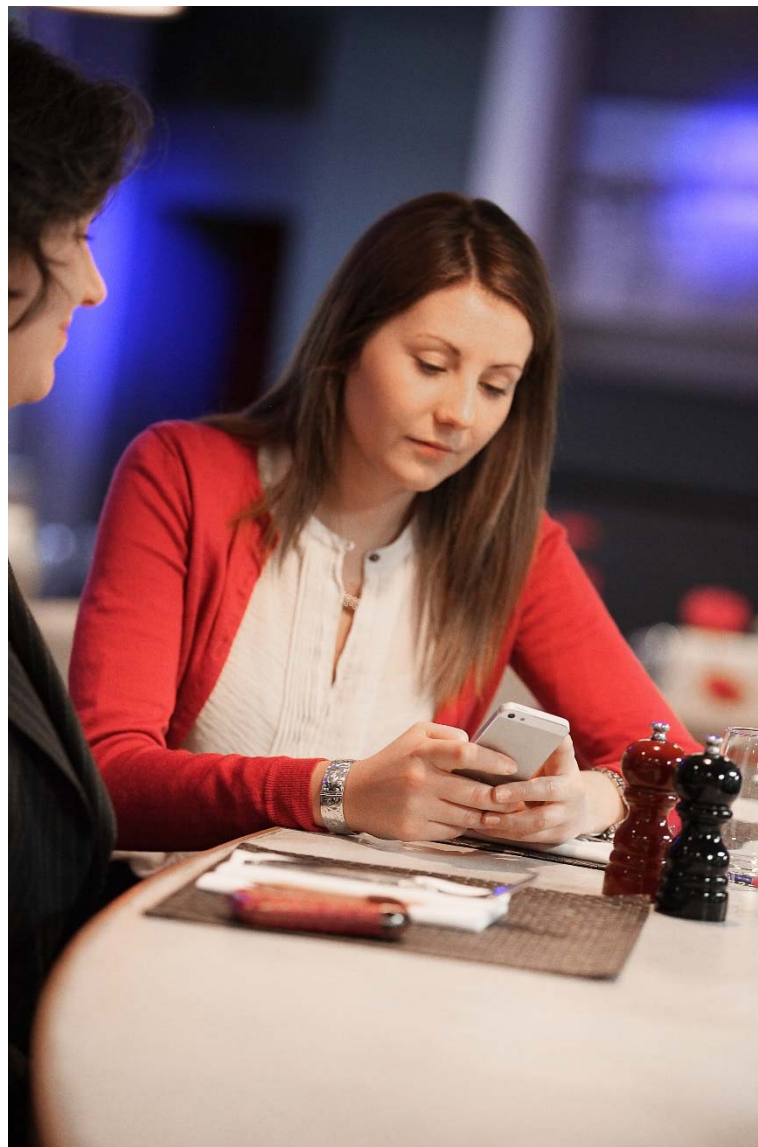
Source: ISM



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# ***Snapshot by subsector***

## **Communications**



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## ***Market analysis***

### **Communications**

- The Communications subsector in Q4 2015 reported a quarter-over-quarter revenue jump of 13.4%, but declined 10.6% year over year. The year-over-year decline was mostly due to Ericsson and Nokia, both of which were affected by unfavorable foreign currency exchange when translating to USD from their reporting currencies of SEK and EUR, respectively. On the other hand, the quarter-over-quarter jump was also due to Ericsson and Nokia, which benefited from a recovering mobile broadband market.
- During the fourth quarter of 2015, mobile broadband in North America remained stable, while 4G deployments in Mainland China recovered after a weak third quarter. Emerging markets, such as India, Indonesia and Mexico, remained strong. While markets such as Russia, Brazil and parts of the Middle East continued to be weak, mainly due to depressed oil prices and other macroeconomic issues. Investments in Europe were driven by the transition from 3G to 4G and capacity enhancements. Operators increased their investments in telecom core networks, driven by deployment of new service offerings such as Voice over LTE.
- The Communications market is also being driven by high growth in the wireless local area network (WLAN) market. According to data released in December, the combined consumer and enterprise worldwide WLAN market increased 2.1% year over year in Q3 2015. The 802.11ac standard continues on its brisk adoption path and now accounts for 57% of dependent access point unit shipments and 72.7% of dependent access point revenues. Increased demand on enterprise WLANs will continue to be a driving factor in this transition, especially as new enterprise mobility use cases are adopted and IoT applications move into the mainstream.<sup>1</sup>

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## ***Market analysis (continued)***

### **Communications**

- The enterprise WLAN market saw its strongest growth in Asia/Pacific excluding Japan (APeJ), which grew 14% year over year in Q3 2015. Within the APeJ region, China increased 19.8%, while India increased 48.4%. The North American region grew 4.9% year over year as a result of the E-Rate funding streams in K-12 education in the US. In the Europe, Middle East, and Africa (EMEA) region, Western Europe grew 2.3% year over year.<sup>1</sup>
- In December 2015, IDC released Q3 2015 consumer WLAN market revenue growth which showed an increase of 16.2% quarter over quarter, though it was down -0.4% on a year-over-year basis. The adoption of the 802.11ac standard in the consumer market has been significantly slower than the enterprise segment. Currently the 802.11ac standard accounts for just 15.3% of shipments and 36% of revenue.<sup>1</sup>
- On 4<sup>th</sup> December 2015, Nokia completed the sale of its HERE digital mapping and location services business to a consortium of leading automotive companies, comprising AUDI AG, BMW Group and Daimler AG. Nokia booked a gain of approximately €1.1 billion in Q4 2015 as part of discontinued operations. Nokia's Q4 2015 revenue of US\$4.0 billion was down 22% year over year, but sequentially it rose by around 17%. The year-over-year decline was primarily due to unfavorable foreign currency exchange when translating to USD from its reporting currency, the EUR. Sale of its HERE business also contributed to lower revenue in Q4 2015. In terms of EUR, Q4 2015 revenue of €3.6 billion was up 3% over a restated €3.5 billion in Q4 2014. While Nokia Networks revenue dipped by 5% year over year, Nokia Technologies revenue jumped 170% owing to a contribution from the arbitration award related to the company's licensing agreement with Samsung. Nokia's net income of €575 million was up 74% year over year and 94% quarter over quarter.

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## ***Market analysis (continued)***

### **Communications**

- Ericsson's Q4 2015 revenue of US\$8.7 billion was down 13% year over year, but sequentially it rose by around 24%. Like Nokia, Ericsson's year-over-year decline was primarily due to unfavorable foreign currency exchange when translating to USD from its reporting currency, the SEK. In terms of SEK, Q4 2015 revenue of SEK 73.6 billion was up 8% over SEK 68 billion in Q4 2014. Ericsson witnessed growth in all its businesses, but the strongest growth was posted by Support Solutions (+40%). Net income of SEK 7 billion was up 68% year over year and 124% quarter over quarter.
- During Q4 2015, Motorola completed its US\$1 billion acquisition of Airwave Communications. Airwave is the largest private operator of a public safety network in the world, delivering mission-critical voice and data communications to more than 300 public service agencies in Great Britain. It also introduced its next-generation digital mobile radio solution for commercial customers that complies with the DMR III standard. Public safety LTE trials were also executed around the world, spanning devices, land-mobile radio & LTE interoperability, applications, and deployable networks.

## ***Q4 performance***

### **Communications**

Company	Q4'15				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Cisco Systems Inc	11.9	62.31%	3,147	0.62	117.6
LM Ericsson*	8.7	36.25%	830	0.25	31.3
Motorola Solutions Inc	1.7	49.82%	279	1.57	11.9
Nokia Corp**	4.0	46.36%	1,960	0.49	27.7

\* SEK to USD exchange rate used for Ericsson is 0.1176 USD/SEK.

\*\*EUR to USD exchange rate used for Nokia is 1.0952 USD/EUR.

Company	Q4'14				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Cisco Systems Inc	11.9	59.40%	2,397	0.46	142.1
LM Ericsson*	9.9	36.60%	617	0.19	39.2
Motorola Solutions Inc	1.8	50.03%	(926)	(4.02)	16.1
Nokia Corp**	5.1	43.53%	589	0.11	28.7

\* SEK to USD exchange rate used for Ericsson is 0.1346 USD/SEK.

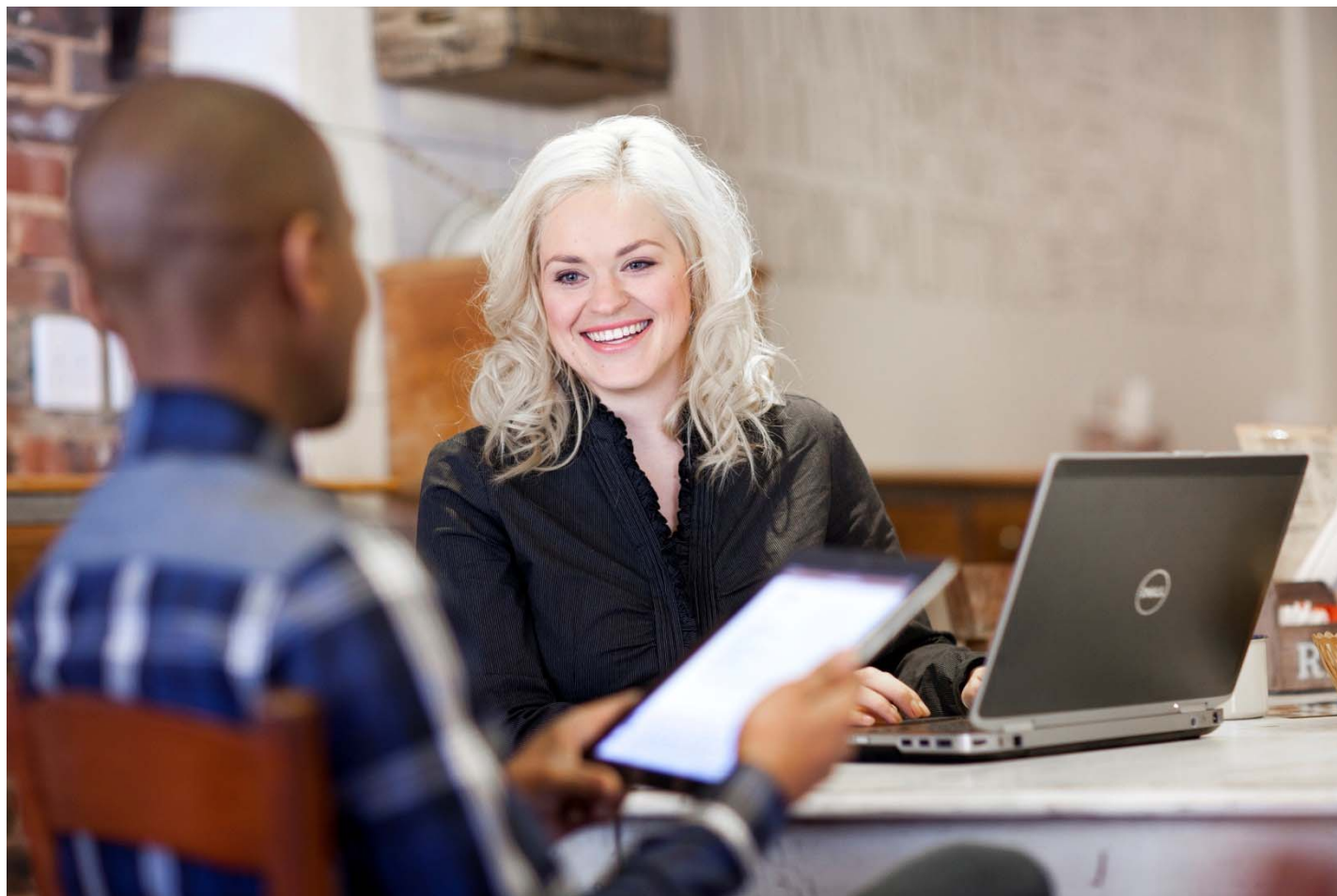
\*\*EUR to USD exchange rate used for Nokia is 1.2483 USD/EUR.

For additional financial information, please visit <http://www.pwc.com/techscorecard> and click on the “Data explorer” box.

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# ***Snapshot by subsector***

## **Consumer Electronics**





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## ***Market analysis***

### **Consumer Electronics**

- The Consumer Electronics sector experienced positive results in Q4 2015, consistent with previous fourth quarters. The sector's revenue grew by 21% quarter on quarter, but declined 4% year on year. Net income also showed positive growth sequentially, with three out of the five companies showing positive net income. Year-on-year net income was relatively flat with two companies—Apple Inc and Sony Corp—showing growth. Toshiba reported the sharpest decline in net income with net losses of US\$4.3 billion this quarter. The company's year-on-year decline in earnings was influenced by a weakening in gross margins from 23.09% to 13.60%, as well as issues with cost controls.
- In the US, the Consumer electronics (CE) sector is improving their recycling initiatives. Consumer electronics are the fastest declining portion of the municipal waste stream. Recycling of CE products has increased 27% annually while the reduction of CE products going to landfills fell 17% annually. The Internet of Things, which is at the forefront of smart energy use and management and renewable energy sources are leading the way to decrease e-waste.<sup>1</sup>
- The Consumer Electronics Association Index of Consumer Expectations (ICE), which measures US consumer sentiment about the broader economy, decreased 3.9 points to 168.7 in December from November 2015, but still there is some expectation for tech spending to pick up as the economy and inventory situation improves.<sup>1</sup>



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## ***Market analysis***

### **Consumer Electronics**

- The rapid adoption of the Internet of Things (IoT) in the consumer electronics industry is expected to drive retail revenue in the US consumer technology industry to US\$287 billion in 2016. The growth of the consumer technology industry's revenue is also driven by innovations such as wearables, virtual reality, robotics and drones. The exponential growth of the IoT, speed of innovation and more affordable and accessible products are driving factors.<sup>1</sup>
- Apple Inc posted record quarterly revenue of US\$75.9 billion and quarterly net income of US\$18.4 billion. This was a 47.3% increase in revenue quarter on quarter, but flat year on year. Fourth quarter net income of US\$18.4 billion led to 65.1% growth sequentially. Year on year it was a 1.9% increase. The sharp sequential growth was due to the seasonal nature of demand and the holiday season. International sales accounted for 66% of the quarter's revenue. The 'services' and 'other products' businesses increased by 19% and 43% sequentially and 26% and 62% year over year. Apple Inc generated operating cash flow of US\$27.5 billion during the quarter. Apple noted that forex had a 600 bps impact on this quarters' revenue growth. Despite the economic turbulence in China, Apple remains bullish and predicts rising 4G penetration will continue increasing iPhone sales. A staggering 50% of Chinese iPhone sales are said to be to first-time buyers.
- Sony Corp reported 36% growth in net income compared to the last year. Operating income increased to US\$1,685 million. This increase was primarily due to improvements in the results of All Other, the Pictures segment, the MC segment and the G&NS segment. In the same quarter of the previous fiscal year, a write-down of PlayStation®Vita ("PS Vita") and PlayStation®TV ("PS TV") components in the G&NS segment was recorded lowering Q4 2014 net income.

## ***Q4 performance***

### **Consumer Electronics**

Company	Q4'15				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Apple Inc	75.9	40.1%	18,361	3.28	599.0
Canon Inc	8.5	50.1%	565	0.52	32.8
Philips*	7.8	43.5%	(49)	(0.05)	23.3
Sony Corp	21.5	37.1%	1,001	0.78	31.0
Toshiba Corporation	12.0	13.6%	4,270	(1.01)	8.7

\*EUR to USD exchange rate used for Philips is 1.0952 USD/EUR.

Company	Q4'14				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Apple Inc	74.6	39.9%	18,024	3.06	647.5
Canon Inc	9.2	48.6%	593	0.29	36.5
Philips*	8.2	38.7%	167	0.19	26.5
Sony Corp	21.1	7.0%	736	0.63	25.0
Toshiba Corporation	13.8	25.9%	339	0.08	18.9

\*EUR to USD exchange rate used for Philips is 1.3255 USD/EUR.

For additional financial information, please visit <http://www.pwc.com/techscorecard> and click on the “Data explorer” box.

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# ***Snapshot by subsector***

## **EMS/Distributors**



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## ***Market analysis***

### **EMS/Distributors**

- In Q4 2015, the EMS companies under study reported a year-over-year revenue decline of 6.6%. The decline was mostly due to Ingram and Avnet. Ingram exited the North American mobility distribution business in 2015. This business contributed US\$500 million to revenues in Q4 2014. Avnet's earnings declined year over year due to the translation impact of the strengthening US dollar and weaker demand in the Americas.
- On a sequential basis, the EMS companies under study reported revenue growth of 7.8%. The jump was mainly due to Arrow, Flex and Ingram, which experienced better performance of their business units and lower operating expenses compared to Q3 2015.
- The EMS industry is undergoing significant consolidation, though this is not deterring new entrants from entering the market. The financial and structural advantages of outsourcing have been well proven for many years, as evidenced by very few original equipment manufacturer (OEM) companies planning or investing in manufacturing automation. They are leaving the expertise of electronics production to their contract manufacturing partners.<sup>1</sup>
- For North American manufacturers that have chosen to outsource non-core tasks, the outsourcing strategy is slowly moving from offshoring to near-shoring of electronic assemblies and precision-machined parts. This is occurring due to rising wages in emerging economies like China. In addition, the transportation cost and complex supply chain of offshoring can no longer be overlooked, particularly when precision is required and the total cost of ownership is considered.<sup>2</sup>

1. Manufacturing Market Insider, Dec 2015

2. Manufacturing Market Insider, Nov 2015

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## ***Market analysis (continued)***

### **EMS/Distributors**

- In company news, Ingram Micro on 17<sup>th</sup> February 2016 announced that it would be acquired for US\$6 billion by Tianjin Tianhai Investment Company Ltd, part of the Chinese aviation and shipping conglomerate HNA Group.<sup>3</sup> Ingram's Q4 2015 sales were US\$11.3 billion, down 19% when compared to Q4 2014 sales of US\$14 billion. This is due in part to the company benefiting from US\$900 million from an additional week of sales in Q4 2014. Ingram also benefited from US\$500 million in the North American mobility distribution business in Q4 2014, which it chose to exit this year due to low profitability. Moreover, in Q4 2015, the company recognized some of its high volume European fulfillment business on a net basis as opposed to a gross basis last year. This had a negative impact of US\$300 million in Q4 2015 sales.
- On 3<sup>rd</sup> November 2015, Avnet acquired Orchestra Service GmbH, a German IT distributor of innovative storage solutions and services for EMC products. Later, on 29<sup>th</sup> December 2015, it acquired Pinnacle Data Systems, Inc, a leading provider of application-specific hardware and global support solutions for OEMs. The two companies were purchased for an aggregate price of US\$36.6 million.
- Avnet sales for Q4 2015 were US\$6.9 billion, compared to Q4 2014 sales of US\$7.6 billion. The US\$703.8 million decrease in sales year over year was the result of a US\$320.6 million decrease at its Electronics Manufacturing (EM) business and a US\$383.2 million decrease at its Technology Solutions (TS) business. In both cases, the translation impact of a strengthening US dollar and weaker demand in the Americas impacted revenue.

3. Reuters, Feb 2016

## Q4 performance

### EMS/Distributors

Company	Q4'15				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Arrow Electronics Inc	6.8	12.43%	158	1.69	6.8
Avnet Inc	6.8	11.36%	156	1.16	5.6
Flextronics International Ltd	6.8	6.69%	149	0.27	6.2
Ingram Micro	11.3	6.84%	141	0.93	4.5
Foxconn*	Not yet reported	Not yet reported	Not yet reported	Not yet reported	38.5

\* TWD to USD exchange rate used for Foxconn is 0.0305 USD/TWD.

Company	Q4'14				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Arrow Electronics Inc	6.4	12.75%	116	1.18	5.6
Avnet Inc	7.6	11.09%	164	1.18	5.9
Flextronics International Ltd	7.0	5.82%	153	0.26	6.5
Ingram Micro	14.0	5.56%	119	0.74	4.3
Foxconn*	48.6	7.27%	1,838	0.12	42.1

\* TWD to USD exchange rate used for Foxconn is 0.0324 USD/TWD.

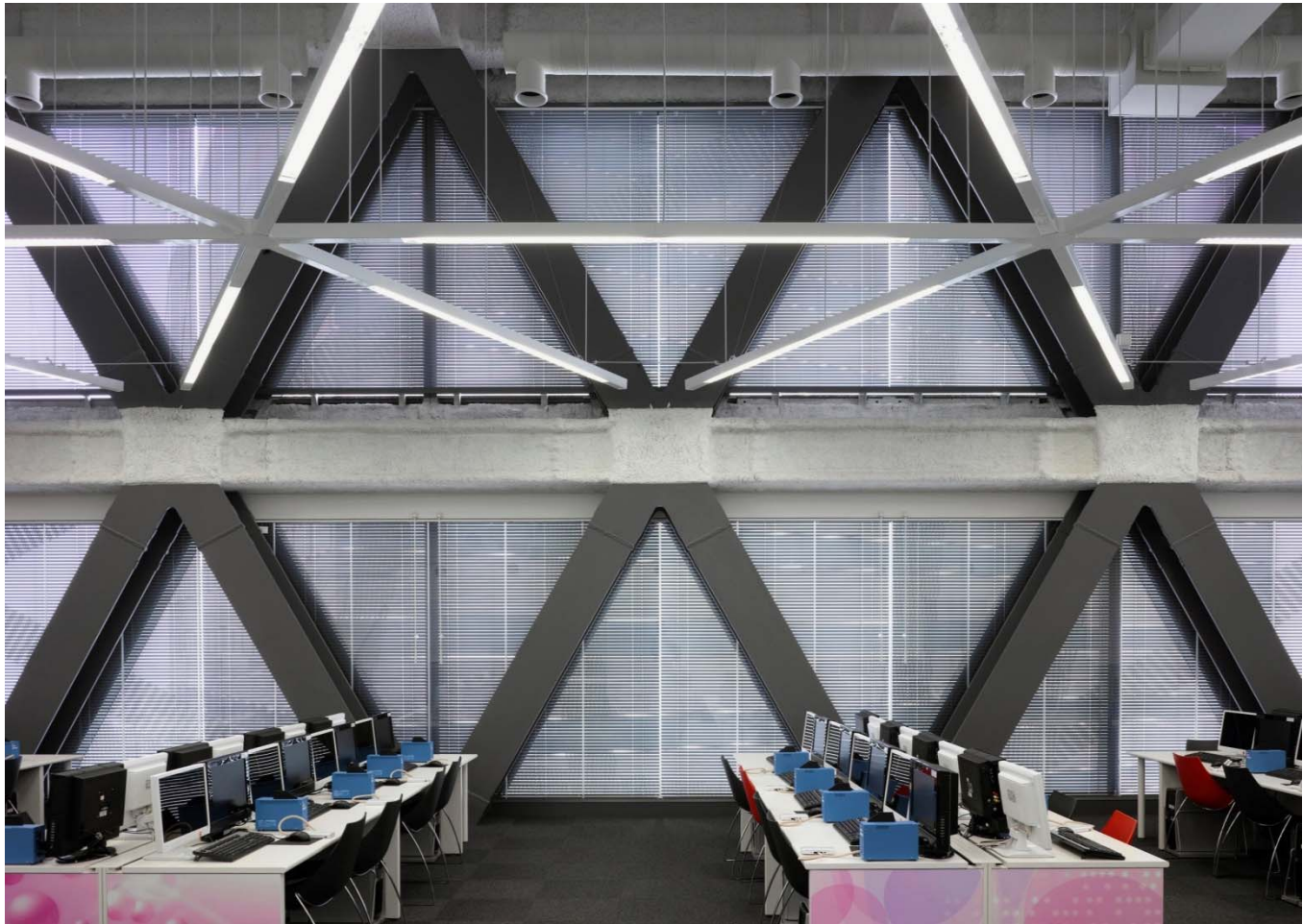
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# ***Snapshot by subsector***

## Internet





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## ***Market analysis***

### **Internet**

- The Internet subsector in Q4 2015 reported a strong quarter with 20% of year-over-year revenue growth, led by Yelp (+40%), LinkedIn (+34%), Netflix (+23%) and Amazon (+22%). Yahoo reported a slight revenue increase, posting a 1.6% gain.
- On a quarter-over-quarter basis, the Internet subsector reported 13% revenue growth. Amazon led with 41% growth, Google followed with 14% and eBay and LinkedIn with 10% each. As usual for the Internet subsector the growth in revenue was not positively reflected by net income as Google was the only company which reported a positive growth in net income both sequentially (+24%) and year-over-year (+4%).
- An estimated 3.2 billion people, or 44% of the world's population, will have access to the Internet by 2016. Of this, more than 2 billion will be using mobile devices to do so and this number is predicted to grow by more than 25% per year. More than a billion people use the Internet to bank online, to stream music, and to find a job. More people are making purchases online. As a result, mobile commerce and mobile advertising is experiencing explosive growth.<sup>1</sup>
- The growth in Internet access is taking place across the world, but some countries are seeing particularly rapid growth. China with 688 million internet users, India with 402 million, and Indonesia with 93.4 million lead the way and will account for almost half of the gains in access globally over the course of the next five years. The combination of lower-cost devices and inexpensive wireless networks are making accessibility easier in countries with populations that could not previously afford them.

1. IDC.com, Dec 2015

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## ***Market analysis (continued)***

### **Internet**

- Considering that around 4 billion people in the world still do not have access to the Internet, several technology companies are rolling out efforts to connect them via high altitude planes, balloons, and satellites. Google along with Fidelity recently made a US\$1 billion investment in SpaceX to achieve bringing satellite Internet to remote corners of the world.<sup>1</sup> Satellite Internet has been around for years, but did not become mainstream due to its extreme latency—the gap in time between the satellite receiving a request and responding. However, companies such as SpaceX and OneWeb are trying to eliminate that latency by placing their satellites in what’s called low Earth orbit, which ranges from roughly 100 to 1,250 miles above Earth. By bringing their satellites closer to home, latency could be cut from 500 milliseconds to 20 milliseconds, which is about the same speed as a fiber optic home internet connection in the US. However, the signal from these satellites won’t be able to cover as much of the planet as satellites in geosynchronous orbit, some 22,000 miles up. So companies will have to launch more satellites to make up for the difference.<sup>2</sup>
- An estimated 1.6 billion connected things are expected to be used by smart cities in 2016, an increase of 39% from 2015. Smart commercial buildings will be a major user of Internet of Things (IoT) followed by smart residential homes. Intel, Samsung and Google have invested in smart city projects. Intel generated US\$2.3 billion from IoT in 2015. Samsung has set a target to make 90% of its future devices IoT ready by 2017 and 100% by 2020. Google plans on creating a unified, one language network of interoperable IoT devices. IBM is building a IoT portfolio through its big data analytics and cognitive computing (Watson) technologies and IBM Bluemix platform/services. Amazon has developed the ‘Echo’, a connected-home personal assistant.<sup>3</sup>

1. IDC.com, Dec 2015  
2. Wired.com, Dec 2015  
3. wtvox.com, Dec 2015

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## ***Market analysis (continued)***

### **Internet**

- Amazon has now posted profit for three consecutive quarters. Amazon's net sales increased 22% to US\$35.7 billion in the fourth quarter, compared with US\$29.3 billion in the fourth quarter 2014. Excluding the US\$1.2 billion unfavorable impact from year-over-year changes in foreign exchange rates, net sales increased 26% compared in the fourth quarter 2014. Operating income increased 88% to US\$1.1 billion in the fourth quarter, compared to US\$591 million in Q4 2014. The increase was driven by a sharp increase in Services sales which rose to US\$9.1 billion in Q4 2015 from US\$6.2 billion in Q4 2014. Net income was US\$482 million in Q4 2015 compared to net income of US\$214 million in the fourth quarter of 2014.
- LinkedIn announced that it has acquired Connectifier, which provides search technology that draws on artificial intelligence to help recruiters find talent. Connectifier's search index contains profiles for more than 400 million job candidates. The acquisition of Connectifier, is expected to strengthen LinkedIn's core products and accelerate its product roadmap. Terms of the deal weren't disclosed. In 2015 Connectifier raised US\$6 million in funding.

## ***Q4 performance***

### Internet

Company	Q4'15				
	Revenue (US\$ billions)	Gross margin (%)	Net Income (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Amazon	35.7	31.91%	482	1.00	318.3
eBay	2.3	78.77%	477	0.39	32.9
Google	21.3	61.61%	4,923	7.06	534.8
LinkedIn	0.861	86.19%	(8)	(0.06)	26.0
Netflix	1.8	31.48%	43	0.10	49.0
Yahoo!	1.3	53.89%	(4,435)	(4.70)	31.4
Yelp	0.153	90.24%	(22)	(0.29)	1.8

For additional financial information, please visit <http://www.pwc.com/techscorecard> and click on the “Data explorer” box.

## ***Q4 performance***

### **Internet**

Company	Q4'14				
	Revenue (US\$ billions)	Gross margin (%)	Net Income (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Amazon	29.3	29.52%	214	0.45	144.3
eBay	2.3	80.97%	1,023	0.82	68.7
Google	18.1	61.77%	4,757	5.69	358.0
LinkedIn	0.643	86.47%	3	0.02	24.9
Netflix	1.5	31.68%	83	1.35	20.5
Yahoo!	1.3	73.22%	166	0.17	47.9
Yelp	0.109	93.37%	33	0.42	3.4

For additional financial information, please visit <http://www.pwc.com/techscorecard> and click on the “Data explorer” box.

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# ***Snapshot by subsector***

## **Semiconductors**



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## ***Market analysis***

### **Semiconductors**

- All the companies tracked reported negative revenue growth in Q4 2015 except for Intel which reported a marginal growth of 1%. The average decline annually was 8%. On a sequential basis, revenues dropped by 2%. Intel and Qualcomm reported revenue growth of 3% and 6%, respectively, on a sequential basis.
- The global semiconductor industry registered total sales of US\$335.2 billion in 2015, a dip of 0.2% compared to last year's total sales. Global sales for the month of December 2015 reached US\$27.6 billion, down 4% compared to the previous month and 5% lower than sales from December 2014. Q4 2015 sales of US\$82.9 billion were 5.2% lower than the total of US\$87.4 billion from the fourth quarter of 2014.
- Some of the major semiconductor products that stood out in 2015 were logic (US\$90.8 billion sales) comprising 27% of the total semiconductor market, memory (US\$77.2 billion sales) and micro-ICs (US\$61.3 billion sales). The other product segments that grew in 2015 were Optoelectronics with 11% growth, sensors and actuators which reached US\$8.8 billion in sales for a 4% annual increase, NAND flash memory (US\$28.8 billion) a 2% increase, and analog (US\$45.2 billion) also a 2% increase.
- Annual sales in China increased by 8%, whereas all other leading regional markets like Americas (-1%), Europe (-9%), Japan (-11%), and Asia Pacific/All Other (-0.2%) – saw decreased sales compared to 2014.
- US legislation was finally approved for a permanent extension of the R&D tax credit. This will enhance the ability of the US semiconductor industry to innovate and continue to improve incentives for domestic research, allowing US semiconductor companies to plan investments for years to come.<sup>1</sup>



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## ***Market analysis (continued)***

### **Semiconductors**

- In company news, Samsung Electronics and Apple remained the top semiconductor buyers in 2015, constituting 18% of the total semiconductor market. Samsung Electronics and Apple together consumed US\$59.0 billion in semiconductors in 2015, an increase of US\$0.8 billion from 2014. Samsung Electronics and Apple have topped the semiconductor consumption table for five consecutive years, but the growth of Samsung and Apple's design total available market (TAM) stood at -4% and 7% in 2014-2015.
- Worldwide semiconductor capital spending is projected to decline 5% in 2016, to US\$59.4 billion. This is down from the 3% growth predicted by analysts last quarter.
- The 2016 outlook for the semiconductor manufacturing equipment market reflected a pessimistic outlook for end-user electronics demand and the world economic environment. The capital investment policies of leading semiconductor vendors have remained cautious against the background of sluggish electronics demand. However, the long-term outlook shows a return to growth, although the wafer-level manufacturing equipment market is expected to face a downturn due to the loss of the supply and demand balance in the DRAM market.<sup>2</sup>

## Q4 performance

### Semiconductors

Company	Q4'15				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Intel	14.9	64.30%	3,613	0.74	165.5
Applied Materials	2.3	40.58%	286	0.25	20.5
Texas Instruments	3.2	58.51%	836	0.80	95.4
TSMC	6.2	48.61%	2,233	0.43	118.0
Qualcomm Inc	5.8	56.12%	1,498	0.99	74.1

Company	Q4'14				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Intel	14.7	65.36%	3,661	0.74	172.4
Applied Materials	2.4	40.65%	348	0.28	30.4
Texas Instruments	3.3	57.97%	825	0.76	93.1
TSMC	7.2	49.70%	2,598	0.50	116.1
Qualcomm Inc	7.1	57.08%	1,972	1.17	124.1

For additional financial information, please visit <http://www.pwc.com/techscorecard> and click on the “Data explorer” box.

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# ***Snapshot by subsector***

## Software



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## ***Market analysis***

### **Software**

- The Software sector had mixed results this quarter with a few companies reporting marginal growth in revenue year over year. Net income was down for most of the software companies. Adobe, Intuit and VMware came out with positive revenue growth of 22%, 14% and 10%, respectively, year over year. Sequentially, all the companies reported positive revenue growth except for Symantec, which was impacted by the sale of its Veritas Storage division.
- The worsening economic environment in emerging markets has had little effect on the global enterprise software spending forecast for 2016, with IT spending on pace to total US\$326 billion, a 5% increase from US\$310 billion in 2015.
- The global business intelligence and analytics market is expected to reach US\$16.9 billion in 2016 an increase of 5.2% from 2015. This represents a shift from IT-led, system-of-record reporting to business-led, self-service analytics. As a result, the modern business intelligence and analytics (BI&A) platform has emerged to meet new organizational requirements for accessibility, agility and deeper analytical insight. Organizations are transitioning to easy-to-use, fast and agile modern BI platforms to create business value from deeper insights into diverse data sources, at a rapid pace. All the software companies are seeing great demand and are seeking to capitalize on this opportunity. Creating analytics content via IT-centric reporting platforms starts with IT consolidating and modeling data in advance. By contrast, a modern BI&A platform supports IT-enabled development of analytics content.<sup>1</sup>

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## ***Market analysis (continued)***

### **Software**

- Meanwhile the cloud email market is still in the early stages of adoption with 13% of identified publicly listed companies globally using one of the two main cloud email vendors. About 8.5% of public companies in a recent survey use cloud email from Microsoft's Office 365 service, while 4.7% percent use Google Apps for Work. The remaining 87% of companies surveyed have on-premises, hybrid, hosted or private cloud email managed by smaller vendors. Although it is still early days for cloud email adoption, both Microsoft and Google have achieved significant traction among enterprises of different sizes, industries and geographies.<sup>2</sup>
- The worldwide public cloud services market is projected to grow 16.5% in 2016 to total US\$204 billion, up from US\$175 billion in 2015. The highest growth will come from cloud system infrastructure services (infrastructure-as-a-service), which is projected to grow 38.4% in 2016. Cloud advertising, the largest segment of the global cloud services market, is expected to grow 13.6% in 2016 to reach US\$90.3 billion.<sup>3</sup>

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## ***Market analysis (continued)***

### **Software**

- In company news, in October 2014, Symantec said that it was pursuing a split of its storage and security businesses into two separate companies. In August 2015, it decided to sell the Veritas storage division to the Carlyle Group for US\$8 billion. Symantec had acquired Veritas in 2005 for US\$10.2 billion. In January 2016, the company and Carlyle amended the terms of the purchase agreement for Carlyle's acquisition of the information management business, Veritas. Based on the amended terms, the company will receive net consideration of US\$6.6 billion in cash and 40 million B common shares of Veritas. The transaction closed on January 29, 2016.<sup>4</sup>
- Adobe recorded quarterly revenue of US\$1.3 billion, a year-over-year increase of 22%. Digital Media Annualized Recurring Revenue (“ARR”) grew to US\$3.0 billion at quarter end, an increase of US\$350 million. Creative ARR grew to US\$2.6 billion, an increase of US\$310 million, driven by enterprise adoption and the addition of 833 thousand net new individual and team Creative Cloud subscriptions. Adobe Marketing Cloud achieved revenue of US\$352 million with strong bookings growth and a stronger-than-expected shift in customer adoption to SaaS-based solutions. This led to the strong year-over-year growth in operating income of 133% and 153% in net income. The company repurchased approximately 1.4 million shares during the quarter, returning US\$122 million of cash to stockholders.<sup>5</sup>

## ***Q4 performance***

### **Software**

Company	Q4'15				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Adobe	1.3	84.59%	223	0.44	45.9
Intuit	0.9	78.44%	24	0.09	25.2
Microsoft	23.8	58.51%	4,998	0.62	439.7
Oracle	9.0	79.40%	2,197	0.51	163.7
SAP*	7.0	70.75%	1,408	1.17	94.9
Symantec	0.9	83.50%	170	0.25	13.6
VMware	1.9	85.76%	373	0.88	6.9

\*Euro to USD exchange rate used for SAP is 1.0952 USD/Euro.

For additional financial information, please visit <http://www.pwc.com/techscorecard> and click on the “data explorer” box.



## ***Q4 performance (continued)***

### **Software**

<b>Company</b>	<b>Q4'14</b>				
	<b>Revenue (US\$ billions)</b>	<b>Gross margin (%)</b>	<b>Net income/(loss) (US\$ millions)</b>	<b>EPS (US\$)</b>	<b>Market cap (US\$ billions)</b>
Adobe	1.1	85.01%	73	0.14	36.1
Intuit	0.8	75.62%	(66)	(0.23)	25.5
Microsoft	26.5	61.71%	5,863	0.71	381.7
Oracle	9.6	80.21%	2,502	0.56	197.9
SAP*	6.8	73.20%	1,629	1.36	86.7
Symantec	1.6	82.97%	222	0.32	17.5
VMware	1.7	85.09%	326	0.75	10.8

\*Euro to USD exchange rate used for SAP is 1.3255 USD/Euro.

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# ***Snapshot by subsector***

## **Software Services**



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## ***Market analysis***

### **Software Services**

- The global outsourcing market, comprising software services, information technology and business process outsourcing, delivered one of its best quarterly performances in Q4 2015, capping a year that saw a record number of contracts. However, as more enterprises revamp their processes around cloud, digitalization and automation, they are pushing for smaller contracts at lower costs. The shorter timelines and lower costs are in turn encouraging enterprises to restructure their older, more expensive contracts.
- A total of 355 contracts were signed in Q4 2015, down 9% from 388 contracts in Q4 2014, but up by 3% compared Q3 2015. Annual Contract Value (ACV) during the fourth quarter stood at US\$7.0 billion, the highest quarterly ACV in the last four years. ACV increased year over year by 5% and quarter over quarter by 25%, mostly due to nine mega-relationships (contracts with ACV of US\$100 million or more) during the quarter.
- For the full year 2015 the number of contracts reached a record 1,445, up 2% over 2014, even though 2015 ACV at US\$23.7 billion, declined by 8%. The shortfall in ACV is largely due to the information technology outsourcing (ITO) market, which declined in annual value by US\$2 billion - or 12% year over year - as more infrastructure moves to the more flexibly priced cloud environment.
- New-scope contract ACV of US\$3.4 billion in Q4 2015 was down 10% sequentially and 1% year over year. Restructured contract ACV was US\$3.6 billion in Q4 2015, an increase of 110% sequentially and year-over-year increase of 10%. Mega-relationship contract ACV was up a staggering 162% sequentially and 43% year over year at US\$2.4 billion.<sup>1</sup>

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## ***Market analysis (continued)***

### **Software Services**

- The Software Services subsector in Q4 2015 reported year-over-year revenue growth of 5.3% and quarter-over-quarter revenue decline of 6.5%. Year-over-year growth was primarily led by Cognizant (+18%) and Infosys (+9%).
- In Q4 2015 Information Technology Outsourcing (ITO) ACV was up 55% sequentially and 15% year over year at US\$5.5 billion. However, for the full year, ITO ACV declined 12% from 2014 at US\$17.2 billion, mainly due to enterprises moving to cloud, digital and automation. This shift has driven the average ACV and contract durations to an all-time low. Business process outsourcing (BPO) ACV of US\$1.5 billion was down 23% sequentially and 20% year-over-year as buyers continued to push for deals at lower values. However, full-year BPO ACV of US\$6.6 billion was marginally up by 4% over 2014.
- At 149 deals with an ACV of US\$2.6 billion in Q4 2015, the Americas has now surpassed US\$2.0 billion in ACV for eight consecutive quarters. However, ACV was flat in both the fourth quarter and full year owing to strong performance of the market in 2014, which was fueled by a buyer's market in the Americas, a jump in mega-relationships, and a rise in contract restructurings.
- The 687 contracts signed during 2015 was a new record, driven in part by a record 252 restructured contracts, valued at an all-time high of US\$4.5 billion. ITO in the Americas during the year was pushed to record highs of 444 deals with an ACV of US\$6.7 billion by application design and maintenance (ADM) work, which accounted for 52% of the region's total ITO ACV for the year. <sup>1</sup>

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## ***Market analysis (continued)***

### **Software Services**

- EMEA posted a strong finish to the year, with Q4 2015 ACV rising 17% to US\$3.9 billion, fueled by the signing of five mega-relationship contracts. For the full year, however, a sluggish first half caused 2015 ACV to decline by 8% to US\$11.7 billion and the number of contracts to decline by 7% to 601. The DACH market's (Germany-Austria-Switzerland) ACV surged 69% to US\$3.5 billion in 2015, aided by Siemens' large renewal with Atos.
- On 24th November 2015, CSC entered into an agreement to acquire UXC Limited, the largest independent and publicly owned IT services company in Australia. The deal is expected to close in February 2016.<sup>2</sup> Also during Q4 2015, Computer Sciences Corp (CSC) separated its North American Public Sector business into the separate entity CSRA Inc., which in turn merged with SRA International, Inc.<sup>3</sup> As a result of the separation, CSC's Q4 2015 revenue of US\$1.8 billion was down 36% sequentially over US\$2.7 billion in Q3 2015. On year-over-year basis, revenue declined 10% over a revised revenue of US\$2.0 billion in Q4 2014. Net income of US\$43.0 million dipped 74% sequentially over US\$167.0 million in Q3 2015. On a year-over-year basis, Q4 2015 net income was an improvement compared to a revised net loss of US\$314.0 million in Q4 2014. The huge loss incurred in Q4 2014 was due to a US\$195 million fine by the SEC over accounting irregularities.

## ***Q4 performance***

### **Software Services**

Company	Q4'15				
	Revenue (US\$ billions)	Gross margin (%)	Net Income (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Cognizant	3.2	40.18%	423	0.69	36.5
CSC	1.8	30.51%	43	0.30	4.5
Infosys	2.4	37.18%	524	0.23	38.3
HCL	1.6	34.56%	291	0.21	18.4
TCS	4.1	44.39%	926	0.47	72.8

Company	Q4'14				
	Revenue (US\$ billions)	Gross margin (%)	Net Income (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
Cognizant	2.7	40.22%	363	0.59	32.1
CSC	1.9	14.15%	(314)	(2.19)	8.9
Infosys	2.2	38.68%	522	0.46	36.2
HCL	1.5	36.99%	308	1.74	18.1
TCS	3.9	44.85%	873	0.45	80.9

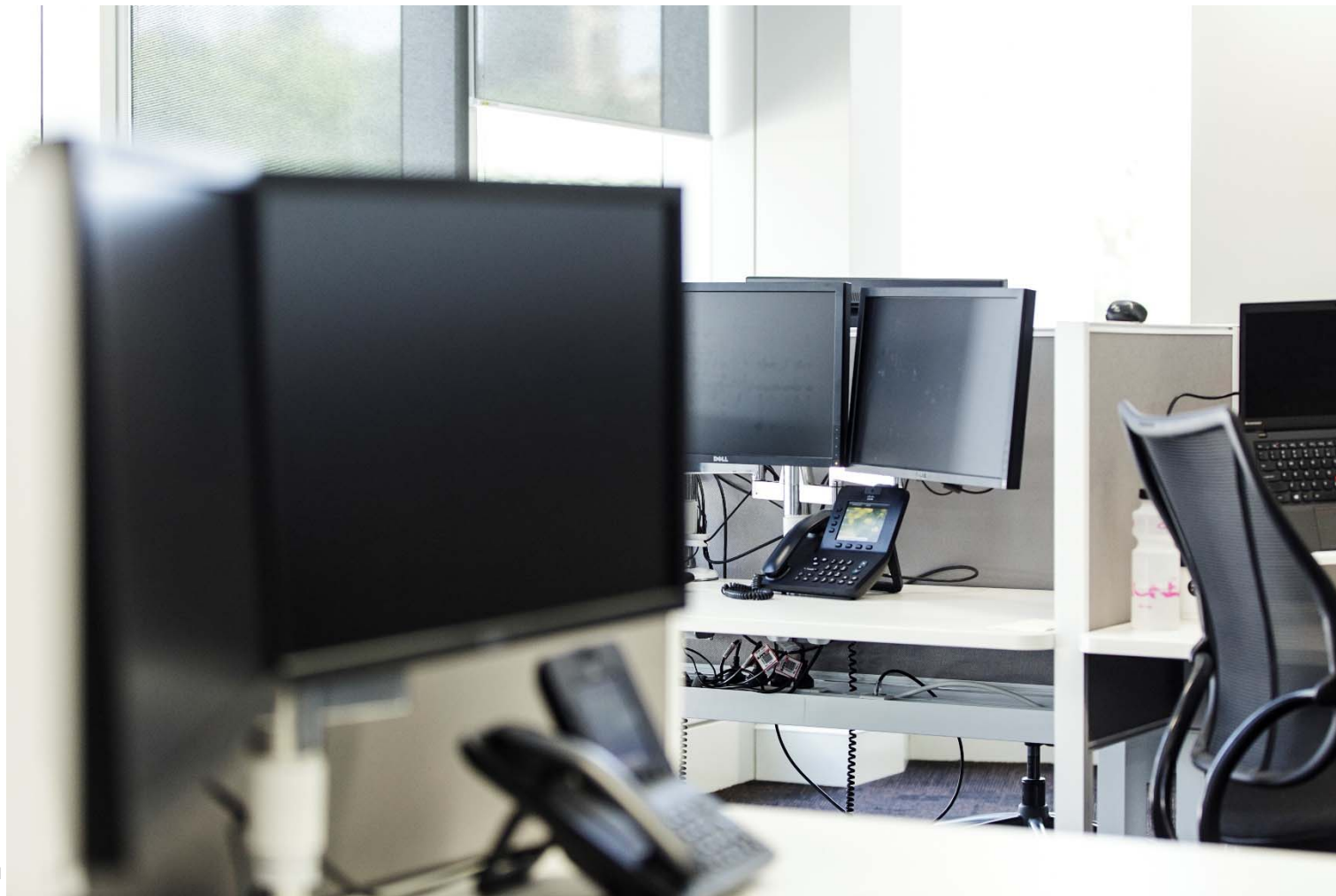
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# ***Snapshot by subsector***

## **Systems and PC Hardware**





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## ***Market analysis***

### **Systems and PC Hardware**

- The Systems and PC Hardware subsector in Q4 2015 reported year-over-year revenue decline of 2.9% and quarter-over-quarter revenue growth of 8.7%. The year-over-year decline was mostly due to HP Inc (-12%), Xerox (-9%) and Lenovo (-8%).
- Total worldwide PC shipments stood at 75.7 million units in the fourth quarter of 2015, an 8% decline from the fourth quarter of 2014. Holiday sales failed to boost overall PC shipments, a continuation of the shift in consumers' PC purchase behavior. On the business side, Windows 10 received positive reviews, but as expected, Windows 10 migration was minor in the fourth quarter as many organizations were just starting their testing period.<sup>1</sup>
- PC shipments decreased in all regions of the world exacerbated by currency devaluation issues in EMEA, Japan and Latin America. As a result, their markets fell by nearly 10% in 2015. Though Lenovo registered a worldwide PC shipment decline for the third consecutive quarter, in the fourth quarter 2015, shipments declined less than the industry average, thereby extending Lenovo's lead in the market. It accounted for 20.3% of worldwide PC shipments in the fourth quarter of 2015.<sup>1</sup>
- On the business side, it is predicted that 50% of enterprises will have started Windows 10 deployments by January 2017. Several factors are driving migration from Windows 7 to windows 10, including awareness of the end of support for Windows 7 in January 2020, the strong compatibility with Windows 7 applications and devices, and a pent-up demand for tablet and 2-in-1 device rollouts. The net result is that many enterprises are planning to begin pilots for Windows 10 in the first half of 2016, and to broaden their deployments in the latter part of the year.<sup>2</sup>

1. Gartner, Jan 2016

2. Gartner, Nov 2015

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## ***Market analysis (continued)***

### **Systems and PC Hardware**

- While the rising US dollar had a negative impact on 2015 results of US multinationals operating in this sector, the headwinds are expected to diminish in 2016 and US multinationals are expected to achieve a 5% growth rate, though the devices market (PCs, ultramobiles, mobile phones, tablets and printers) is forecast to decline 2% in 2016. The combination of economic conditions preventing countries such as Russia, Japan and Brazil from returning to stronger growth, together with a shift in phone spending in emerging markets to lower-cost phones, along with a lack of quick adaptation to tablets in these regions will lead to the stall in demand. Ultramobile premium devices are expected to drive the PC market forward with the move to Windows 10 and Intel Skylake-based PCs.<sup>1</sup>
- Banking on the high demand for portable computing devices, InFocus introduced Kangaroo, the US\$99 Mobile Desktop and World's Smallest Personal, Portable PC. It shrinks a powerful Microsoft Windows 10 PC into a form factor that goes anywhere and works with any screen. By connecting Kangaroo to a mouse, keyboard and monitor or to an iPad, a user can access all Windows 10 desktop programs and files.<sup>3</sup>
- Effective 1<sup>st</sup> November 2015, Hewlett-Packard split its enterprise products and services division into the publicly traded company Hewlett Packard Enterprise.<sup>4</sup> Subsequently, Hewlett-Packard renamed itself to HP Inc. and continues to trade publicly under the ticker 'HPQ'.

## ***Q4 performance***

### **Systems and PC Hardware**

Company	Q4'15				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
EMC	7.0	62.16%	771	0.39	49.9
HP	12.2	18.66%	592	0.33	16.8
IBM	22.1	51.71%	4,463	4.59	133.5
Lenovo	12.9	14.60%	300	2.70	11.3
Xerox	4.7	31.29%	285	0.27	10.8

Dell privatization completed on Oct 29, 2013

Company	Q4'14				
	Revenue (US\$ billions)	Gross margin (%)	Net income/(loss) (US\$ millions)	EPS (US\$)	Market cap (US\$ billions)
EMC	6.0	57.84%	1,147	0.56	60.1
HP	13.9	27.58%	1,366	0.73	73.4
IBM	22.4	49.77%	5,484	5.51	159.0
Lenovo	14.1	-14.51%	257	2.30	13.4
Xerox	5.1	33.26%	156	0.13	15.5

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## ***Methodology***

We analyzed a selection of the largest technology companies included in the S&P 500 index as well as a selection of large international technology companies that regularly report financial results.

In order to present the information by calendar year or calendar quarter, the financial information for companies with non-calendar years or quarters was included in the nearest calendar year or quarter.

We analyzed technology companies that operate predominantly within the following sectors:

- Communications
- Consumer Electronics
- EMS/Distributors
- Internet
- Semiconductors
- Software
- Software Services
- Systems and PC Hardware

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