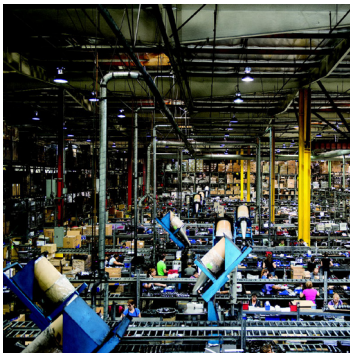
The Internet of Everything
Cisco *IoE Value Index* Study



Cisco predicts that $14.4 trillion of value will be “at stake” over the next decade, driven by “connecting the unconnected” through the Internet of Everything.

The Internet of Everything and IoE Value at Stake

How does Cisco define the Internet of Everything, and how is it different from the “Internet of Things”?

Cisco defines the Internet of Everything (IoE) as the networked connection of people, process, data, and things. The benefit of IoE is derived from the compound impact of connecting people, process, data, and things, and the value this increased connectedness creates as “everything” comes online.

IoE is creating unprecedented opportunities for organizations, individuals, communities, and countries to realize dramatically greater value from networked connections among people, processes, data, and things.

By comparison, the “Internet of Things” (IoT) refers simply to the networked connection of physical objects (doesn’t include the “people” and “process” components of IoE). IoT is a single technology transition, while IoE comprises many technology transitions (including IoT).

Cisco estimates that 99.4 percent of physical objects that may one day be part of the Internet of Everything are still unconnected. Cisco predicts that $14.4 trillion of value will be “at stake” over the next decade, driven by “connecting the unconnected” through the Internet of Everything. These connections can be people-to-people (P2P), machine-to-people (M2P), and machine-to-machine (M2M).

What is meant by “Value at Stake”?

Value at Stake is the potential bottom-line value that can be created, or that will migrate among private-sector companies and industries, based on their ability to harness the Internet of Everything over the next decade. Cisco predicts that this IoE Value at Stake will be $14.4 trillion for companies and industries worldwide over the next 10 years (2013-2022).

IoE will both create new value and redistribute (migrate) value, based on how well companies take advantage of the opportunities that IoE presents.

In other words, from 2013 through 2022, $14.4 trillion of value (net profit) will be "up for grabs" for private-sector businesses globally – driven by the Internet of Everything. IoE will both create new value and redistribute (migrate) value, based on how well companies take advantage of the opportunities that IoE presents. Those that harness IoE most effectively will reap this value in either of two ways:

1. By capturing new value created from connecting the unconnected via IoE
2. By gaining competitive advantage and taking market share from other companies less successful in transforming and capitalizing on IoE

IoE Value at Stake *includes:*

- Shifts of benefits among competing firms in an industry
- Shifts of benefits among different industries
- New-to-the-world revenue growth from innovation
- Cost savings from more efficient processes
- Allowances for implementation costs

IoE Value at Stake *does not include:*

- Extent of losses at firms that don't transform
- Consumer or government benefits
- Social benefits
- Value estimates for reduced risk of operations

What is the difference between Value at Stake and Internet Market Sizing (Total Addressable Market, or TAM)?

Value at Stake is a forecast of the potential bottom-line value that can be created or that will migrate among companies and industries globally based on their ability to harness the Internet of Everything over the next decade. Cisco estimates this value to be $14.4 trillion over the next 10 years.

By contrast, the Internet Market Size, or total addressable market (TAM), is projected to reach $4.1 trillion in annual revenue for all participating vendors by 2016. Beyond relevant information and communications technologies (ICT), it includes e-commerce and advertising. Cisco will address $258 billion (6 percent) of this Internet market (source: Cisco, 2012).

What are the sources of the $14.4 trillion in IoE Value at Stake over the next 10 years?

Cisco's analysis shows that most of this value will come from transforming industry-specific business processes and value chains with capabilities driven by the Internet of Everything: $9.5 trillion will come from industry-specific value (for example, smart grid, connected commercial vehicles), and $4.9 trillion will result from cross-industry value (for example, the "future of work," telecommuting, and travel avoidance).

IoE Value at Stake is based on net value: for each use case, we considered both the connections *benefits* and *costs.*

Companies will benefit from five primary drivers of IoE Value at Stake:

1. Asset productivity and cost reductions
   - Improved capital efficiency
   - Selling, general, and administrative (SG&A) and cost-of-goods (CoGS) reductions from improved business process execution
   - Examples: smart buildings, smart factories
2. Employee productivity
   - Improved labor efficiency
   - Fewer or more productive person-hours
   - Examples: future of work (telecommuting), "bring your own device" (BYOD), mobility
3. Supply chain and logistics efficiency
   - Improved process efficiency
   - Reduced supply-chain waste
   - Examples: Smart grid energy efficiency
4. Innovation
   - Improved research, development, and engineering (RD&E) speed (faster time to market)
   - New business models and sources of revenue
   - Examples: higher quality of products and services
5. Customer experience
   - Improved customer lifetime value
   - Additional market share (more customers)
   - Examples: connected marketing and advertising, connected education

How did Cisco calculate the $14.4 trillion of IoE Value at Stake for the next 10 years?

Cisco estimated the IoE Value at Stake by taking a "bottom-up" approach using the sum of the value created by 21 enterprise use cases in the *private sector only* (consumer and public-sector use cases were excluded) over the next 10 years (2013-2022). IoE Value at Stake is based on net value: for each use case, we considered both the connections *benefits* and *costs*.

Our use cases reflect the *projected result* of a business application of technology – in this case, business transformation driven by the Internet of Everything. Cisco's Value at Stake calculation encompasses both *industry-specific* and *cross-industry* use cases.

... The IoE Value Index focuses on how much value companies are *actually realizing in calendar-year 2013 as a result of their IoE-related capabilities today.*

Which industry-specific and cross-industry use cases did Cisco employ to make its IoE Value at Stake calculations?

Cisco's Value at Stake calculations are based on the following 21 use cases:

Industry-Specific Use Cases:

- Smart grid
- Smart buildings
- Connected ground vehicles (commercial vehicles only)
- Smart farming
- Smart factories (factory automation)
- Wealth management
- Next-generation retail bank branches
- Improved medical management
- Physical and IT security
- Digital malls (next-generation vending machines)
- Connected marketing & advertising
- Digital signage
- Business process optimization (BPO) and related processing services
- Virtual attendants
- Connected payments
- Connected gaming and entertainment
- Connected private college education (virtual private education)

Cross-Industry Use Cases:

- Future of work/telecommuting
- Travel avoidance
- Faster new product introduction and time to market
- Supply-chain efficiency

IoE Value Index

What is the IoE Value Index?

The IoE Value Index is a companion piece to the economic analysis released by Cisco in February 2013 (http://www.cisco.com/web/about/ac79/docs/innov/IoE_Economy.pdf), which estimated the Value at Stake from IoE. Whereas the earlier work examined the total potential opportunity, the IoE Value Index focuses on how much value companies are *actually realizing in calendar-year 2013 as a result of their IoE-related capabilities today*.

The IoE Value Index combines both extensive survey data with third-party metrics on business and technology environmental factors to gauge IoE capabilities around the world, and to examine the key enablers of value in terms of people, process, data and things.

Cisco conducted a web-based survey of 7,501 business and IT decision makers, split between large enterprises (2,000 or more employees) and midsize companies (500-1,999 employees).

Which value drivers are measured in the survey?

Following the earlier economic analysis, for the purposes of the IoE Value Index, there are five value drivers: 1) asset utilization; 2) employee productivity; 3) supply-chain/logistics efficiency; 4) customer experience; and 5) innovation. The following table provides a breakdown of the process and functional mapping within the drivers:

Domain	Functions	Business Process
Asset utilization	Manufacturing, logistics, facilities, CFO, COO	IT effectiveness, managed financial and non-financial resources, F&A, compliance, facilities, legal
Employee productivity	HCM, HR, general management	AP/AR, billing, HR management, risk management and compliance, strategy
Supply-chain / logistics efficiency	Logistics, purchasing, supplier management	Source and deliver
Customer experience	Sales, marketing, customer service and support	Market and sell, customer-touching processes
Innovation	R&D, engineering, marketing, product development, general management	Develop vision and strategy, design products and services

Whom did Cisco survey for the IoE Value Index?

Cisco conducted a web-based survey of 7,501 business and IT decision makers, split between large enterprises (2,000 or more employees) and midsize companies (500-1,999 employees). Sixty-three percent of participating organizations were large enterprises; 37 percent were midsize companies. Small businesses (having fewer than 500 employees) were not included in the study.

Cisco fielded the survey in 12 of the largest economies globally (representing nearly 70 percent of worldwide GDP): Australia, Brazil, Canada, China, France, Germany, India, Japan, Mexico, Russia, U.K., and U.S. Forty percent of respondents were director-level employees or higher, with 60 percent being "middle managers" (having a minimum of five direct reports). Surveys were fielded in English, French, German, Japanese, Mandarin (simplified), Portuguese, Russian, and Spanish. The following tables presents the total completed surveys by country and by industry:

Respondents were also reflective of the main value drivers used in our model, providing for representation from a cross-section of functional areas.

Country	Number of Completed Surveys
Australia	308
Brazil	681
Canada	473
China	871
France	422
Germany	731
India	813
Japan	724
Mexico	411
Russia	560
United Kingdom	624
United States	891
Total	**7,501**

Industry	Number of Completed Surveys
Services	1,321
Manufacturing	1,294
High Tech/Telecom	1,175
Retail/Wholesale/Hosp.	1,118
Financial Services	863
Healthcare, Life Sciences	560
Other	484
Energy	352
Transportation	334
Total	**7,501**

As the preceding Value at Stake analysis focused only on the private sector, no public-sector officials were surveyed for the IoE Value Index. Accordingly, there are no breakouts for government, education, or healthcare (except private entities) in our calculations.

Respondents were also reflective of the main value drivers used in our model, providing for representation from a cross-section of functional areas. The distribution of respondents by value driver was as follows:

Value Driver	Number of Completed Surveys
Asset utilization	1,644
Employee productivity	1,307
Supply-chain / logistics efficiency	1,303
Customer experience	1,786
Innovation	1,461
Total	**7,501**

The survey component of the Index is based on a respondent's capabilities in three areas: collaboration, analytics/"Big Data," and the Internet of Things.

IoE Value Index: Value Realized

What is meant by IoE "value realized"?

Value realized represents Cisco's estimate of the total Value at Stake companies have captured by virtue of their current IoE-related capabilities. Value realized in any segment is expressed as a percentage, where the "numerator" of the fraction represents an estimate of the value captured, and the "denominator" represents the Value at Stake in that segment. Value realized is presented through multiple lenses in the Index, including by geography, industry, company size, and value driver.

How were the IoE value-realized estimates calculated?

The IoE Value Index incorporates both survey data and market indicators drawn from third parties.

The survey component of the Index is based on a respondent's capabilities in three areas: collaboration, analytics/"Big Data," and the Internet of Things (for example, sensors). These capabilities are representative of the core enablers of the 21 IoE use cases around the world. The survey asked business and IT leaders to provide perceptions of their companies' strengths and weaknesses across these capabilities in order to ascertain the level of progress their companies have made in each area.

The third-party data component of the Index is based on measures of transformational IT investment of a respondent's industry and the levels of innovation productivity and network quality within a respondent's country. By combining transformational IT investment, innovation productivity, and network quality, we created a composite picture from both an industry and geographical perspective.

Using both survey data and third-party market data enabled Cisco to base the Index upon both intra-firm capabilities (as assessed in the survey) and "hard" data on the business environment in which companies operate. Respondents were not asked about IoE per se, but rather about the types of capabilities their organizations possessed in collaboration, analytics/"Big Data," and the Internet of Things; the quality and quantity of information available to them; and their views on the overall connectedness of their business.

Which years does the IoE Value Index cover?

The IoE Value at Stake economic model covers a 10-year projected time period: 2013-2022. The value-realized scores are for the full calendar year of 2013, representing a 12-month forecast, rather than year-to-date.

How much value are firms realizing from IoE in 2013?

The estimated IoE Value at Stake for private-sector firms in the 12 countries in this study is $1.2 trillion for 2013. Based on Cisco's estimates, firms globally are on track to realize $613 billion of value from IoE in 2013 — meaning that companies will capture 53 percent of the potential Value at Stake during the calendar year. It also means they will fail to capture 47 percent of potential Value at Stake in the same time period (that is, value "left on the table").

While companies can build IoE capabilities in ensuing years, value left on the table is a lost opportunity due to the time value of money and deteriorated competitive position.

Of the $613 billion in IoE value for 2013, what percentage is *additional* profit?

The $613 billion of IoE value for 2013 equates to the total corporate profits attributable to IoE. Cisco estimates that 59 percent of this will be new value resulting from technology innovation (*additional* profits created), while 41 percent will be generated by companies capturing market share from the competition (profits moving among competing firms and industries). This implies that approximately $362 billion in new, incremental profits is available to firms this year (that is, for companies having at least 500 employees in the 12 countries included in the IoE Value Index).

What happens to the Value at Stake that firms fail to capture in a given year?

Value realized stems from current-state capabilities. The value "left on the table" as a result of failing to emulate the best firms (i.e., the "realistic capability horizon") is money companies have essentially foregone. Value-realized scores represent a snapshot-in-time metric. While companies can build IoE capabilities in ensuing years, value left on the table is a lost opportunity due to the time value of money and deteriorated competitive position.

What is the role of small businesses in the $14.4 trillion IoE Value at Stake estimate? And how was this sector's removal accounted for in the $1.2 trillion potential IoE Value at Stake for 2013?

An important difference between the IoE Value at Stake analysis and the estimates presented in the IoE Value Index is that the former includes small businesses (i.e., those with fewer than 500 employees). The value-realized study, on the other hand, looks only at midsize companies and large enterprises. All value-realized calculations exclude companies with fewer than 500 employees.

The primary source used for these calculations was the U.S. Census of Businesses. Cisco estimated that approximately 43 percent of the $14.4 trillion in IoE Value at Stake comes from firms with fewer than 500 employees – what, for our purposes, we have termed "small businesses" (SBs). This estimate is based on the relative payrolls for firms in each company size class. It is important to note that this 43 percent varies widely by industry. For example, the construction industry is very SB-intensive; the SBs' IoE Value at Stake share in this sector is 80 percent. By contrast, in the high-tech and telecommunications industry, which includes large technology firms and service providers, this share is just 23 percent.

Also, it should be noted that the one-year view comprises only the 12 countries in scope for this study – it is not a worldwide number. Value realized and Value at Stake are closely aligned from a market taxonomy standpoint, so there is very little definitional slippage between the two concepts; this facilitates comparison of "actual" versus "potential."

Business and IT leaders have a positive view of IoE's potential impact. In fact, over the coming three years, 47 percent believe that IoE will increase wages, and 50 percent feel it will improve information security.

Why were small businesses excluded from the IoE Value Index?

Cisco did not include SBs in the survey due to practical (market research) considerations and resource limitations. For example, as a result of inherent differences in their scale and operations, it is difficult to compare enterprises to SBs. Moreover, securing participation from the right individuals within SBs can be challenging, whereas in a larger enterprise, there are a greater absolute number of suitably senior (and knowledgeable) managers who are eligible to participate in a survey such as this. Having an additional company size band also would have complicated the extensive quotas Cisco put in place to ensure representativeness by functional area, industry, country, and so forth. Finally, we opted to focus available research budget and resources on large enterprises and midsize companies to ensure we had substantial sample sizes in all 12 of our in-scope countries.

What would be the impact to profits if small businesses were included in these estimates?

As we did not survey SBs, we cannot accurately estimate the value realized, or the resulting profit potential for this group of companies.

IoE Value Index: Key Findings

Which key trends did the research uncover?

Although they're currently falling short of their IoE potential, firms do recognize the significance of IoE as they strive to realize value. Seventy-nine percent viewed IoE pervasiveness as having "increased" or "significantly increased" over the past three years, and 84 percent believe IoE's pervasiveness will "increase" or "increase significantly" over the next three years.

The survey also showed that business and IT leaders have a positive view of IoE's potential impact. In fact, over the coming three years, 47 percent believe that IoE will increase wages, and 50 percent feel it will improve information security. In terms of IoE's impact on job creation, perceptions differed across regions. Respondents from emerging markets overwhelmingly associated IoE with job gains, while respondents from developed countries were somewhat more mixed in their assessment of likely employment impacts.

Why are business and IT leaders so optimistic about IoE's potential benefits?

Primarily, they see IoE as critical to helping them stay ahead of the accelerating innovation curve. Overall, our survey respondents identified three key business drivers for IoE adoption: 1) the accelerating pace of innovation (mentioned by 36 percent of respondents), 2) the need to satisfy consumer demand for new ways of interacting (35 percent), and 3) the need to automate business processes (35 percent). In addition, they are convinced that IoE can help them thrive amidst the exponential growth of devices, data, and technologies. Respondents cited three main technology drivers of IoE: 1) new types of devices (mentioned by 33 percent of respondents), 2) the volume of data being generated (32 percent), and 3) cloud-based technologies (31 percent).

Forty-six percent of respondents named "operational efficiency" — driven by improved asset utilization, supply chain, and employee productivity — as a key benefit of IoE.

Are there downsides to IoE pervasiveness for private-sector firms?

As IoE grows, firms will need to confront security, regulatory, and IT challenges (the top three concerns raised by survey respondents). Forty-two percent mentioned new threats to data and physical security as a top concern; 38 percent mentioned the inability of IT systems to keep pace with change; and 32 percent cited regulatory or compliance issues.

What are the top challenges to realizing value from IoE?

Forty-three percent of respondents cited "Need to invest in new technology infrastructure" as a top challenge to be overcome in realizing value from IoE. The two other leading challenges, according to respondents, are "ability to integrate new technologies with legacy IT environments" (cited by 38 percent of respondents) and "ability to update processes to absorb new technologies" (mentioned by 38 percent of surveyed executives). Together, these factors point to an overarching need to harness technology innovations strategically for business benefit.

What are the top three benefits of IoE, as identified by survey respondents?

Forty-six percent of respondents named "operational efficiency" — driven by improved asset utilization, supply chain, and employee productivity — as a key benefit of IoE. "Customer service" (improved customer experience) was the second-ranked benefit (named by 34 percent of respondents), while intra-company collaboration (driven by improved innovation and employee productivity) was third (31 percent). Respondents could choose up to three benefits.

Which countries' firms are currently realizing the most value from IoE?

In absolute terms, the United States ($253 billion), China ($76.9 billion), and Germany ($54.4 billion) are leading the world in value realized from IoE in 2013. On a percentage basis, however, German firms are projected to realize the largest share of Value at Stake from IoE in 2013 (62.2 percent), followed by firms in Japan (57.7 percent), France (54.2 percent), the United States (53.5 percent), the United Kingdom (53.4 percent), and Canada (53.1 percent).

Although they currently rank lower than developed countries in terms of value realized in 2013, emerging countries did demonstrate significant recognition of IoE's potential. In fact, on a scale of 1 to 10, business and IT leaders from India (8.2), China (8.0), Brazil (7.9), Mexico (7.4), and Russia (7.2) all exhibited higher confidence in their firms' ability to capture value from IoE than was shown by their counterparts in developed countries (who had an average response of 6.7).

From which business areas are firms realizing the most value?

In absolute terms, supply chain is driving the most IoE value in 2013 ($158.7 billion), followed by customer experience ($145.2 billion), innovation ($100.5 billion), asset utilization ($109.7 billion), and employee productivity ($89.3 billion).

The survey model uses people, process, data, and things – the building blocks of the Internet of Everything – as enablers of IoE value.

On a percentage basis, however, asset utilization will realize the highest share of IoE Value at Stake during 2013 (56.4 percent) – further evidence that this important driver has been a starting point for many areas of IoE investment. Innovation (54.5 percent) and employee productivity (54.2 percent) also rank high, possibly due to high penetration of collaboration solutions in global enterprises. Supply chain and customer experience – both at 51.1 percent – show the most room for improvement among the five drivers of IoE Value at Stake.

Is there much variation by company size in terms of value realized from IoE in 2013?

Although smaller companies slightly outperformed larger companies in terms of value realized, the variation was relatively minor among firms with 500 to 1,999 employees (54.1 percent value realized), 2,000 to 9,999 employees (53.3 percent), and 10,000 or more employees (52.4 percent). The implication of this finding is that IoE-driven value is broadly accessible to companies of different sizes, and is not just the preserve of the wealthiest firms.

Which industries are currently realizing the most value from IoE?

Not surprisingly, the industries with the greatest IT penetration tended to score highest in terms of IoE value realized. High technology/telecommunications (65.4 percent), financial services (60.5 percent), and services (57.4 percent) lead the way, largely due to their significant installed bases for collaboration, analytics, and other IoE-related solutions. Retail/wholesale (44.9 percent), energy (45.8 percent), and manufacturing (46 percent) have the greatest IoE upside potential. By virtue of their sheer size as sectors of the economy, services and manufacturing are the two industries with the largest absolute level of value realized.

Which "IoE enablers" are most important to driving value realized in the IoE Economy?

The survey model uses people, process, data, and things – the building blocks of the Internet of Everything – as enablers of IoE value. By performing regressions of different enablers against value realized (survey data only), we learned that technology is the single most important factor for enabling participation in the IoE Economy. By itself, however, "quality of technology infrastructure and tools" explains only around 20 percent of changes in value realized. Therefore, while IT is a big part of the IoE story, it does not *equal* IoE. The ability to address the people and process issues – which together account for more than half of the change in value realized in Cisco's model – is critical. Technology, of course, will play a huge role in solving these people and process challenges.

How is IoE raising the stakes in the marketplace?

IoE is driving competitive parity throughout the private sector. Emerging-market countries and midsize companies are poised to realize significant value from IoE, enabling them to achieve parity with – or even to outpace – developed countries and larger firms. This "democratization of IT and value" has the potential to alter competitive landscapes in record time.

IoE combines several market transitions and will underpin a substantial share of economic growth in the coming decade.

While there is an increasing equality of opportunity, IoE also presents a platform on which to unleash disruptive innovations. It is the relative success by which firms combine data with people, process, and things that predicts sustainable competitive differentiation. Although firms around the world are more tightly bunched from a competitiveness standpoint, very few companies are realizing their full value potential from IoE, and outsized gains are possible for the savviest firms.

What are the next steps for firms looking to maximize their value from IoE?

To capture more value in the IoE Economy, companies must take a strategic approach that involves: 1) investing in high-quality technology infrastructure and tools, 2) adopting and following inclusive practices, and 3) developing effective information-management practices. Please refer to Cisco's more detailed paper on the IoE Value Index (http://www.internetofeverything.com) for additional context on how firms can go about extracting value from IoE.

More About Value at Stake and the IoE Value Index

Why is the IoE Value at Stake so large in the first year of this 10-year model? If it is already $1.2 trillion in 2013, does that mean this market is not growing very rapidly?

No – far from it. IoE combines several market transitions and will underpin a substantial share of economic growth in the coming decade. When considering the distribution of IoE Value at Stake over the 10-year span, it is important to remember that Value at Stake in our model is a function of 21 specific use cases. It is not the sum total of conceivable value. These use cases had to meet criteria of IoE relevance, quantifiability, materiality, discreteness (to avoid double-counting), and achievability – that is, some number of firms are implementing these use cases today and they are viable (and available) from a commercial standpoint. In other words, all use cases are reasonably mature and very "real" today.

Cisco opted to take a conservative approach in its modeling. While we have limited our estimates to just those benefits associated with the 21 use cases, there will undoubtedly be many innovations over the next decade that we cannot foresee, or which have not yet reached a minimum threshold of commercial availability and deployment today. Additionally, to account for market uncertainties inherent in our model (such as interest rates and regulatory developments), we have aggressively discounted all use cases (Value at Stake is a net-present-value figure). In some instances, these discount factors exceed the organic growth rate of individual use cases, particularly those that are already quite mature. It is important also to recognize that IoE Value at Stake is essentially a "potential," and as more firms avail themselves of these capabilities, the incremental upside associated with greater adoption inevitably declines. As we approach the outlying years of the model, new innovations will attain a status of materiality and achievability that would recommend their inclusion in an IoE Value at Stake calculation, thereby increasing the total potential.

Respondents were vetted carefuly to ensure they met the criteria for participation in the study.

What was the role of the MIT Center for Digital Business in this project?

The MIT Center for Digital Business team provided advice to Cisco in the design of the questionnaire. Cisco designed the IoE Value Index and performed Value at Stake and value-realized estimates independently.

Who fielded the IoE Value Index survey?

The study was executed by the Cisco Consulting Services (formerly the Internet Business Solutions Group) Research & Economics Practice. Cisco commissioned Global Market Insite (GMI), a Lightspeed Research company, to undertake all fieldwork, leveraging a partner network of nearly 20 market research vendors to target respondents around the world. Respondents were vetted carefully to ensure they met the criteria for participation in the study. Respondents were paid for their participation by GMI.

Were respondents in the IoE Value Index survey Cisco customers?

Presumably many respondents were Cisco customers, but the survey was conducted on a "blind" basis – all respondents provided their responses anonymously, and Cisco was not called out to the participating business and IT leaders as sponsoring the research. Respondents were given the option to provide their company's name, but this was not a requirement in the study.

Can these numbers be trusted if Cisco is publishing them itself? Doesn't Cisco have a lot to gain from IoE?

Cisco certainly has a great deal to gain from IoE – as do all other companies that recognize the potential value. The IoE Value at Stake and value-realized calculations, however, do not directly reflect Cisco's own market opportunity (it is completely separate from our "total addressable market"; see above), but rather that of all large enterprises and midsize companies in the 12 countries we analyzed.

How was quality of data ensured in the research process?

We made all practical efforts to ensure the highest-quality data. The Cisco Consulting Services Research & Economics team employed industry best practices on a host of fronts, including:

- Consultation with industry and academic experts on key concepts and research design
- Large sample sizes throughout
- Extensive quota management to ensure representativeness by functional area, seniority, country, industry, company size, and so forth
- Cutting-edge techniques to filter out problem respondents before they commenced the survey
- Rigorous panel health and screening measures for all vendors participating in the fieldwork, aimed at ensuring respondents were who they said they were, and could speak knowledgeably on the matters at hand

While video, social networking, collaboration, and cloud-driven capabilities serve as core components of IoE, the IoE Value Index examines the progress firms are making toward the IoE opportunity overall.

- Post-hoc data cleansing, including:
  - Removing respondents who completed the survey in an unrealistically short amount of time
  - Removing respondents whose open-ended text responses were non-sensical
  - Use of survey "traps" to terminate respondents who were not considering questions carefully or were offering contradictory responses
  - Weighting of the sample to "true up" with actual industry distributions of firms in different geographies (i.e., to ensure the sample was not "overweight" for any industry)
  - Confirmation of unique IP addresses, from appropriate countries, for all respondents

How does the IoE Value Index relate to Cisco's Visual Networking Index (VNI) and the Global Cloud Index (GCI)?

The Cisco VNI (http://www.cisco.com/en/US/netsol/ns827/networking_solutions_sub_solution.html) is the company's ongoing effort to forecast and analyze the growth and use of IP networks worldwide, spanning video, social networking, and advanced collaboration applications (what the company terms "visual networking"). The Cisco GCI (http://www.cisco.com/en/US/netsol/ns1175/networking_solutions_sub_solution.html) forecasts data center and cloud traffic and related trends, including broadband performance and cloud-based workloads. While video, social networking, collaboration, and cloud-driven capabilities serve as core components of IoE, the IoE Value Index examines the progress firms are making toward the IoE opportunity overall. It is not a forecast of adoption of specific technologies, or patterns in IP traffic, but rather an estimate of how much Value at Stake is actually being realized by companies.

How will IoE impact Cisco's business?

IoE is a great opportunity for Cisco and its customers. Cisco stands to benefit from IoE because, in the context of IoE, companies will extend the network into every aspect of their business. Cisco's unmatched expertise in using network technology to capture market transitions makes it uniquely positioned to help customers capture the value of IoE. Only Cisco has the ability to build, manage, and secure an IP-based platform with open standards – from cloud to end devices.

Where can I learn more about IoE?

You can learn more about this research, and the opportunities presented by IoE, at: http://www.internetofeverything.com.

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