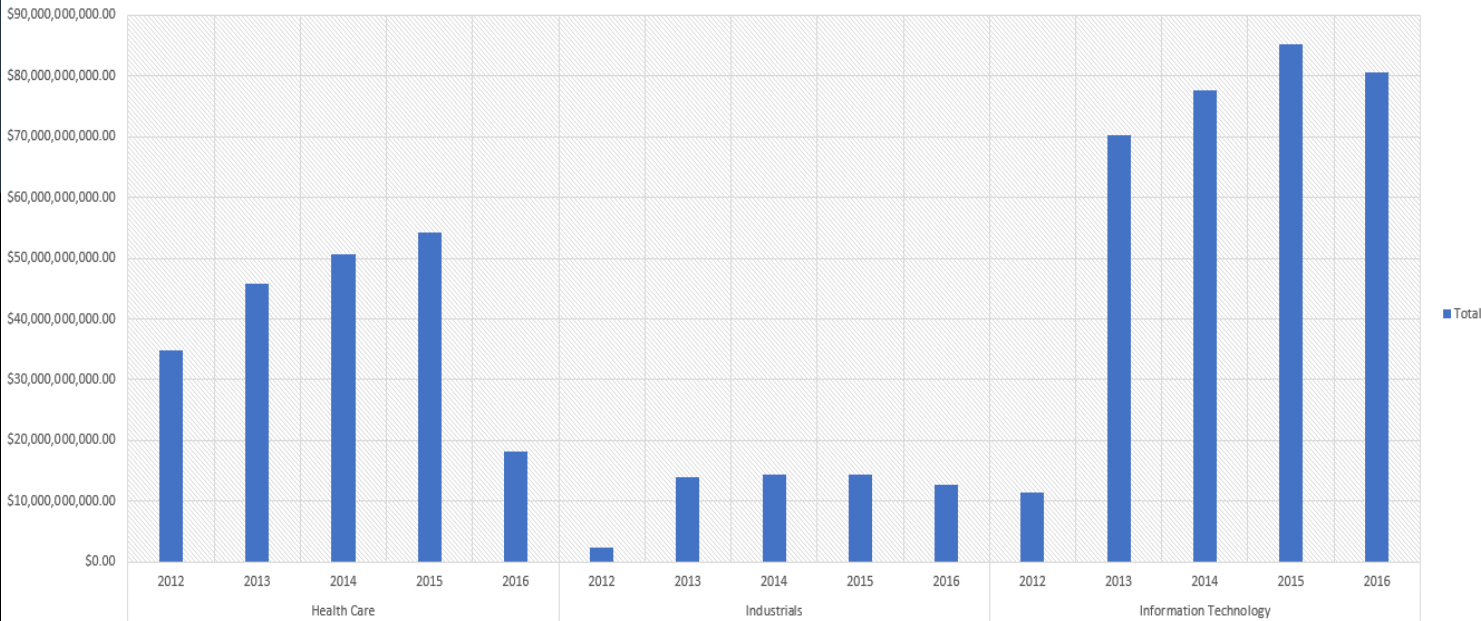


Business Analytics

Data Analysis NYSE

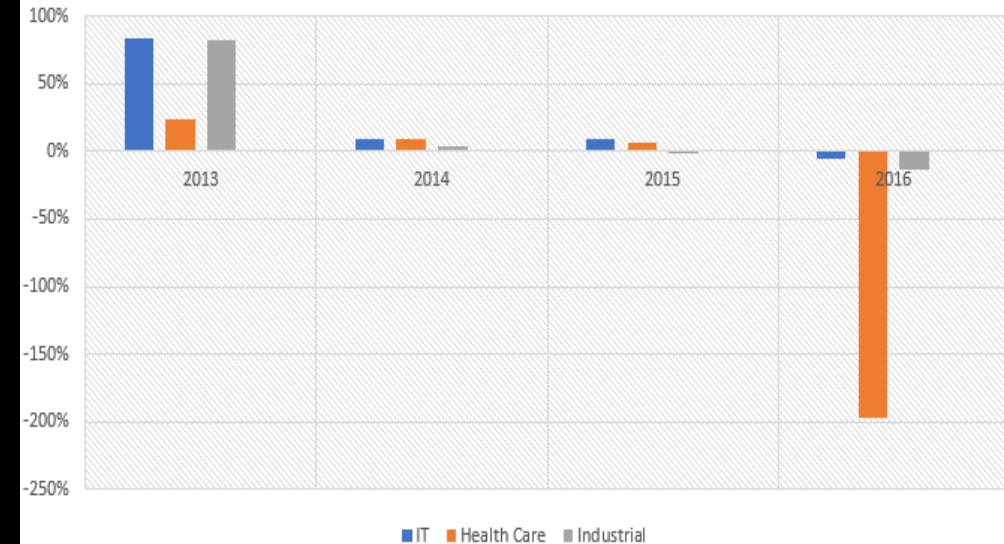
What are the sectors GICS in which research and development expenditures amounted to more than \$10 trillion?

Research & Development for GICS Sector



The graph shows sectors GICS whose research and development expenditures exceeded \$10 trillion from 2012 to 2016: health care, information technology, and industries, The exchange value of the information technology sector increased to \$80 trillion in 2015.

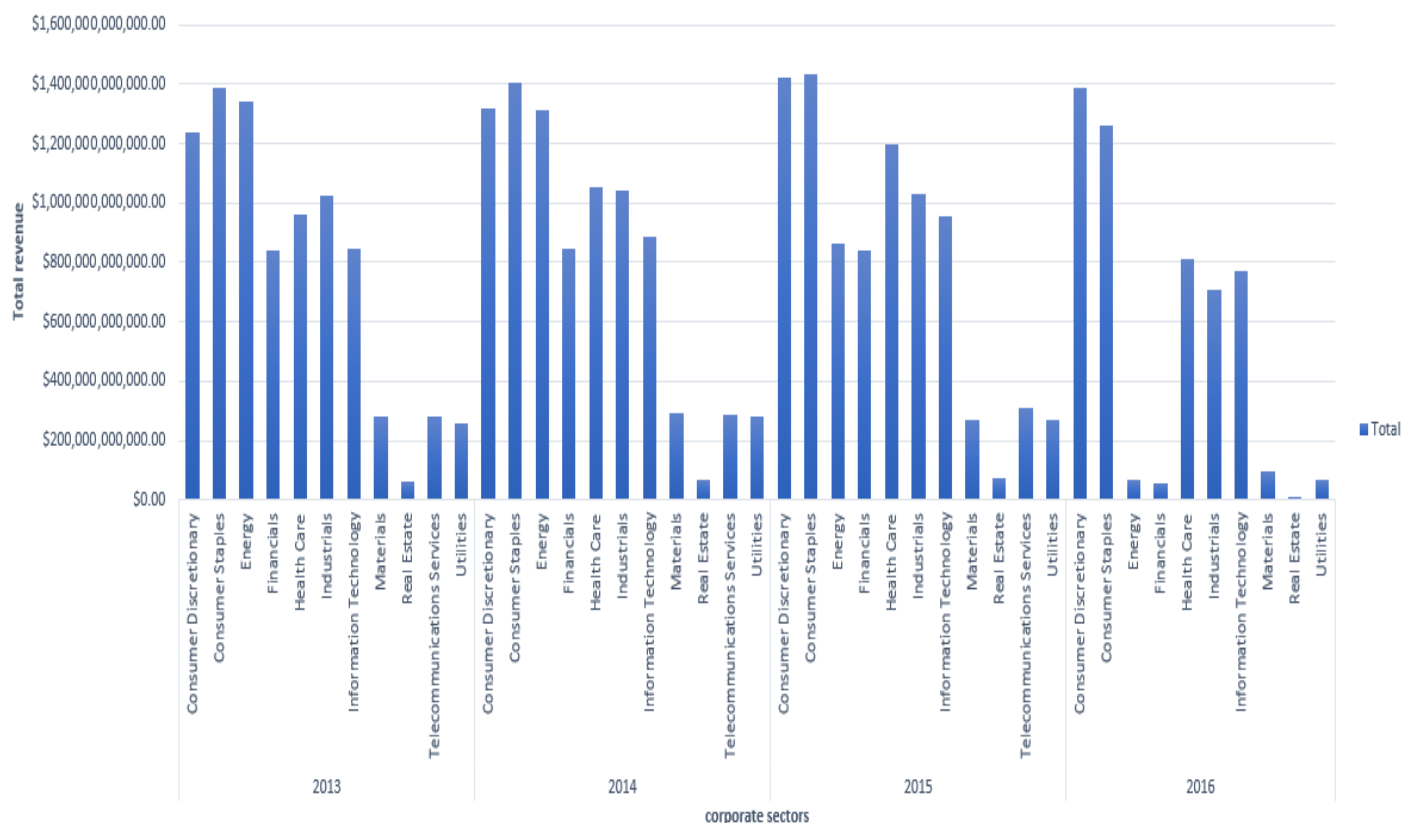
Growth Rates



R & D GICS Sect	Summary Statistics					
	Average	Median	standard deviation	max	min	Range
IT	\$65,007,727,400	\$77,563,832,000	\$27,180,827,873	\$85,193,326,000	\$11,528,676,000	\$73,664,650,000
Health Care	\$40,723,697,000	\$45,809,086,000	\$13,012,193,427	\$54,144,495,000	\$18,225,746,000	\$35,918,749,000
Industrials	\$11,539,949,800	\$13,893,312,000	\$4,629,568,960	\$14,446,831,000	\$2,365,750,000	\$12,081,081,000

Which of the sectors has the highest annual revenue rate?

Total Revenue GICS Sector - from 2012 to 2015



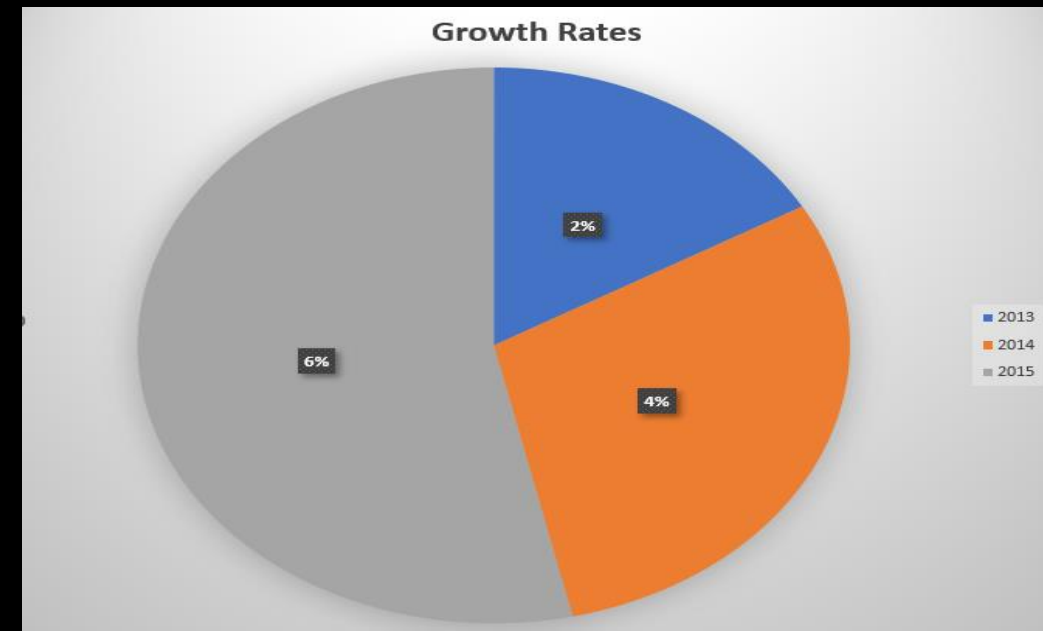
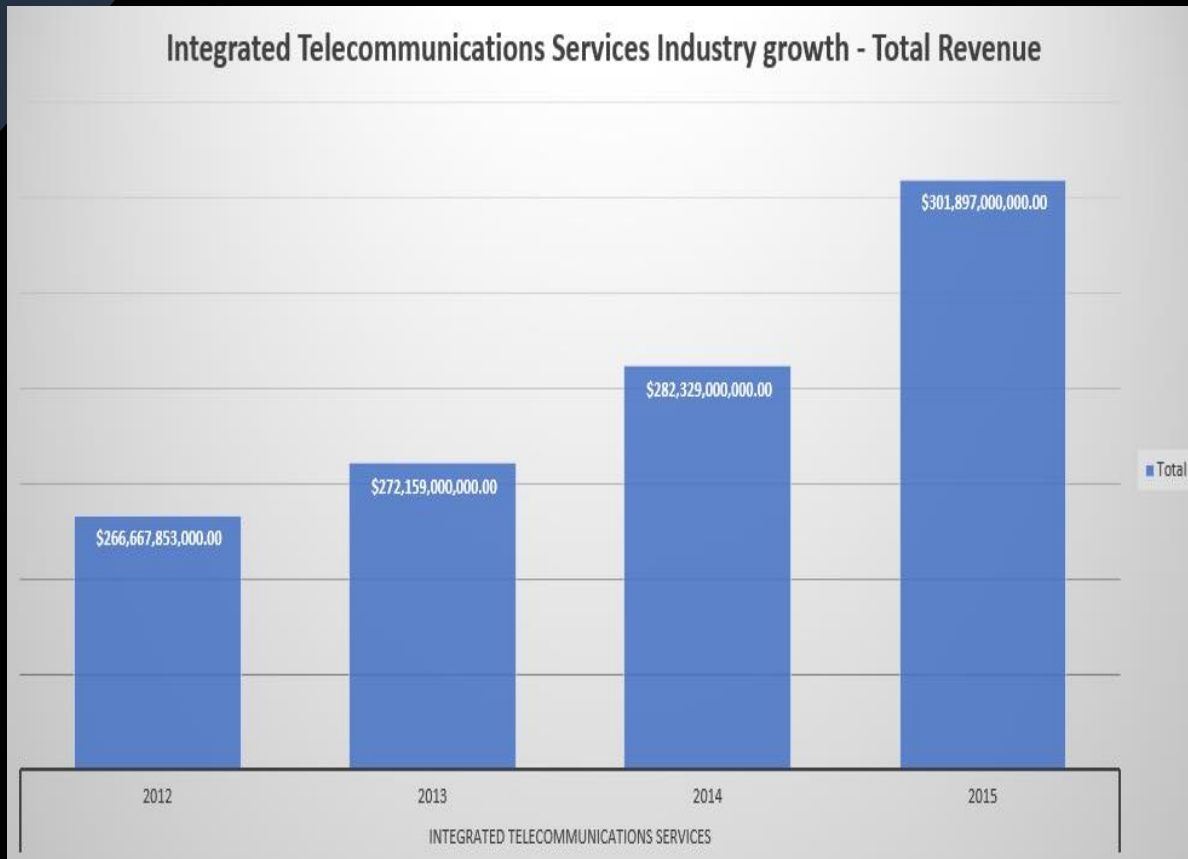
The consumer sector is the highest sector in terms of revenue growth, with average annual rate from 2013 to 2016 of 4%, which is equivalent to \$1,376,273,777,666.67 of revenues.

Summary Statistics for Total Revenue GICS Sector

- The **standard deviation** of total revenue for energy industry firms is \$515,578,559,808 Above the standard deviation of total revenue for all Consumer Discretionary Sector \$69,781,474,73.
 - The **Median** total revenue for companies Consumer Staples industry \$1,396,570,999,500 was higher compared to the Median total revenue for all Consumer Discretionary Sector \$1,352,973,174,500 . It looks like companies in the Consumer Staples have a higher total revenue on average than all Consumer Discretionary Sector.
 - The **Range** for the Energy sector Total Revenue at \$1,277,320,404,000 is higher than The Range of Total Revenue for the Consumer Discretionary sector at only \$182,823,880,000. It looks like companies in the Energy sector have more significant variability in the total revenues.
 - The **Mean** gross revenue for Consumer Staples sectors is \$1,258,325,970,000 The highest compared to the Mean total revenue for all consumer segments was \$1,240,051,104,000. Firms in the Consumer Staples industry appear to have higher total revenues on average than all sectors.
-

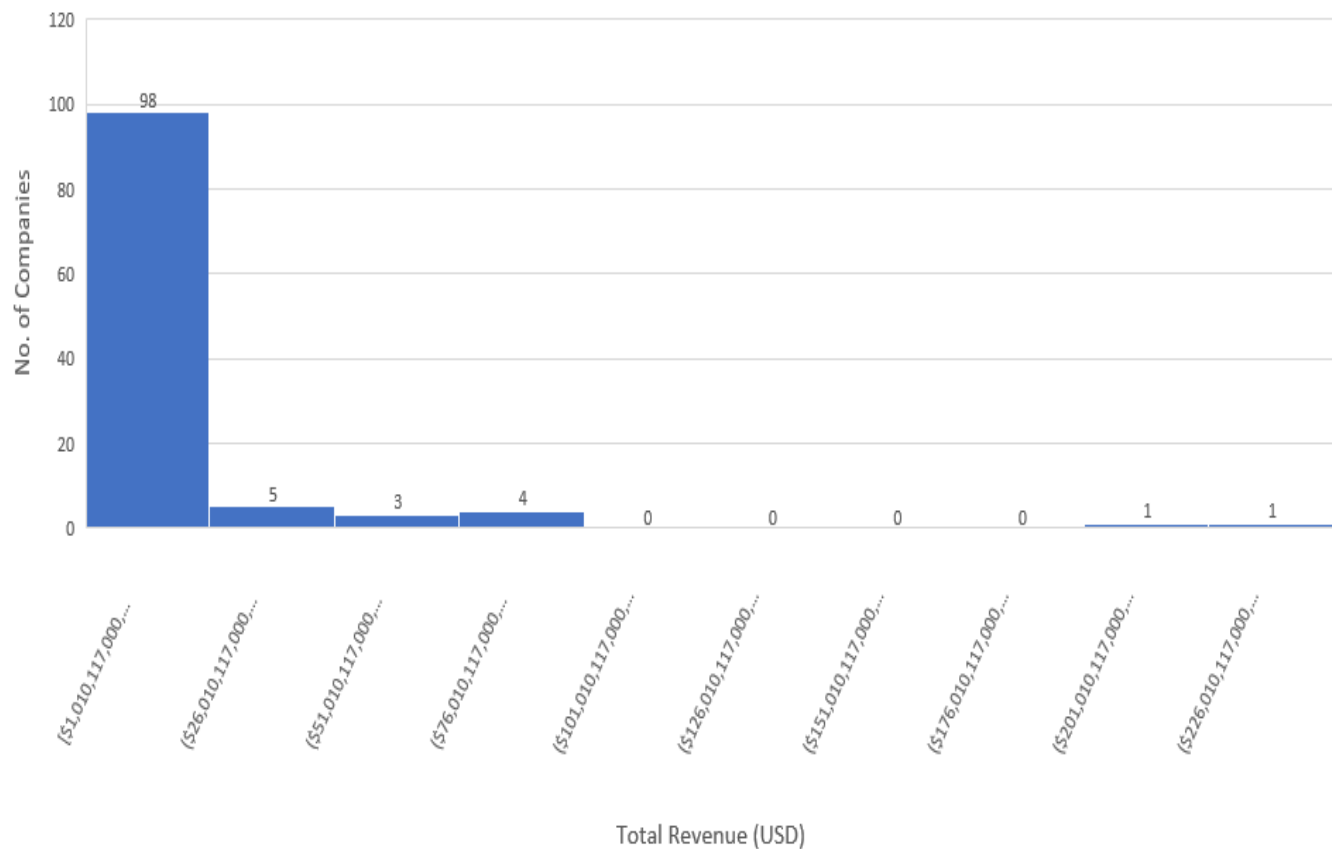
Total Revenue for Integrated Telecommunications Services sub sector

Although the telecommunications sector did not achieve high revenues compared to the rest of the sectors, we note a positive growth from 2012 to 2015, with an average growth rate of 4% for the past three years, with an average revenue value of \$285,461,666,667.



Total Revenue for IT companies from Year 3 to Year 4

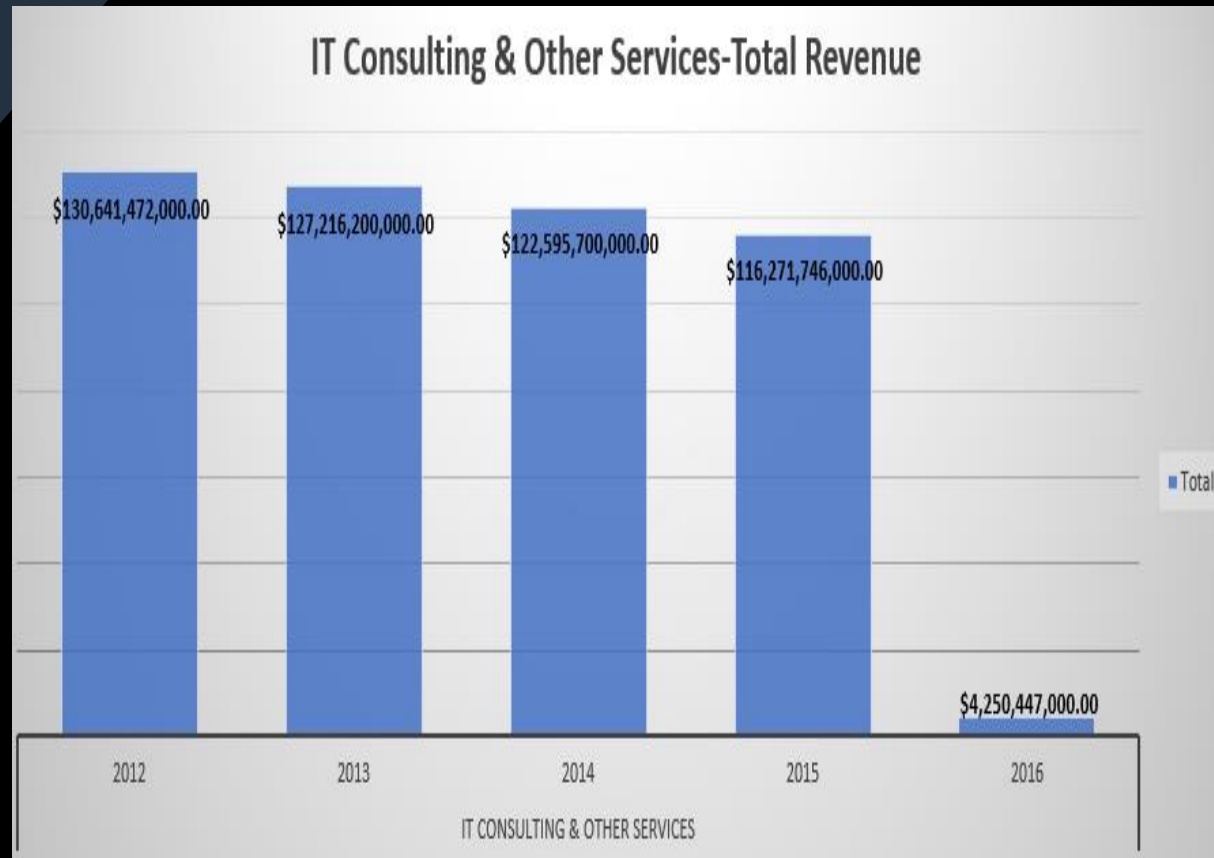
Total Revenue for IT companies from Year 3 to Year 4



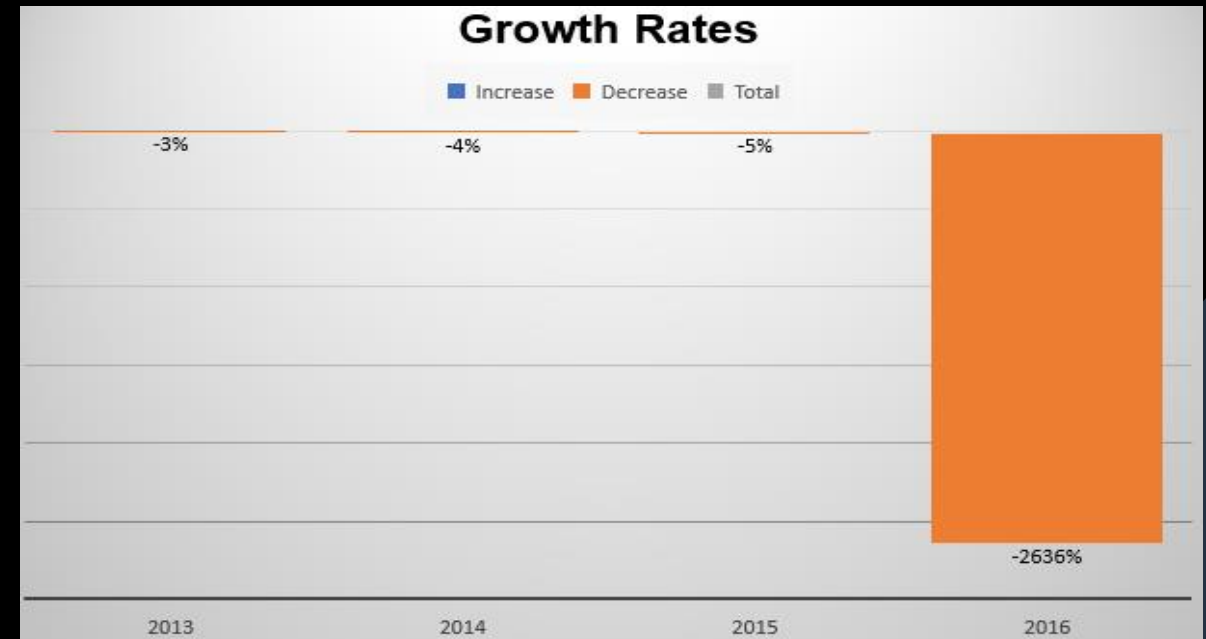
The graph shows the total revenues of the information technology sector from Year 3 to Year 4 (\$1,603,714,516,000), we can see the Stander Deviation is (\$27,144,249,517) greater than the mean (\$14,447,878,523) and Median (\$5,345,500,000) , It has a positive Skewness of about 4.66.

Summary Statistics	
Mean	\$14,447,878,523
Standard Error	\$2,576,418,147
Median	\$5,345,500,000
Mode	#N/A
Standard Deviation	\$27,144,249,517
Sample Variance	\$736,810,281,867,507,000,000
Kurtosis	\$28
Skewness	4.66
Range	\$214,628,883,000
Minimum	\$1,010,117,000
Maximum	\$215,639,000,000
Sum	\$1,603,714,516,000
Count	\$111
Largest(1)	\$215,639,000,000
Smallest(1)	\$1,010,117,000
Confidence Level(95.0%)	\$5,105,856,036

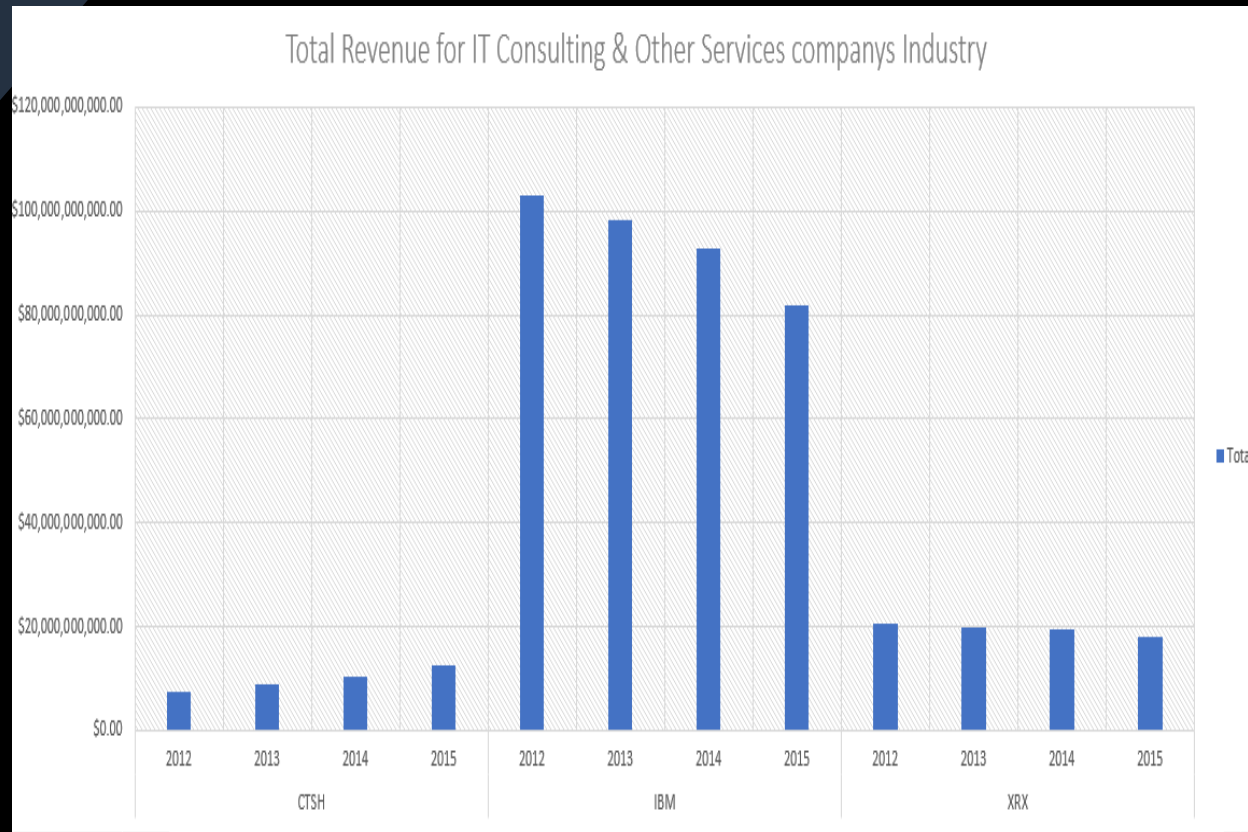
Total Revenue for IT Consulting & Other Services



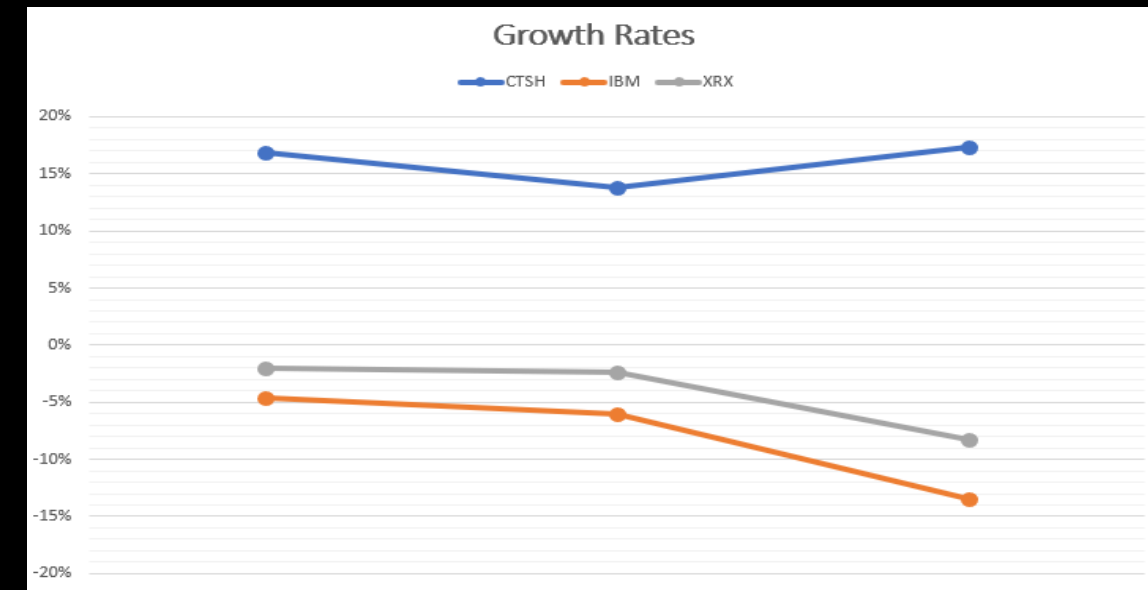
The IT Consulting & Other Services sector witnessed a gradual decrease in revenues from 2012 to 2015, approximately equivalent to an average of -4%, and in 2016 it decreased from \$116,271,746,000 to \$4,250,447,000, with an average of -662%.



Which of the companies that achieved the highest revenues and the highest annual growth from 2012 to 2015 in the IT Consulting & Other Services sector?



IBM achieved the highest revenues with an average of \$93,943,750,000, but its growth rate was low, as shown in the graph, with an average growth of -8%, Unlike Cognizant Technology Solutions(CTSH), its average annual revenue was low at \$9,717,093,000, but its growth is high, as shown in the chart, with an average of 16% and Xerox Holdings Corporation(XRX) achieved higher revenues than CTSH, and its growth rate was low, with an average of -4%





Thank you