Project 2 - NYSE Data

Business Analytics Nanodegree

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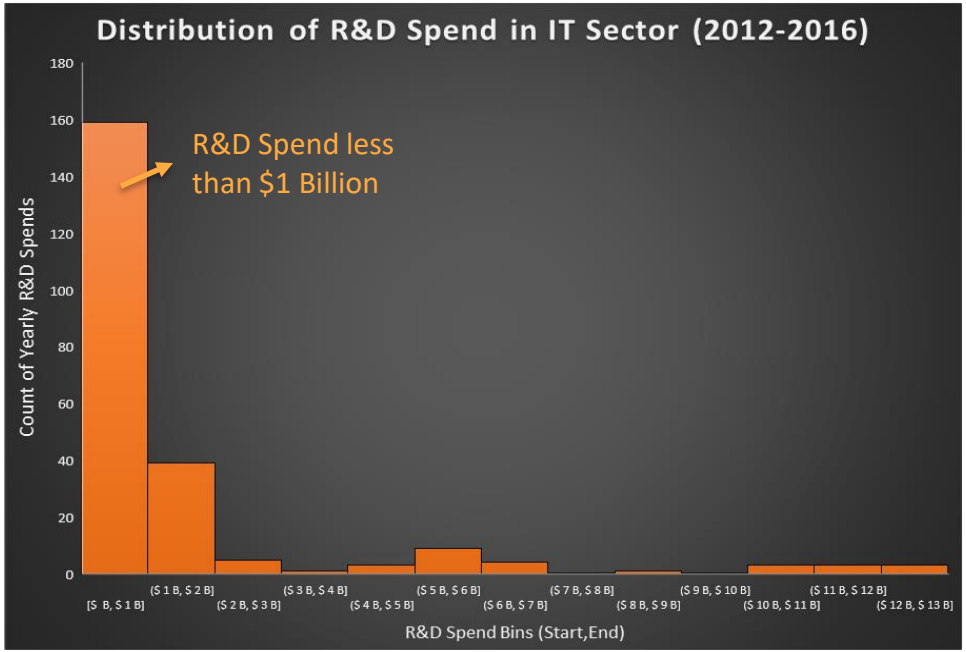
Questions for Analysis

Is the R&D Spend in the Information Technology evenly distributed across the sector?

Which subsectors dominate the R&D spend in the IT Sector?

Majority of R&D spend in IT on lower end (+ve skew)

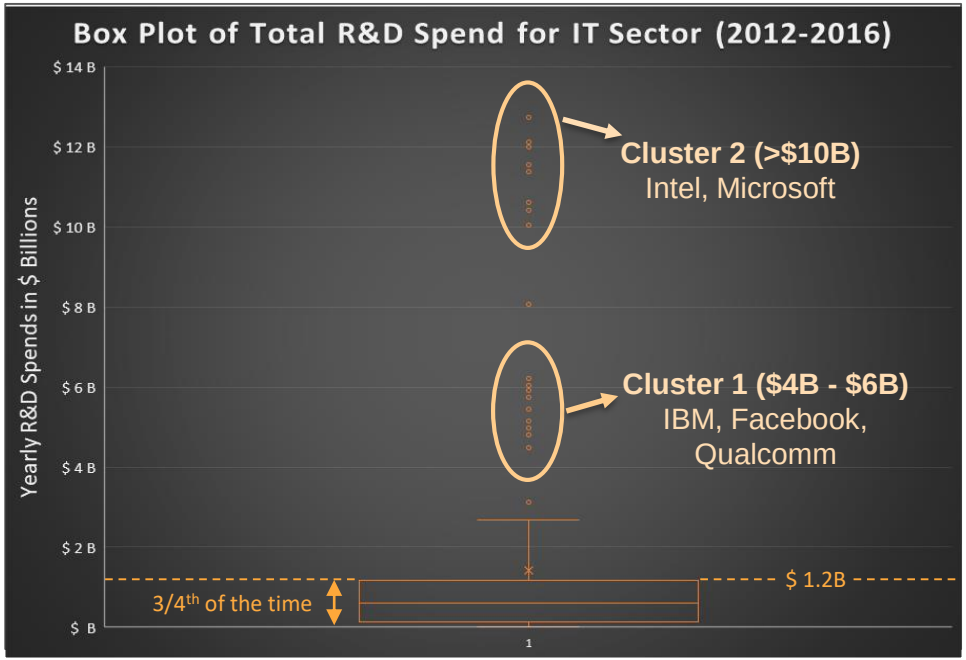


The total R&D spend is positively or right-skewed with most of the yearly spends across 2012-2016 on the lower side. Which means that the mean is higher than the median. 160 of the R&D yearly spends are less than $1B.

Interestingly, there is a cluster between $4B and $6B. Examination of the R&D spend data shows that this cluster is dominated by IBM, Facebook and Qualcomm.

The second cluster over $10B is occupied only by Intel and Microsoft.

3/4th of the times, IT Companies spent less than $1.2B

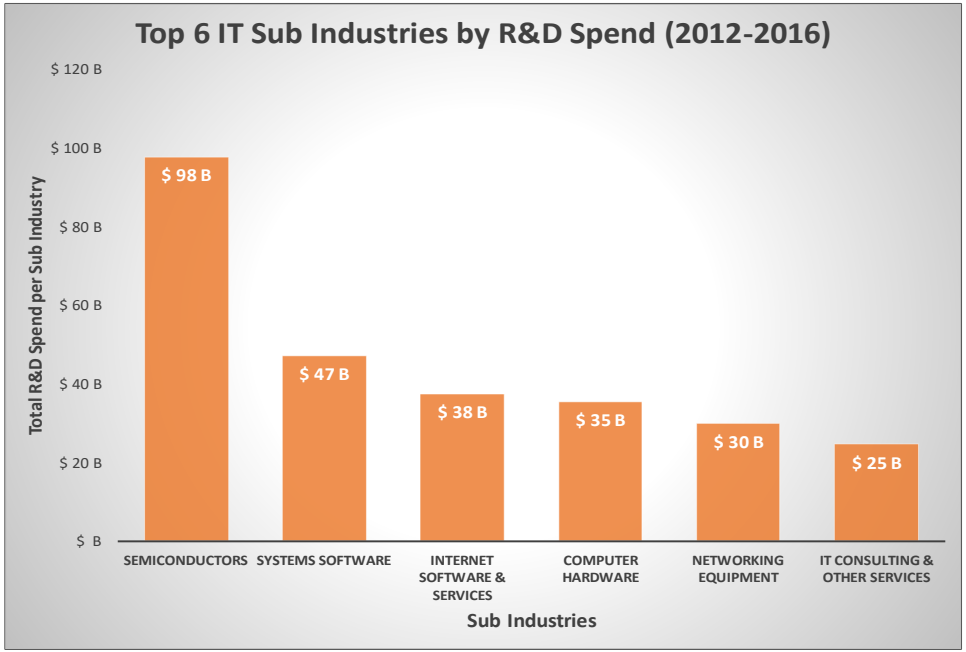


The Box Plot of the Total R&D Spend confirms the insight from the previous slide. The distribution is positively skewed. 75% of the yearly spends are less than $1.2B, as indicated by the upper bound of the box (3rd Quartile).

The mean ($1.4B) is greater than the median ($608M). The Standard Deviation is quite high for IT sector R&D at $2.5B, indicating there is significant variability in the R&D spend amongst IT companies.

We again observe the clusters around $4B - $6B as well as the one above $10B.

Semiconductor subsector leads the R&D Spend in IT



A plot of top 6 subsectors on R&D spend in the IT sector reveals Semiconductors leading the pack at close to $100B. The second closest (Systems Software) is only half that spend. It reveals the high cost of operating for Semiconductor companies.

It must be noted though that this is not generating as much revenue in return. Semiconductors generated only close to $500B for its R&D spend of $98B compared to the Computer Hardware subsector which generated over $1 Trillion for its R&D spend of $35B. Return on R&D spend is much better for the Computer Hardware industry.