



### Student Investment Report: Cognizant Technology

#### SUMMARY

Cognizant Technology provides custom Information Technology (IT) consulting, technology and outsourcing services. It belongs to the IT sector of the S&P 500. Cognizant is poised to benefit from further capturing market share in the very large IT services addressable market of \$903B. With its competitive advantages of scale, increasing switching costs for its customers and superior execution, I expect Cognizant to compound its value over time.

#### INVESTMENT THESIS

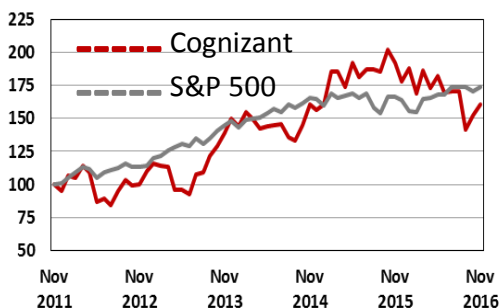
- IT services are undergoing significant shifts due to economic and technological advances. Cognizant helps its customers adapt and benefit from these changes which will drive its growth in future.
- Cognizant has only 1.4% market share in a large and fragmented Worldwide IT services addressable market of \$903B and is poised to gain more market share because of its differentiated strategy and competitive advantages.
- Over that past 10 years, Cognizant has developed niche expertise in Financial Services and Healthcare IT services. These two segments are expected to be the fastest growing segments. Cognizant’s domain expertise in these segments makes them a preferred partner of choice when implementing complex IT projects.
- Cognizant has a deliberate strategy of providing more value to its customers by offering competitive pricing on IT services delivered by better compensated employees. Competitors will have to lower their margins in order to effectively compete and several have chosen not to change their business model.
- With its strong balance sheet, Cognizant performs strategic acquisitions to further strengthen its competitive advantages and performs opportunistic buybacks to increase shareholder value.
- Cognizant is led by its CEO Francis D’Souza who was part of Cognizant’s founding team and has focused on superior execution.

#### RISKS TO THIS RECOMMENDATION

- Increased competition from other IT services vendors.
- Macroeconomic slowdown in North America from which Cognizant derives 79% of its revenue.
- Macroeconomic or political disturbances in India where 73% of Cognizant employees are based.
- Larger impact of the Foreign Corrupt Practice Act (FCPA) issue than the \$5M impact as guided by Cognizant’s management in Q3 2016 earnings call.
- Management turnover at Cognizant.

RECOMMENDATION		BUY
Ticker		CTSH US
Sector	Information Technology	
Industry	IT Services	
Price Target		\$64.56
Price as of (11/11/16)		\$53.94
Potential Upside		19.7%
Dividend Yield		N/A
Total Projected Return		19.7%
MARKET DATA (\$ IN USD)		
Market Cap		\$32.73B
Shares Outstanding		609M
52 Week Price Range		\$45.44 - \$69.23
Beta		1.05
FINANCIAL DATA (FY2015)		
Revenue (USD)		\$12.41B
Revenue Growth (Y/Y)		21%
Operating Income		\$2.14B
ANALYST/FUND INFORMATION		
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Cognizant 5Y Stock Price vs. S&P 500 (Using 100 as a base in November 2011)



Source: Bloomberg

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## COMPANY OVERVIEW

Cognizant Technology was initially created as a division of Dun & Bradstreet (DNB US Equity) in 1994 and became an independent company in 1998. Cognizant's revenue grew rapidly (3 year CAGR of 77%) since its IPO in 1998 till 2000 due to Y2K services.<sup>1</sup> Over the next 15 years, Cognizant has grown rapidly (15 year CAGR of 35%) and has become a leading Information Technology (IT) services vendor by focusing on financial and healthcare sectors and leveraging its customer focus and penetration strategy, providing critical and reliable IT services which were important (but not strategic to its customers) and taking advantage of labor arbitrage of lower cost IT resources based in India. Today, Cognizant has LTM revenue of \$13.2 billion and has 244,300 employees. 73% of its workforce is based in India, 18% in North America and 4% based in Europe.

Time	Key Developments in IT services	Cognizant milestones
1990-1995	Internet expansion started in 1990. It enabled IT offshore model to low cost geographies.	Cognizant formed as part of Dun & Bradstreet.
1995-2000	Several new players entered the IT outsourcing market to solve the Y2K issue.	Cognizant went IPO and benefited from Y2K work.
2000-2008	IT services had robust growth due to several financial companies use outsourcing to reduce costs.	Cognizant grew rapidly and focussed on financial services vertical. <b>Key acquisition AimNet.</b>
2009-2011	IT services slowdown because of global financial crisis.	Cognizant started hiring exceptional resources during the downturn.
2012-current	Rapid growth due to social networking, smartphone growth, cloud computing, big data and analytics.	Cognizant focused on rapidly shifting to new IT services opportunity arising from technological changes. <b>Key acquisition Trizetto.</b>

Table 1: History of IT Services

I have an insider view of the IT services industry. Before pursuing a Fisher MBA, I was working at Cognizant's competitors (Wipro, Syntel, Tata Consultancy Services) who were providing IT services to large financial services companies (such as American Express, Bank of New York Mellon, UBS) and insurance companies (such as Travelers Insurance, GMAC Insurance, Aviva Insurance). In my experience, Cognizant's customer focus and penetration strategy, 2-in-1 outsourcing model, careful strategic acquisitions (AimNet, Trizetto) along with treating their employees better than their competitors led to their superior performance over the last 7 years.

In future, with the leadership of its dynamic CEO, Francisco D'Souza (age 49 who was part of Cognizant's founding team) and its strategic push into leveraging significant changes occurring in IT services due to digital transformation (i.e. moving from paper based to electronic systems) and increasing use of social networks (LinkedIn, Twitter, Facebook etc.), mobile computing (smartphone sales have increased from 500 million to 1.5 billion units in last 5 years)<sup>2</sup>, cloud computing<sup>4</sup>, big data and analytics (the amount of digital data produced each day is 2.3 trillion gigabytes)<sup>3</sup>, I expect Cognizant to grow rapidly in the fragmented IT services market.

Cognizant is a high quality IT services company. With a large addressable market (\$903B), increasing end customer demand due to economic and technological reasons, competitive advantages of scale and switching costs, strategic M&A, opportunistic buybacks and superior execution by its employees who enjoy Cognizant's better company culture, Cognizant can compound its value over time.

## Business Segments

Cognizant's business is organized around our four industry-oriented segments:

Industry Business Segments	% of revenue (2015)	Geography	% of revenue (2015)
Financials (Banking and Insurance)	40%	North America	79%
Healthcare (Life Sciences and Healthcare)	30%	Europe	16%
Manufacturing, Retail and Logistics	19%	Others	5%
Other*	11%		

\* includes Communications, Media and Entertainment etc.

Table 2: Cognizant's Industry segment and geographical revenue (Source: Cognizant 10-K)

Cognizant has focused on financial and healthcare sectors deriving 70% of its revenue. Cognizant has also focused on North America which is the largest IT services market and comprises 79% of its total revenue.

Year	2011	2012	2013	2014	2015
<b>Total Revenue growth (YoY)</b>	-	20%	20%	16%	21%
Consulting and Technology Services	3,116	3,754	4,439	5,419	7,152
YoY Revenue growth %	-	20%	18%	22%	32%
<u>Consulting and Technology Services/Total Revenue</u>	<b>51%</b>	<b>51%</b>	<b>50%</b>	<b>53%</b>	<b>58%</b>
Outsourcing Services	3,006	3,592	4,404	4,844	5,264
YoY Revenue growth %	-	20%	23%	10%	9%
<u>Outsourcing Services/Total Revenue</u>	<b>49%</b>	<b>49%</b>	<b>50%</b>	<b>47%</b>	<b>42%</b>

Table 3: Cognizant's revenue by service areas (Source: Cognizant filings)

As seen in Table 3 above, Cognizant has been shifting its revenue mix towards Consulting and Technology services which are more strategic to their customers. They are also higher value contracts and involve increased switching costs for their customers. Even under Outsourcing services, Cognizant is moving away from commodity type IT services (such as maintenance of client's software applications) to Business Process services which have higher strategic value for their customers.

The table below provides a brief description and simplified examples of each type of services that Cognizant offers.

Service areas	Description	Example
<b>Consulting &amp; Technology Services</b>		
Business process and IT Consulting	Modernize an existing application or process	Convert paper based patient data into Electronic healthcare record.
System Integration & Application Development and Testing	Integrating new application into existing IT infrastructure.	Integrating Salesforce Customer Relationship Management (CRM) into existing workflow.
Digital Technologies (Social, Mobile, Analytics Big Data and Cloud)	Rethink or design a new application	Depositing a paper check using smartphone application and camera.
<b>Outsourcing Services</b>		
Application Maintenance	Provide troubleshooting support for an existing software application.	Supporting an airline reservation system.
IT Infrastructure Services	Provide support for IT components (hardware, network, software etc.)	Anti-virus, Microsoft updates, hardware failures etc.
Business Process Services (BPS)	Industry specific, domain knowledge IT services.	Improving reliability and availability of credit card payment processing.

Table 4: Examples of Cognizant's service offerings

November 11, 2016

Cognizant has grown rapidly since its inception and today has 230 of the Fortune 500 companies as its customers.<sup>5</sup>

Business Segments	Sub Segments	Client Distribution
Financials	Banking & Financial Services	15 of the top 20 North American Financial Institutions 9 of the top 10 European banks
	Insurance	7 of the top 10 Global Insurers 33 of the top 50 US Insurers
Healthcare	Healthcare & Life Sciences	28 of the top 30 Global Pharmaceutical Companies 16 of the top 20 U.S. Healthcare Plans 3 of the top 5 US PBM Companies 9 of the top 10 Biotech Companies 12 of the top 15 Medical Device Companies
Manufacturing, Retail and Logistics	Manufacturing & Logistics	9 of the top 10 Automotive OEM 7 of the top 15 Industrial Manufacturers 4 of the top 15 Chemical Manufacturers 4 of the top 15 Logistics Providers
	Retail, Travel & Hospitality	9 of the top 30 Global Retailers 3 leading US Airlines 3 of the World's Leading Restaurant Chains 2 of the top 4 Global Distribution System Companies
Others	Communications	7 of top 10 Communications Services Providers & Equipment Vendors
	Technology	4 of the top 5 Online Companies 7 of the top 10 ISVs 2 of the top 5 Semiconductor Manufacturers
	Information, Media & Entertainment	4 of the top 10 Global Media Companies 6 of the major U.S. Movie Studios 4 of the top 10 Information Service Companies Worldwide

Table 5: Cognizant diverse customers (Source: Cognizant IR presentation)

## Cognizant's Differentiated Strategy

Cognizant has executed a differentiated strategy from its peers to grow.

- Deep focus on financial service and healthcare IT services leading to scale advantages and niche domain expertise in these two sectors. Today Cognizant derives 70% of their revenue from these two industry segments. Financial services and healthcare IT services are also the fastest growing IT services sectors.<sup>2</sup>
- Geographical focus on North American customers as US is the largest IT services market. Also US customers are most receptive to IT outsourcing due to significant reduction in cost enabled by Cognizant and its peers.

Year	2015
US IT services market as a % of Global	36%
Cognizant North American revenue share	79%

Table 6: US IT market & Cognizant's revenue (Source: Bloomberg and company filings)

- Cognizant’s strategy is to grow revenue by penetrating into existing customer IT services budget rather than seeking new customers. They also focus on getting customer feedback by inviting them to their board meetings.<sup>6</sup>
- Use of reinvestment strategy to grow by keeping their operating margins 18%-20% which is lower than their peers. Cognizant strives to provide IT services comparable to Global Service Providers (IBM, Accenture) and better than its Large Offshore-Centric Providers peers (Infosys, TCS and Wipro).<sup>6</sup> Their reinvestment strategy focuses on:
  - Strengthening and expanding portfolio of services
  - Hiring employees with specific industry experience
  - Rewarding employees with better compensation, IT services training and immigration benefits.
- Cognizant has increased its number of strategic customers who can generate \$5m to \$50m revenue by providing better execution of IT projects, having key relationship managers (marketing managers) at these clients and serving customer’s needs at competitive prices.

Year	2011	2012	2013	2014	2015
Number of Strategic Clients	199	214	243	271	311
yoy	-	8%	14%	12%	15%

Table 7: Cognizant strategic clients (Source: Cognizant annual filings)

- With its reinvestment strategy, Cognizant developed a 2-in-1 operating organizational model where two managers are equally responsible for executing on complex IT projects. In the 2-in-1 model, 30% of the work is performed at customer’s site and 70% in low cost geographies (India, Eastern Europe etc.).

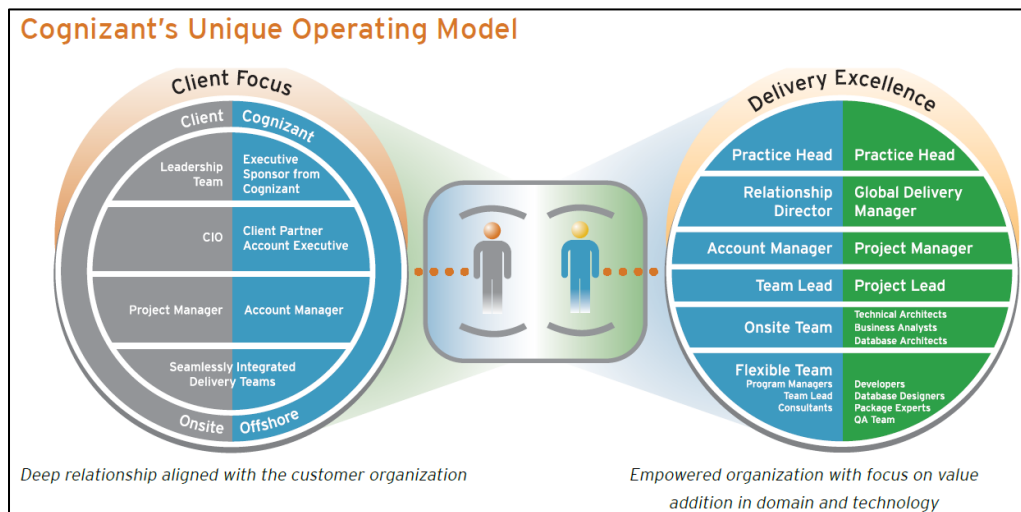


Figure 1: Cognizant’s 2-in-1 model (Source: Cognizant IR presentation)

- Cognizant has also developed a Global Collaboration (knowledge sharing) platform and culture where its employees located in any geography can share their experiences in problem solving.<sup>7</sup>
- Cognizant is led by their CEO Francisco D’Souza (age 48) who was part of Cognizant’s founding team. He owns \$31m worth of Cognizant stock and is passionately moving a large organization to thrive in changes forced by technology innovation and respond to competitive threats.

## Cognizant's acquisitions and share buybacks

Cognizant's management has performed several acquisitions in the last 10 years. Their major acquisitions were AimNet and Trizetto. They are careful in making acquisitions and focus on companies which deepen their financial and healthcare industry capabilities by allowing them to offer domain specific IT services.

Cognizant's management has also been opportunistic in their share repurchases.

Year	2011	2012	2013	2014	2015	LTM (09/30/2016)
Net repurchase of Equity (\$m)	256	343	31	123	295	368

Table 8: Share repurchases (Source: Bloomberg)

## Industry Competitive Analysis (Porter five forces framework)

### Threat of new entrants: Low

- Cognizant and some of its peers (TCS, IBM, Accenture, Infosys and Wipro) have more than 150,000 employees who have experience in delivering IT services with unique domain specific knowledge. Over time, they have also built scalable backend infrastructure, sales and business development channels which are hard to replicate for new entrants.
- Large financial services and healthcare customers demand an available pool of IT resources before awarding large contracts (greater than \$5m). A smaller IT player or new entrant cannot economically sustain a large pool of available IT resources.
- With the shift from pure commodity like IT outsourcing services to consulting and large strategic projects, end customers such as large banks tend to choose larger IT services firms with good reputation to manage complex IT projects to mitigate their project execution risk.

Thus, threat of new entrants is low.

### Threat of substitutes: Low

- IT services are critical to the success of large financial services, healthcare and other companies. IT services delivered using outsourcing cannot be substituted easily because of significant cost savings they provide to these companies.
- IT Outsourcing companies assist these large companies by providing them the following key benefits:
  - Leverage the lower cost IT services resources in other geographies without setting up operations there.
  - IT outsourcing frees the end customer from rapidly changing IT management and lets them focus on their core competencies and revenue generation.
  - Convert their IT services fixed costs (of internal teams) into variable costs.
  - Accelerate their company response to changing customer needs.
  - Reduce time to market for their services as they can create a bidding war between different IT Outsourcers based on project delivery timelines, cost and service.

I expect the trend of IT outsourcing will increase with time, thus helping the growth of Cognizant and its peers. Thus, threat of substitutes is low.

### Bargaining power of buyers: Medium



- Very large financial services and healthcare companies typically diversify their IT services amongst 4-5 preferred IT services vendors (Cognizant, IBM, TCS, Infosys etc.) in order to extract better pricing and foster competition.

To manage its customer's bargaining power, Cognizant is steadily changing its revenue mix to Consulting and Technology services and developing new expertise in rapid growth areas of social networking, smartphones, cloud computing and big data analytics.

Year	2011	2012	2013	2014	2015
<b>Total Revenue growth (YoY)</b>	-	20%	20%	16%	21%
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Table 9: Cognizant revenue by service areas (Source: Cognizant filings)

Overall, bargaining power of buyers is medium.

**Bargaining power of suppliers: Low to medium**

- In IT services, the key suppliers are:
  - College graduates with a technical degree.
  - Experienced IT personnel with domain specific expertise who can manage, execute and collaborate with global teams.
- Cognizant has a two pronged strategy to manage the bargaining power of suppliers.
  - Hire the widely available college graduates in India and other emerging countries who have a technical degree. Cognizant then provides training to these college graduates using their 2-in-1 and global collaboration model.
  - Provide competitive compensation to experienced IT personnel. Also, assist these employees with better immigration HR policies which help them move from an emerging country (India) to a developed country (US, Canada and Europe).
- By using the above strategy, Cognizant has been able to recruit and retain experienced global IT personnel and were able to better execute than their competition.

Overall, bargaining power of suppliers for Cognizant is low to medium.

**Industry rivalry: Medium to high**

- Industry rivalry in Cognizant's 'Consulting and Technology Services' segment is medium.
  - Consulting and Technology services are more valuable to end customers and only a few industry players with skilled personnel can deliver on such complex IT projects. This leads to more rational competition in this segment.
- Industry rivalry in Cognizant's Outsourcing services is high.
  - Several industry players compete with Cognizant in this segment. Thus, industry rivalry is higher in this segment.



- Cognizant is managing the industry rivalry by shifting its revenue mix towards Consulting and Technology services. It is also transitioning some of its Outsourcing service revenue to segments which face lesser competition.

Overall, Industry rivalry for Cognizant is medium to high.

In summary, Cognizant has competitive advantages of scale and increasing switching costs of its customers. In future, I expect these competitive advantages for Cognizant to strengthen because of their differentiated strategy and superior execution.

## Total addressable market and Market share

Year	2015	2020E	CAGR ('15-'20)
Global IT services spending (\$B)	903	1,088	3.8%
US IT services spending (\$B)	325	392	3.8%
US as a % of Global	36%	36%	-
Cognizant Revenue (\$B)	12.4	-	-
<b>Cognizant Market share (Global IT)</b>	1.4%	-	-
Global Financial Services IT spending (\$B)	461	543	4.2%
Cognizant Financial Services revenue (\$B)	5	-	-
<b>Cognizant Market share (Financial Services)</b>	1.1%	-	-
Global Healthcare IT spending (\$B)	104	130	5.7%
Cognizant Healthcare revenue (\$B)	4	-	-
<b>Cognizant Market share (Healthcare)</b>	3.5%	-	-

Table 10: IT services total addressable market (Source: IDC, Bloomberg Intelligence, Company filings)

Cognizant has a small (1.4%) market share in IT services market which has a significant addressable market of \$903B.<sup>2</sup> The large addressable market provides Cognizant an opportunity to increase its market share over time using its differentiated strategy.

As shown in the figure 2 below, the IT services market is fragmented. Cognizant has comparable market share with its Large Offshore-Centric Providers (Infosys, TCS and Wipro) peers. About 45 other IT services providers comprise another 34% of the market. Smaller niche players ("Others") comprise about 48.4% of the market providing Cognizant a significant addressable market to penetrate.

Appendix I has a more detailed breakdown on IT services market share.

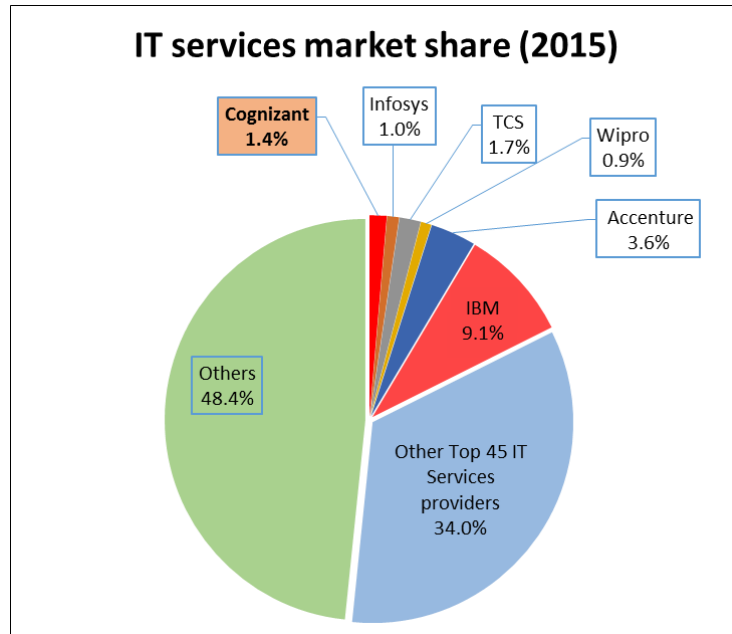


Figure 2: Market share (Source: IDC, Bloomberg Intelligence)

## Cognizant's growth drivers

Cognizant has had a past history of revenue growth much larger than the industry. They have achieved this growth by focusing on two key verticals – Financial Services and Healthcare. Cognizant benefits from increase in demand of IT outsourcing as companies are looking at modernizing their IT infrastructure, reducing their costs, becoming more agile to competitive threats and meeting their customer's expectations of smartphone and online access to information.

Year	2011	2012	2013	2014	2015
<b>Revenue (\$m)</b>					
<u>Large Offshore-Centric Providers</u>					
Cognizant	6,121	7,347	8,843	10,263	12,416
YoY Change	-	20%	20%	16%	21%
Infosys	6,038	7,065	7,420	8,303	8,723
YoY Change	-	17%	5%	12%	5%
TCS	8,194	10,240	11,583	13,550	15,485
YoY Change	-	25%	13%	17%	14%
Wipro	6,818	7,790	6,882	7,193	7,682
YoY Change	-	14%	-12%	5%	7%
<u>Global Service Providers</u>					
Accenture	27,353	29,778	30,394	31,875	32,914
YoY Change	-	9%	2%	5%	3%
IBM	106,916	104,507	98,369	92,793	81,741
YoY Change	-	-2%	-6%	-6%	-12%

Table 11: Revenue growth comparison (Source: Bloomberg)

In the past 2 years, Cognizant has specifically focused on providing Digital transformation services that are being driven by increasing use of social networks, smartphones, cloud computing and big data analytics.<sup>8</sup>

IT services	2015	2020E	CAGR ('15-'20)
<b>Global IT services spending (\$B)</b>	903	1,088	3.8%
<u>Global Consulting and Technology Services</u>			
Digital transformation professional services (\$B)	84	189	17.6%
Systems integration services (\$B)	121	145	3.7%
<u>Global Outsourcing Services</u>			
Business process outsourcing services (\$B)	427	500	3.2%
<u>Others</u>	271	254	-

Table 12: Global IT service offerings growth (Source: IDC, Bloomberg Intelligence)

Digital transformations professional services are expected to grow at 17.6% CAGR till 2020.

## Issues influencing the stock price/recent events

On September 30, 2016, Cognizant disclosed that it is conducting an internal investigation on certain improper payments made by its affiliates in India and may possibly violate US Foreign Corrupt Practices Act (FCPA). Simultaneously, Cognizant President Gordon Coburn also resigned. In the last earnings call on November 7, 2016, Cognizant disclosed that they have identified \$5m of improper payments which do not have a material effect on their financial statements. These disclosures and recent departures of senior management is a risk factor to this thesis.

## INVESTMENT THESIS

### IT Outsourcing Fundamental Drivers

Outsourcing of IT services cuts cost for Cognizant's customers while assisting them in responding to competitive threats and to changes forced by technology transformations. In the past 5 years, Cognizant has built a good reputation of helping its customers navigate complex IT transformations.

Below are some of the economic and technological reasons for IT outsourcing for Cognizant's customers.<sup>9</sup>

1. Leverage the lower cost IT services resources in other geographies without setting up operations there.

Year	2011	2012	2013	2014	2015
<b>IT Salaries</b>					
U.S. (\$)	130,150	130,179	131,752	131,553	132,735
India (\$)	23,817	20,920	19,360	18,822	18,096
Cost Savings using India based resource	82%	84%	85%	86%	86%

Table 13: IT Services cost savings (Source: Everest Group, Bloomberg Intelligence)

2. IT outsourcing frees the customer from rapidly changing IT management and lets them focus on their core competencies and revenue generation.
3. Converts their IT services fixed costs of internal personnel into variable costs. They can hire IT outsourcers when needed, expand contracts as their business needs and release IT resources when the project finishes.
4. Customers benefit from their IT outsourcer economies of scale. An IT outsourcer has lower costs as they gain scale due to shared usage of expensive IT specialists, IT infrastructure and software tools.

5. Allows customers to adapt rapidly to technological advancements. In IT, technological change is rapid due to innovations in computer networking, software platforms and hardware.
6. IT outsourcing allows end customers to leverage the deep expertise of IT outsourcers without hiring internal IT teams.
7. Reduce time to market for their services as they can create a bidding war between different IT Outsourcers based on project delivery timelines, cost and service.

In summary, the above benefits have driven tremendous growth in IT services spending and increased the share of outsourcing of IT services.

## Fundamental drivers for Cognizant in Financial Services IT

Apart from the above economic and technological reasons, the following are the fundamental drivers for increased IT outsourcing and spending in financial services:

- Modernize old software applications using latest software, hardware and cloud computing platforms which offer more functionality at lower costs.
- Enable agility to change based on financial services customer requirements. For example, bank customers are demanding services to be delivered to their smartphones.

## Fundamental drivers for IT in Healthcare

Traditionally, healthcare services have been paper based. There are several benefits of moving to electronic based healthcare systems <sup>10</sup>:

- Provide better service to patients by making healthcare information accessible online and on smartphones
- Reduce errors and thus increase patient safety.
- Reduce costs of servicing the patient using online communication channel between the doctor and patient, scheduling appointments and ability to order and renew prescriptions online.
- Better manage and reduce costs of inventory management, billing, and insurance payments.
- Enable future benefits of predictive analytics for patient diagnosis since the patient data is now electronic.

Cognizant with its Trizetto acquisition is poised to increase its market share in Healthcare IT services.

Year	2015	2020E	CAGR ('15-'20)
Global IT services spending (\$B)	903	1,088	3.8%
Global Healthcare IT spending (\$B)	104	130	5.7%
Global Financial Services IT spending (\$B)	461	543	4.2%
Others	338	415	-

Table 14: Global Healthcare IT spending (Source: IDC, Bloomberg Intelligence)

## Fundamental drivers for IT in Retail, Manufacturing, Media and Others

Several companies in traditional retail, manufacturing and media are facing disruption in their business model due to competition from new technologically agile companies such as Amazon, Netflix and others. Traditional companies have to rapidly transform their product offerings to better service their

customers and compete with new entrants in their space. This transformation is providing additional growth opportunity for Cognizant as it can provide IT resources quickly to help traditional companies modernize their IT infrastructure.

## Economic and Macro Analysis

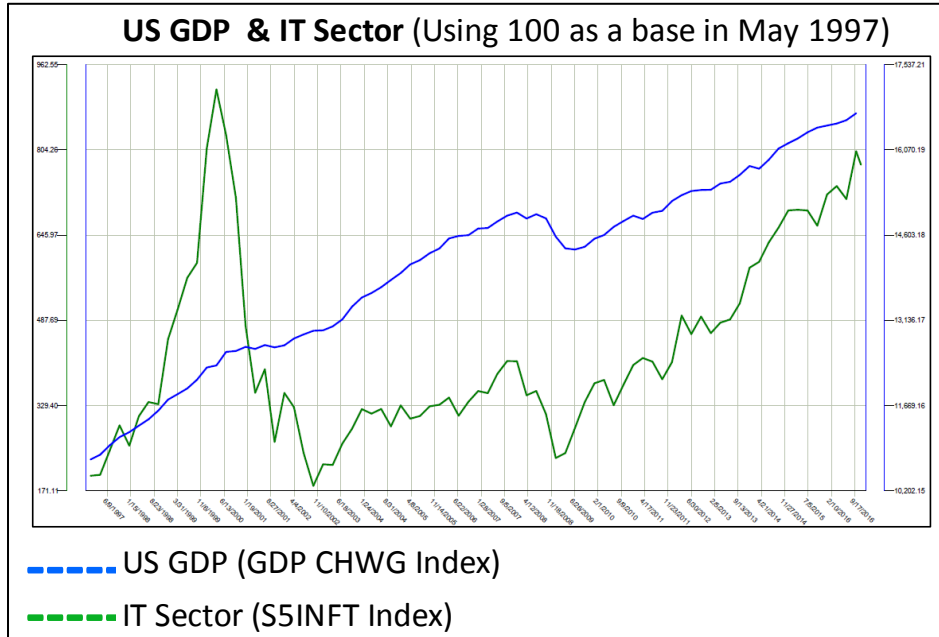


Figure 3: US GDP (GDP CGWG Index) & IT Sector

Business spending on information technology equipment and services moves in-tandem with real GDP. Within enterprise IT spending, demand for business critical applications such as security, servers, data centers and a move to cloud services is driving demand for Cognizant’s services.

Also, 73% of Cognizant’s employee base is in India and is thus exposed to inflation in India. Also F/X effects between USD and INR (Indian currency Rupee) affect Cognizant’s results.

Year	2011	2012	2013	2014	2015
INR per 1 USD	46.68	53.47	58.60	61.03	64.15
Depreciation rate	-	-13%	-9%	-4%	-5%

Table 15: Indian currency depreciation (Source: Bloomberg)

Year	2011	2012	2013	2014	2015
India's Inflation (CPI)	8.9%	9.3%	10.9%	6.4%	5.9%

Table 16: Inflation in India (Source: Bloomberg)

Cognizant cost per employee in USD terms is not increasing as much as India’s inflation as it is offset by India’s currency depreciation. However, Cognizant’s exposure to India is a risk factor to monitor.

## FINANCIAL ANALYSIS

### Income Statement Projections

Year	2013	2014	2015
<b>Sales Growth (%)</b>			
Cognizant	20.4	16.1	21.0
Infosys	24.2	6.4	17.1
TCS	29.9	15.7	14.8
Wipro	16.0	8.1	9.1
IBM	(5.9)	(5.7)	(11.9)
Accenture	4.9	3.3	5.7
Capgemini	(1.7)	4.8	12.7
HCL	22.8	25.7	14.2
CGL Group	111.3	4.1	(2.0)
ATOS	(2.6)	5.1	18.1
HP	(6.0)	(3.9)	(5.5)
XEROX CORP	(8.0)	(2.3)	(7.7)
AMDOCS LTD	3.0	6.5	2.2
COMPUTER SCIENCES CORP	(8.4)	(37.6)	(12.5)
TECH MAHINDRA LTD	174.0	20.1	17.1
GENPACT LTD	12.1	6.9	8.0
SYNTEL INC	13.9	10.5	6.3
EPAM SYSTEMS INC	28.0	31.5	25.2
INDRA SISTEMAS SA	(0.9)	0.8	(3.0)
Median Industry Growth	12.1	6.4	8.0
<b>Cognizant over the Median</b>	<b>8.3</b>	<b>9.7</b>	<b>13.0</b>

Table 17: Median revenue growth of IT services and Cognizant (Source: Bloomberg Intelligence)

Cognizant has grown at 8% to 13% above the IT services industry median revenue growth in the past 3 years. I expect Cognizant to grow at 9 to 11% revenue growth over the next 2 to 3 years due to its competitive advantages and differentiated strategy. I also expect Cognizant to maintain its reinvestment in the business strategy which will keep its operating margin in the 18%-20% range.

Cognizant has been hiring at a rapid pace, which the management has indicated as strength of expected growth in the future

Year	2011	2012	2013	2014	2015	Q3 2016
Number of Employees	137,700	156,700	171,400	211,500	221,700	244,300
% Growth	-	14%	9%	23%	5%	10%

Table 18: Cognizant has been growing its number of employees (Source: Cognizant filings)

## Key financial ratios and metrics (Cognizant and its peers)

Year	2011	2012	2013	2014	2015
<b>Revenue (\$m)</b>					
<u>Large Offshore-Centric Providers</u>					
Cognizant	6,121	7,347	8,843	10,263	12,416
YoY Change	-	20%	20%	16%	21%
Infosys	6,038	7,065	7,420	8,303	8,723
YoY Change	-	17%	5%	12%	5%
TCS	8,194	10,240	11,583	13,550	15,485
YoY Change	-	25%	13%	17%	14%
Wipro	6,818	7,790	6,882	7,193	7,682
YoY Change	-	14%	-12%	5%	7%
<u>Global Service Providers</u>					
Accenture	27,353	29,778	30,394	31,875	32,914
YoY Change	-	9%	2%	5%	3%
IBM	106,916	104,507	98,369	92,793	81,741
YoY Change	-	-2%	-6%	-6%	-12%

Table 19: Revenue growth comparison (Source: Bloomberg)

Year	2011	2012	2013	2014	2015
<b>Operating Margin</b>					
<u>Large Offshore-Centric Providers</u>					
Cognizant	18.6%	18.5%	19.0%	18.4%	17.3%
Infosys	29.4%	28.8%	25.2%	23.6%	25.1%
TCS	28.0%	27.7%	26.9%	29.1%	24.1%
Wipro	18.4%	16.3%	18.0%	19.8%	19.6%
<u>Global Service Providers</u>					
Accenture	12.7%	13.0%	14.3%	13.5%	13.5%
IBM	19.0%	19.6%	19.8%	19.2%	18.4%

Table 20: Operating margin comparison (Source: Bloomberg)

Cognizant has a relatively lower operating margin but is growing faster than its peers due to its reinvestment and differentiated strategy.

In \$ millions	Large Offshore-Centric Providers				Global Service Providers	
	Cognizant	Infosys	TCS	Wipro	Accenture	IBM
Market Cap	32,732	31,286	61,192	15,892	77,383	153,344
Revenue Growth	21%	6%	16%	8%	3%	-12%
Revenue (2015)	12,416	8,723	15,485	7,682	32,914	81,741
Gross Margin (2015)	40%	38%	42%	32%	30%	50%
Operating Margin (2015)	17%	25%	24%	20%	13%	18%
Net Income (2015)	1,624	2,017	3,215	1,416	3,054	13,190
P/E	17.7	14.9	16.3	12.6	22.4	11.7

Table 21: Peer comparison (Source: Bloomberg)

Cognizant is trading at a slightly higher P/E ratio than its Large Offshore-Centric Provider peers.

\$ in Millions	FY10	FY11	FY12	FY13	FY14	FY15	FY16E	FY17E	FY18E	CAGR ('10-'15)	CAGR ('13-'18E)
<b>Revenue</b>	<b>4,592</b>	<b>6,121</b>	<b>7,347</b>	<b>8,843</b>	<b>10,263</b>	<b>12,416</b>	<b>13,533</b>	<b>14,886</b>	<b>16,531</b>	<b>22%</b>	<b>13%</b>
Financial Services	1,945	2,518	3,035	3,718	4,286	5,003	5,453	5,998	6,688	21%	12%
Healthcare	1,177	1,622	1,935	2,265	2,689	3,668	3,998	4,437	4,992	26%	17%
Manufacturing/Retail/Logistics	850	1,198	1,499	1,868	2,094	2,344	2,555	2,785	3,035	23%	10%
Other	621	783	878	993	1,194	1,402	1,528	1,665	1,815	18%	13%
<i>Consensus Revenue</i>							<b>12,416</b>	<b>13,520</b>	<b>14,850</b>		
<i>YoY Change</i>							<b>9%</b>	<b>10%</b>	<b>11%</b>		

Table 22: Cognizant's revenue projections



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Year	FY10	FY11	FY12	FY13	FY14	FY15	FY16E	FY17E	FY18E
<b>Revenue YoY</b>	40.1%	33.3%	20.0%	20.4%	16.1%	21.0%	9%	10%	11%
Financial Services	38.2%	29.5%	20.5%	22.5%	15.3%	16.7%	9.0%	10.0%	11.5%
Healthcare	36.8%	37.8%	19.3%	17.0%	18.7%	36.4%	9.0%	11.0%	12.5%
Manufacturing/Retail/Logistics	50.4%	40.9%	25.2%	24.7%	12.1%	12.0%	9.0%	9.0%	9.0%
Other	39.1%	26.1%	12.1%	13.1%	20.3%	17.4%	9.0%	9.0%	9.0%
<b>Operating Margin per segment</b>					18.4%	17.3%	16.2%	17.4%	18.2%
Financial Services	34.4%	34.6%	32.9%	32.6%	30.8%	32.8%	32.5%	33.0%	33.0%
Healthcare	37.1%	38.5%	37.4%	36.6%	31.6%	32.7%	31.5%	32.5%	33.5%
Manufacturing/Retail/Logistics	33.4%	36.8%	35.2%	33.7%	32.8%	34.2%	33.0%	33.0%	33.0%
Other	33.5%	32.4%	32.8%	32.1%	32.8%	32.4%	32.0%	33.0%	33.0%
<b>Unallocated Costs as a % of Revenue</b>	0%	0%	0%	-15%	-13%	-16%	-16.0%	-15.5%	-15.0%

Table 23: Cognizant's operating margin projections

Income Statement (\$ in Millions)	FY18E	FY17E	FY16E	FY15	FY14	FY13	FY12	FY11
<b>Revenue</b>	16,531	14,886	13,533	12,416	10,263	8,843	7,347	6,121
Cost of revenues	9,906	8,920	8,110	7,440	6,141	5,266	4,278	3,539
Gross Profit	6,625	5,966	5,424	4,976	4,122	3,578	3,068	2,583
<b>Operating expenses:</b>								
Selling, general and administrative expenses	3,243	3,023	2,887	2,509	2,037	1,728	1,558	1,329
Depreciation and amortization expense	381	359	338	325	200	172	149	117
Total Operating Costs	3,624	3,383	3,225	2,834	2,237	1,900	1,707	1,446
<b>Operating Income (EBIT)</b>	<b>3,001</b>	<b>2,583</b>	<b>2,198</b>	<b>2,142</b>	<b>1,885</b>	<b>1,678</b>	<b>1,362</b>	<b>1,137</b>
<b>Other income (expense), net:</b>								
Interest income	(84)	(84)	(84)	(84)	(62)	(49)	(45)	(39)
Interest expense	18	18	18	18	3	-	-	-
Foreign currency exchange gains (losses), net	-	-	-	43	20	41	-	-
Other, net	-	-	-	2	0	(2)	18	7
Total Other income (expense), net	(66)	(66)	(66)	(22)	(39)	(10)	(26)	(33)
<b>Income before provision for income taxes (EBT)</b>	<b>3,067</b>	<b>2,649</b>	<b>2,264</b>	<b>2,164</b>	<b>1,924</b>	<b>1,688</b>	<b>1,388</b>	<b>1,169</b>
Provision for income taxes	765	661	565	540	485	459	336	286
<b>Profit (Net Income)</b>	<b>2,301</b>	<b>1,988</b>	<b>1,699</b>	<b>1,624</b>	<b>1,439</b>	<b>1,229</b>	<b>1,051</b>	<b>884</b>
<b>Wtd avg shs (mill)</b>								
Basic	606	606	606	609	608	302	301	303
Diluted	609	609	609	613	613	305	306	310
Profit/share-diluted (Diluted EPS GAAP)	3.78	3.27	2.79	2.65	2.35	4.03	3.44	2.85
<b>Consensus</b>	<b>3.73</b>	<b>3.33</b>	<b>2.78</b>					

Table 24: Cognizant's Income statement projections

My estimates of Cognizant revenue growth and EPS are incrementally higher than consensus as I believe that Cognizant has an opportunity to gain market share using its differentiated strategy.

## VALUATION AND PRICE TARGET

### Analysis using valuation multiples

Absolute Basis	High	Low	Median	Current
P/E	26.4	11.7	18.2	21.3
Best P/B	4.9	2.3	3.4	4.1
Best P/S	3.5	1.5	2.4	3.5
P/EBITDA	16.0	6.8	11.1	13.3

Table 25: Valuation multiple on absolute basis (Source: Bloomberg)

Relative to S&P500	High	Low	Median	Current
P/E	1.54	0.89	1.16	1.04
Best P/B	1.73	1.27	1.49	1.5
Best P/S	2.15	0.72	1.75	1.86
P/EBITDA	2.29	1.05	1.49	1.18

Table 26: Valuation multiple on absolute basis (Source: Bloomberg)

S&P Information Technology sector is relatively cheaper to S&P 500 as its current P/E is 1.04 whereas the historical ten year median relative P/E has been 1.16.

Valuation Multiples	P/E TTM	EV/EBITDA TTM	P/S TTM	P/B	P/CF TTM
<b>Average</b>	<b>16.6</b>	<b>11.4</b>	<b>3.0</b>	<b>3.8</b>	<b>16.1</b>
Large Offshore-Centric Providers					
Cognizant	17.5	12.0	2.4	3.1	16.0
Infosys	16.5	10.3	3.5	3.6	17.0
TCS	18.6	14.2	4.1	6.0	19.8
Wipro	13.7	9.1	2.2	2.4	11.7
Global Service Providers					
Accenture	21.7	12.7	2.1	9.9	15.7
IBM	10.8	10.1	1.8	8.5	7.8

Table 27: Comparison with peers (Source: Bloomberg)

One of the ways to value the firm is using multiples. Although, in some valuation metrics of Cognizant is slightly higher than average, I would expect that Cognizant's stock should be priced at a higher multiple relative to competitors because Cognizant has better long term prospects than its competitors and stronger competitive advantages.

However, I am estimating the valuation of Cognizant based on my DCF projections listed below.

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## Analysis using DCF

COGNIZANT TECHNOLOGY											
Ticker: CTSH US Equity		Analyst: Sweta Sahu						Terminal Discount Rate = 11.0%			
		Date: 11/11/16						Terminal FCF Growth = 4.5%			
Figures in \$ millions, except per share											
Year	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
<b>Revenue</b>	13,533	14,886	16,531	18,267	20,093	22,002	23,982	25,901	27,714	29,238	30,554
% Growth		10.0%	11.1%	10.5%	10.0%	9.5%	9.0%	8.0%	7.0%	5.5%	4.5%
<b>Operating Income (EBIT)</b>	<b>2,198</b>	<b>2,583</b>	<b>3,001</b>	<b>3,288</b>	<b>3,597</b>	<b>3,916</b>	<b>4,245</b>	<b>4,559</b>	<b>4,850</b>	<b>5,087</b>	<b>5,286</b>
Operating Margin	16.2%	17.4%	18.2%	18.0%	17.9%	17.8%	17.7%	17.6%	17.5%	17.4%	17.3%
<b>Interest and Other</b>	(66)	(66)	(66)	(66)	(66)	(66)	(66)	(66)	(66)	(66)	(66)
<b>Taxes</b>	565	661	765	804	881	961	1,043	1,121	1,194	1,253	1,303
Tax Rate	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
<b>Net Income</b>	<b>1,699</b>	<b>1,988</b>	<b>2,301</b>	<b>2,418</b>	<b>2,650</b>	<b>2,889</b>	<b>3,136</b>	<b>3,371</b>	<b>3,590</b>	<b>3,768</b>	<b>3,917</b>
% Growth		17.0%	15.8%	5.1%	9.6%	9.1%	8.5%	7.5%	6.5%	5.0%	4.0%
<b>Add Depreciation/Amort</b>	338	359	381	410	436	465	500	535	567	594	618
<b>Plus/(minus) Changes WC</b>	(219)	(252)	(290)	(303)	(313)	(321)	(325)	(326)	(321)	(309)	(292)
% of Sales	-1.6%	-1.7%	-1.8%	-1.7%	-1.6%	-1.5%	-1.4%	-1.3%	-1.2%	-1.1%	-1.0%
<b>Subtract Cap Ex</b>	297	327	363	401	441	483	527	569	609	642	616
<b>Free Cash Flow</b>	<b>1,521</b>	<b>1,768</b>	<b>2,029</b>	<b>2,124</b>	<b>2,331</b>	<b>2,550</b>	<b>2,784</b>	<b>3,011</b>	<b>3,227</b>	<b>3,411</b>	<b>3,626</b>
% Growth		16.2%	14.8%	4.7%	9.7%	9.4%	9.2%	8.2%	7.2%	5.7%	6.3%
<b>NPV of Cash Flows</b>	<b>14,790</b>	42%									
<b>NPV of terminal value</b>	<b>20,530</b>	58%									
<b>Projected Equity Value</b>	<b>35,321</b>	100%									
<b>Free Cash Flow Yield</b>	<b>4.63%</b>										
									<b>Terminal Value</b>		<b>58,295</b>
									<b>Free Cash Yield</b>		<b>6.22%</b>
									<b>Terminal P/E</b>		<b>14.9</b>
									<b>Terminal EV/EBITDA</b>		<b>9.2</b>
<b>Current P/E</b>	<b>19.3</b>	<b>16.5</b>	<b>14.3</b>								
Projected P/E	23.1	19.8	17.1								
<b>Current EV/EBITDA</b>	<b>11.4</b>	<b>9.8</b>	<b>8.5</b>								
Projected EV/EBITDA	13.9	12.0	10.4								
<b>Shares Outstanding</b>	<b>608.5</b>										
<b>Current Price</b>	<b>\$53.94</b>										
PV of FCF/share	\$58.05										
Net Cash/share	\$6.51										
<b>Implied equity value/share</b>	<b>\$64.56</b>										
<b>Upside/(Downside) to DCF</b>	<b>19.7%</b>										

Table 28: Cognizant's DCF model

Given Cognizant large total addressable market, competitive advantages of scale and switching costs of its customers and customer focus and penetration strategy, I estimate the value of Cognizant to be \$64.56, implying a **19.7% upside**.

I chose a Terminal discount rate of 11% to factor in risks related to Cognizant's growth in future along with near term FCPA related issues.

## DCF sensitivity analysis

		Terminal Discount Rate						
		9.5%	10.0%	10.5%	11.0%	11.5%	12.0%	12.5%
Terminal FCF Growth Rate	2.5%	\$67.86	\$63.42	\$59.54	\$56.13	\$53.10	\$50.40	\$47.98
	3.0%	\$70.76	\$65.82	\$61.56	\$57.84	\$54.56	\$51.66	\$49.06
	3.5%	\$74.13	\$68.60	\$63.87	\$59.78	\$56.21	\$53.06	\$50.27
	4.0%	\$78.12	\$71.84	\$66.54	\$62.00	\$58.07	\$54.64	\$51.62
	4.5%	\$82.91	\$75.67	\$69.65	\$64.56	\$60.20	\$56.43	\$53.14
	5.0%	\$88.76	\$80.27	\$73.32	\$67.54	\$62.66	\$58.48	\$54.86
	5.5%	\$96.07	\$85.88	\$77.73	\$71.07	\$65.53	\$60.84	\$56.82
	6.0%	\$105.48	\$92.90	\$83.13	\$75.31	\$68.92	\$63.59	\$59.09
	6.5%	\$118.01	\$101.93	\$89.86	\$80.49	\$72.99	\$66.85	\$61.74

Table 29: DCF sensitivity analysis (Source: Cognizant DCF model)

## RISKS AND CONCERNS

- Increased competition from other IT service vendors.
- Macroeconomic slowdown in North America from which Cognizant derives 79% of its revenue.
- Macroeconomic or political disturbances in India where 73% of Cognizant employees are based.
- Larger impact of the Foreign Corrupt Practice Act (FCPA) issue than the \$5M impact as guided by Cognizant's management in Q3 2016 earnings call.
- Management turnover at Cognizant.

## CONCLUSION

Cognizant has the opportunity to penetrate vast IT Services market (\$903 Billion) and grow rapidly in future. Cognizant also has unique competitive advantages of scale and switching cost of its customers. Additionally, they have a strong management team which has implemented differentiated strategies – niche domain focus in financial services and healthcare, reinvestment strategy, 2-in-1 box model and global collaboration model, existing customer penetration, good acquisitions and opportunistic buybacks of their stock.

Given the above characteristics, I am optimistic about Cognizant growth over time. Using the DCF model, I estimate the value of Cognizant to be \$64.56 yielding an upside of 19.7%. Therefore, I recommend Cognizant Technology as a **BUY**.

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## APPENDIX 1

Year	2015	Year	2015
Global IT Services	100.0%		
Cognizant	1.4%	PriceWaterhouseCoopers LLP	0.8%
Infosys	1.0%	General Dynamics Corp	0.6%
TCS	1.7%	Aon Corp	0.6%
Wipro	0.9%	HCL Technologies Ltd	0.6%
Accenture	3.6%	EMC Corp	0.6%
IBM	9.1%	KPMG International	0.6%
HP	3.2%	AT&T Inc	0.6%
Fujitsu Ltd	1.9%	Xerox Corp	0.5%
Deloitte Consulting LLP	2.5%	Microsoft Corp	0.5%
Cap Gemini SA	1.4%	SAP AG	0.5%
Computer Sciences Corp	1.0%	SAIC Inc	0.4%
NTT Data Corp	1.2%	Boston Consulting Group Inc	0.5%
Cisco Systems Inc	1.3%	CACI International Inc	0.3%
Oracle Corp	1.1%	Indra Sistemas SA	0.3%
NEC Corp	0.9%	Tech Mahindra Ltd	0.4%
Lockheed Martin Corp	1.2%	Unisys Corp	0.3%
Hitachi Ltd	1.0%	Sungard Data Systems	0.2%
AtoS	1.1%	Dimension Data Holdings PLC	0.3%
CGI Group Inc	0.8%	Verizon Communications Inc	0.3%
Dell Services	1.0%	Orange	0.2%
Automatic Data Processing	1.0%	Groupe Steria SCA	0.3%
Ernst & Young LLP	1.0%	Convergys Corp	0.3%
Deutsche Telekom (T-Systems)	0.7%	EVRY	0.2%
Northrop Grumman Corp	0.6%	Tieto OYJ	0.1%
BT Group PLC	0.6%	Capita Group PLC	0.2%
McKinsey & Co Inc	0.7%	Others	48.4%

Table 30: Detailed breakdown of IT services market share (Source: IDC, Bloomberg Intelligence)