

ALGORITHMIC TRADING REPORT ON IT SECTOR STOCKS

A COMPREHENSIVE STUDY OF FUNDAMENTAL AND
TECHNICAL ANALYSIS OF IT SECTOR AND ITS MAJOR
PLAYERS

TABLE OF CONTENTS

Sr.No	Title	Page No.
1	Introduction	1
2	Overview of IT Sector	1
3	Understanding Fundamental and Technical Analysis	4
4	Stock Analysis (Fundamental Analysis)	9
5	Stock Analysis (Technical Analysis)	19
6	Final Verdict	24
7	References	27

1. INTRODUCTION

This report aims to analyze five leading IT sector companies—TCS, L&T Technology Services, Wipro, Infosys, and Tech Mahindra—using both fundamental and technical analysis. The goal is to evaluate the financial health, market performance, and stock trends of these companies and provide a recommendation on whether to buy, sell, or hold the stocks. The analysis includes key financial ratios, revenue and profit trends, SWOT analysis, technical analysis using backtested strategies, and a final investment verdict.

2. OVERVIEW OF THE IT SECTOR

The Indian Information Technology (IT) sector has been one of the most significant contributors to the country's economy, driving innovation, growth, and global competitiveness. With the advent of digital transformation, cloud computing, artificial intelligence, and big data analytics, the IT sector has played a pivotal role in revolutionizing industries across the globe. This section provides a detailed analysis of the IT sector, its evolution, and the major factors influencing its growth, with a focus on the companies in our portfolio: TCS, L&T Technology, Wipro, Infosys, and Tech Mahindra.

2.1 Evolution of the IT Sector in India

India's IT sector has grown exponentially since its inception in the late 1980s. Initially focused on software development and IT services, the industry has expanded into cutting-edge technologies such as:

- Artificial Intelligence (AI)
- Cloud Computing
- Internet of Things (IoT)
- Blockchain
- Machine Learning (ML)

India has positioned itself as a global leader in IT services, with several companies playing a crucial role in providing solutions to international clients. The growth of IT hubs such as Bangalore, Hyderabad, Gurugram, Pune, and Chennai has further strengthened India's standing in the global market.

2.2 Current State of the IT Sector

Today, the IT sector is a cornerstone of the Indian economy, contributing significantly to GDP growth, exports, employment, and technological advancement. The industry's revenue has crossed \$200 billion, with exports accounting for over 75% of the sector's total output. Key characteristics of the current IT landscape include:

- Global Client Base: Indian IT firms serve numerous global corporations, offering cost-effective and scalable solutions.
- Digital Transformation: Businesses across sectors are undergoing digital transformation, driving demand for IT services in areas like cloud, AI, and cybersecurity.
- R&D and Innovation: The focus on research and development has increased, with many IT firms investing in innovation labs and digital engineering to maintain competitiveness.

2.3 Key Growth Drivers of the IT Sector

The IT sector's rapid expansion is influenced by several key factors:

1. Digitalization: The ongoing digitalization of businesses across sectors globally has led to increased demand for IT services. Indian IT firms, with their expertise in software development and digital solutions, are well-positioned to capitalize on this trend.
2. Cloud Computing and SaaS: The adoption of cloud technologies and Software-as-a-Service (SaaS) models has accelerated, with organizations shifting from on-premise infrastructures to cloud-based services.
3. Artificial Intelligence and Automation: AI, ML, and automation are reshaping industries. Indian IT companies are at the forefront of offering AI-driven solutions that automate business processes, enhance decision-making, and improve customer experiences.
4. Government Initiatives: The Indian government has launched initiatives like Digital India and Make in India, which are designed to promote technological advancements and increase IT infrastructure in the country.
5. Export Growth: The IT industry's focus on exporting services and products, particularly to North America and Europe, has fueled the sector's growth. Export revenue continues to rise due to strong demand for outsourcing services.

2.4 Market Trends and Projections

- Growth Rate: The Indian IT sector is projected to grow at a CAGR of 7.5% over the next five years, driven by increased demand for digital solutions and IT services across the globe.
- Cloud and AI Growth: The adoption of cloud services is expected to continue growing at a rapid pace, with businesses increasingly relying on cloud infrastructure for operational efficiency.
- AI and automation are expected to revolutionize industries such as healthcare, finance, and retail. Sustainability Initiatives: Indian IT companies are increasingly focusing on sustainability, developing energy-efficient data centers and embracing green IT solutions to minimize their environmental impact.

2.5 Challenges Facing the IT Sector

- While the IT sector has experienced impressive growth, it is not without challenges:
- Rising Competition: Global competition, particularly from countries like the Philippines and China, poses a challenge to India's IT dominance.
- Data Security Concerns: With the increasing digitalization of services comes the growing threat of cyber-attacks and data breaches. Indian IT firms need to continuously invest in cybersecurity solutions to stay ahead of these risks.
- Talent Retention: While India has a large IT talent pool, there is intense competition for top-tier talent, particularly in emerging technologies like AI and blockchain.
- Currency Fluctuations: As a significant portion of IT revenue is generated from exports, fluctuations in currency exchange rates, particularly the rupee-dollar exchange, can affect profitability.
- Economic Slowdown in Key Markets: The IT sector is heavily reliant on demand from markets like the US and Europe. Economic slowdowns or recessions in these regions can impact IT spending and reduce demand for outsourcing.

2.6 Opportunities in the IT Sector

- The Indian IT sector is expected to continue its upward trajectory, driven by opportunities in several areas:
- Digital Transformation in Emerging Markets: Countries in Southeast Asia, Africa, and Latin America are embracing digitalization, offering Indian IT firms opportunities to expand their client base.
- Cloud-Based Solutions: With increasing demand for cloud computing, Indian companies are well-positioned to offer a wide range of cloud solutions, from cloud infrastructure to SaaS offerings.
- AI and Data Analytics: The adoption of AI and big data analytics is rapidly growing. Indian firms are investing heavily in building AI capabilities to provide solutions that enhance business intelligence and customer engagement.
- Fintech and Blockchain: The integration of blockchain technology in industries such as banking, supply chain management, and healthcare presents significant opportunities for Indian IT companies.
- 5G Technology: The rollout of 5G networks presents another area of opportunity, as Indian IT firms can offer innovative solutions to enable faster and more reliable connectivity across industries.

3. UNDERSTANDING FUNDAMENTAL AND TECHNICAL ANALYSIS

In this section, we will discuss the critical parameters used in both Fundamental Analysis and Technical Analysis. These indicators and ratios are used to assess the financial health, performance, and market positioning of each company in the IT sector portfolio (TCS, L&T Technology, Wipro, Infosys, and Tech Mahindra). This will help us arrive at informed decisions regarding whether to Buy, Hold, or Sell the stocks.

3.1 Fundamental Analysis Parameters

Fundamental analysis evaluates a company's intrinsic value based on its financial data and operational performance. The following are the key fundamental parameters used in the report:

- Price-to-Earnings (P/E) Ratio

- Definition: The P/E ratio is one of the most commonly used valuation metrics, comparing a company's current share price to its earnings per share (EPS). It helps investors gauge how much they are paying for a stock relative to the company's earnings.
- Formula:

$$\text{P/E Ratio} = \frac{\text{Share Price}}{\text{Earnings per Share (EPS)}}$$

- Interpretation:

- High P/E Ratio: Signals that the market expects strong future growth, but it can also indicate that the stock is overvalued.
- Low P/E Ratio: May indicate that the stock is undervalued or that the company is experiencing slow growth.
- Example: A P/E ratio of 25 means investors are willing to pay ₹25 for every ₹1 of the company's earnings. This suggests that the market expects good future earnings growth.

- Share Price (₹)

- Definition: The current market price of a company's stock, as quoted on the stock exchange.
- Interpretation: The share price reflects the market's current sentiment regarding the company's future performance and is influenced by factors such as earnings, growth potential, industry trends, and overall market conditions. It is important to analyze the share price in context with other metrics like the P/E ratio, historical performance, and overall market conditions.

- Return on Assets (ROA):

- Definition: ROA measures how efficiently a company uses its assets to generate profit. It indicates management's effectiveness in utilizing its asset base.
- Formula:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} \times 100$$

- Interpretation:

- A higher ROA indicates that the company is generating more profit from its assets.
- A low ROA may signal poor asset utilization or operational inefficiencies.

- Current Ratio:

- Definition: The current ratio measures a company's ability to meet its short-term obligations with its short-term assets, providing insight into its liquidity position.

- Formula:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

- Interpretation:

- A current ratio above 1 indicates good short-term financial health, as the company has more current assets than liabilities.
- A current ratio below 1 suggests that the company may struggle to cover short-term liabilities.

- Return on Equity (ROE)

- Definition: ROE measures how effectively a company uses its shareholders' equity to generate profits.

- Formula:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders' Equity}} \times 100$$

- Interpretation:

- A higher ROE indicates that the company is generating more profit per rupee of shareholder equity, reflecting effective management and profitability.
- A low ROE suggests underperformance or poor utilization of shareholders' capital.

- Debt-to-Equity Ratio

- Definition: This ratio compares a company's total debt to its shareholders' equity, providing insight into the financial leverage used by the company.
- Formula:

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Debt}}{\text{Shareholders' Equity}}$$

- Interpretation:

- A low debt-to-equity ratio indicates that the company is financing its growth more through equity than debt, reducing financial risk.
- A high debt-to-equity ratio suggests that the company is heavily reliant on debt, which could increase financial risk during downturns.

- Sales Growth

- Definition: Sales growth measures the percentage change in a company's revenue over a specific period, showing the company's ability to grow its top line.
- Formula:

$$\text{Sales Growth} = \frac{\text{Current Period Sales} - \text{Previous Period Sales}}{\text{Previous Period Sales}} \times 100$$

- Interpretation:

- Positive sales growth suggests that the company is expanding and increasing its market share.
- Negative sales growth could indicate declining market demand or operational challenges.

- Earnings per Share (EPS)

- Definition: EPS measures the portion of a company's profit allocated to each outstanding share of common stock, reflecting profitability on a per-share basis.
- Formula:

$$\text{EPS} = \frac{\text{Net Income} - \text{Dividends on Preferred Stock}}{\text{Average Outstanding Shares}}$$

- Interpretation:

- Higher EPS indicates stronger profitability.
- Lower EPS may signal weaker profitability or diluted shares.

- Operating Margin
 - Definition: Operating margin measures the percentage of revenue that remains after covering operating expenses, excluding interest and taxes.
 - Formula:

$$\text{Operating Margin} = \frac{\text{Operating Income}}{\text{Revenue}} \times 100$$

- Interpretation:
 - A higher operating margin indicates that the company is efficiently managing its operating costs, leaving more profit from each sale.
 - A lower operating margin suggests that operational costs are eating into profits.
- Dividend Yield
 - Definition: Dividend yield shows how much a company pays out in dividends relative to its share price, reflecting the return on investment through dividends.
 - Formula:

$$\text{Dividend Yield} = \frac{\text{Annual Dividend per Share}}{\text{Share Price}} \times 100$$

- Interpretation:
 - A higher dividend yield indicates a more attractive return for income-focused investors.
 - A lower dividend yield might signal that the company is reinvesting profits for growth instead of paying them out as dividends.

3.2 Technical Analysis Parameters

Technical analysis evaluates a stock's price movements and trading volume using various indicators to predict future price trends. Below are the key technical indicators used:

- Relative Strength Index (RSI)
 - Definition: RSI is a momentum oscillator that measures the speed and change of price movements, ranging from 0 to 100.
 - Interpretation:
 - RSI > 70: Overbought, potential sell signal.
 - RSI < 30: Oversold, potential buy signal.
 - RSI between 30 and 70: Neutral sentiment.
 - Example: An RSI of 58.68 suggests a neutral stance, indicating no immediate buy or sell signal.

- Moving Average Convergence Divergence (MACD)
 - Definition: MACD is a trend-following indicator that shows the relationship between two moving averages (typically the 12-day and 26-day EMAs).
 - Interpretation:
 - MACD > Signal Line: Bullish momentum, potential buy signal.
 - MACD < Signal Line: Bearish momentum, potential sell signal.
 - Example: A bullish MACD suggests that upward momentum is building.
- Simple Moving Averages (SMA)
 - Definition: SMAs smooth out price data to identify trends over specific periods, such as 50-day and 200-day SMAs.
 - Interpretation:
 - Golden Cross (50-day SMA crosses above 200-day SMA): Bullish trend, potential buy signal.
 - Death Cross (50-day SMA crosses below 200-day SMA): Bearish trend, potential sell signal.
 - Example: A Golden Cross signals that the stock is entering an upward trend, indicating a buy opportunity.
- Backtesting Strategy
 - Definition: Backtesting involves testing a trading strategy using historical data to evaluate its effectiveness.
 - Interpretation: A strategy that consistently performs well in backtesting can provide confidence that it will work in the future.
 - Example: Backtesting a strategy based on the combination of RSI and MACD to identify potential entry and exit points for each stock in the portfolio.

3.3 Overall Indicator Synthesis

When combining multiple technical indicators, we aim to achieve a comprehensive view of a stock's momentum and trend. For example, while one indicator (like RSI) may show neutral sentiment, another (like MACD) may indicate bullish momentum. In the synthesis of indicators:

- Bullish Signals: Multiple indicators like MACD and Golden Cross show potential buy signals.
- Neutral or Mixed Signals: RSI shows neutrality while other indicators are either mixed or in opposition.
- Bearish Signals: A combination of oversold indicators like Stochastic RSI suggests a sell.

By evaluating both the fundamental health of the company and these technical signals, we can determine whether to Buy, Hold, or Sell each stock in the IT sector portfolio.

4. STOCK ANALYSIS

4.1 Tata Consultancy Services (TCS)

Fundamental Analysis: Tata Consultancy Services is the flagship company and a part of Tata group. It is an IT services, consulting and business solutions organization that has been partnering with many of the world's largest businesses in their transformation journeys for over 50 years. TCS offers a consulting-led, cognitive powered, integrated portfolio of business, technology and engineering services and solutions.

1) Financial Health Analysis:

Ratio Name	Value	Interpretation
P/E Ratio	31.45	A high P/E ratio indicates that TCS is relatively overvalued, with investors willing to pay Rs 31.45 for every rupee of earnings.
Share Price	Rs 4,107.85	The current share price of TCS. To assess if it's overvalued or undervalued, use valuation calculators or compare it with industry averages.
Return on Assets (ROA)	36.92%	A high ROA indicates that TCS is effectively generating profits from its assets, a good sign for future performance.
Current Ratio	2.2	The current ratio of 2.20 indicates that TCS is well-positioned to pay its short-term liabilities and is financially stable.
Return on Equity (ROE)	59.60%	A high ROE shows that TCS is generating significant profits from shareholders' equity, making it attractive for investors.
Debt to Equity Ratio	0	A low debt to equity ratio (0) indicates that TCS has minimal debt, reducing financial risk and strengthening its capital structure.
Sales Growth	6.31%	TCS has a relatively low sales growth, which may indicate slower revenue expansion compared to its past performance or industry peers.
Operating Margin	27.60%	TCS has a solid operating margin, reflecting strong operational efficiency and profitability in its core business activities.
Dividend Yield	1.77%	With a dividend of Rs 73 per share, the yield of 1.77% suggests a moderate return for investors based on the current stock price.
Earnings Per Share (EPS)	Rs 130.61	The higher EPS indicates that TCS is generating significant profit per share, which is a positive indicator for investors.

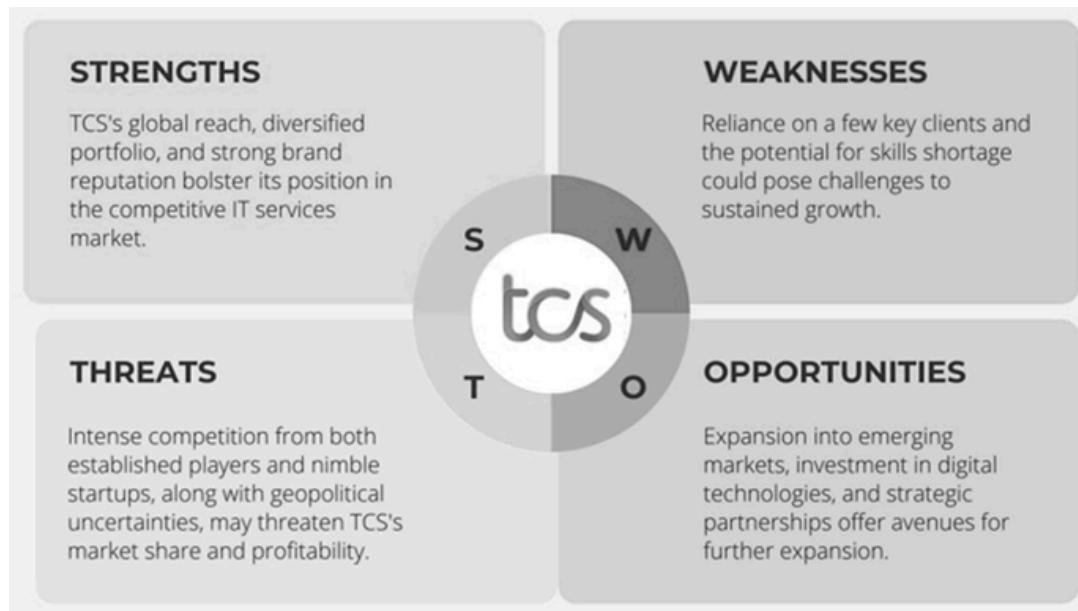
2) Revenue and Profit Trends: (In Crores)

Particulars	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24
Net Sales (Revenue)	1,31,306	1,35,963	1,60,341	1,90,354	2,02,359	50,165	50,844	51,488	52,844	53,990
Total Expenditure	93,953	95,653	1,14,096	1,39,533	1,46,512	36,363	36,481	36,942	38,269	39,432
Operating Profit	37,353	40,310	46,245	50,821	55,847	13,802	14,363	14,546	14,575	14,558
Profit Before Tax (PBT)	41,991	40,902	49,723	51,690	57,602	14,444	14,046	15,180	15,878	16,589
Net Profit (PAT)	33,260	30,960	38,187	39,106	43,559	10,929	10,753	11,393	12,115	12,994
Adjusted EPS (Rs.)	88.69	83.68	104.34	106.85	120.33	29.86	29.7	31.47	33.47	35.9
Other Income	8,082	5,400	7,486	5,504	7,273	1,755	1,809	1,806	2,417	3,185
Tax Paid	-6,366	-7,805	-10,336	-10,934	-10,583	-3,515	-3,293	-3,787	-3,763	-3,595

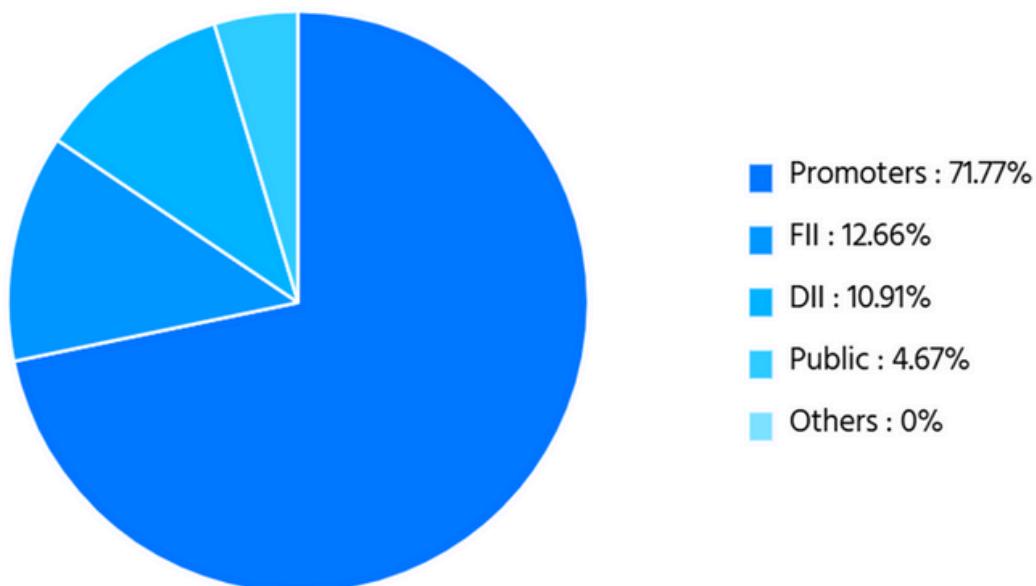
3) Competitive Positioning

Company	Price (Rs.)	Market Cap (Cr.)	P/B	P/E	EPS (Rs.)	ROE (%)	ROCE (%)	P/S	EV/EBITDA
TCS	4,131.75	14,94,903.31	17.92	31.63	130.61	59.6	79.73	7.39	22.13
Infosys	1,835.30	7,62,045.80	9.21	27.6	66.5	37.02	48.66	5.91	18.77
HCL Tech	1,834.95	4,97,943.98	13.68	42.17	43.51	29.35	38.56	10.35	27.01
Wipro	572.55	2,99,544.10	4.74	31.34	18.27	15.28	20.38	4.48	19.6
LТИ Mindtree	5,944.80	1,76,075.41	8.68	38.65	153.8	26.04	34.51	5.14	24.49
Tech Mahindra	1,682.15	1,64,587.93	7.39	56.14	29.97	8.93	11.06	3.91	34.33

4) SWOT Analysis



5) Shareholding Pattern

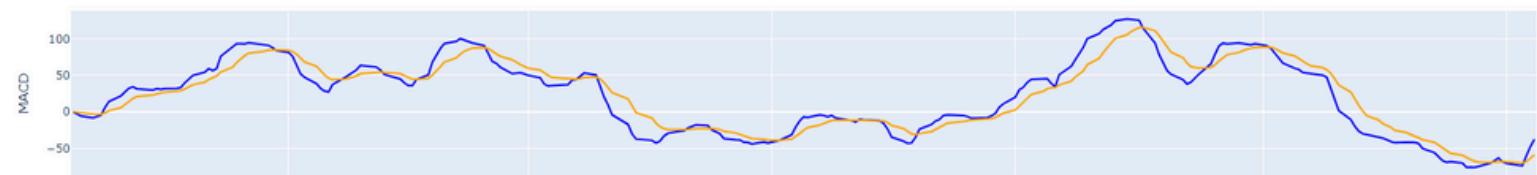


5.1 TATA CONSULTANCY SERVICES (TCS) - TECHNICAL ANALYSIS

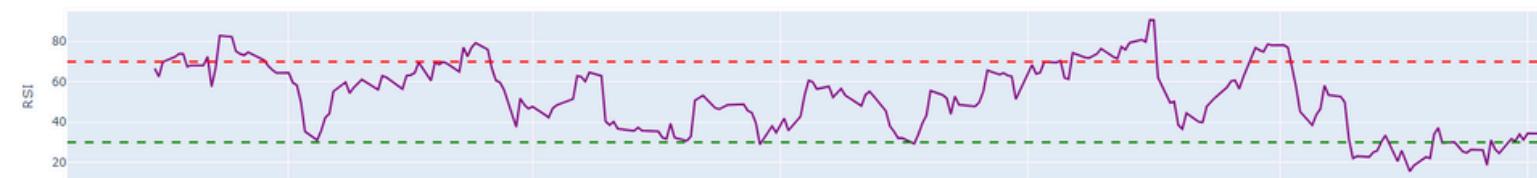
1) Price



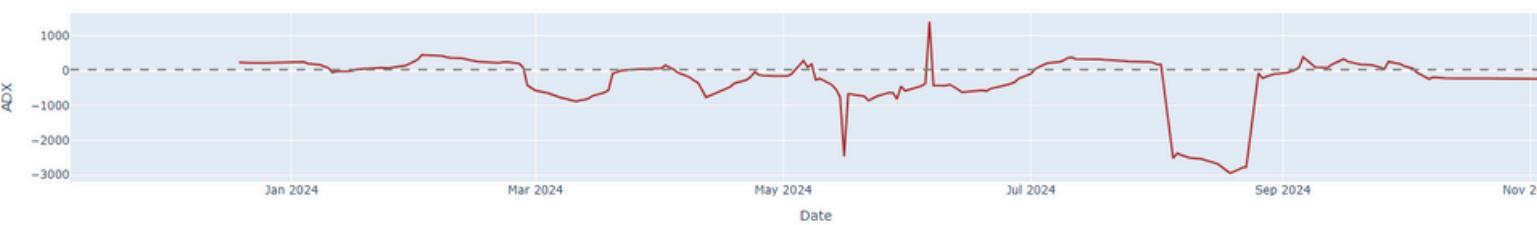
2) MACD



3) RSI



4) ADX



5) Summary

Technical Analysis Summary for TCS.NS:
RSI_Status: Neutral
MACD_Signal: Buy
ADX_Trend_Strength: Strong
SMA_Status: Bullish

4.2 Infosys

Infosys Limited is a global leader in next-generation digital services and consulting. Founded in 1981 by Narayana Murthy and six other engineers in Pune, India, the company has grown to become one of the largest IT services firms in the world. Infosys provides services across various industries, including financial services, manufacturing, energy, telecom, and more.

Headquartered in Bengaluru, India, Infosys operates in over 50 countries and employs a diverse workforce that spans several continents. It specializes in providing digital transformation solutions, cloud services, data analytics, artificial intelligence, and other IT consulting services, leveraging cutting-edge technologies to help clients enhance their business operations.

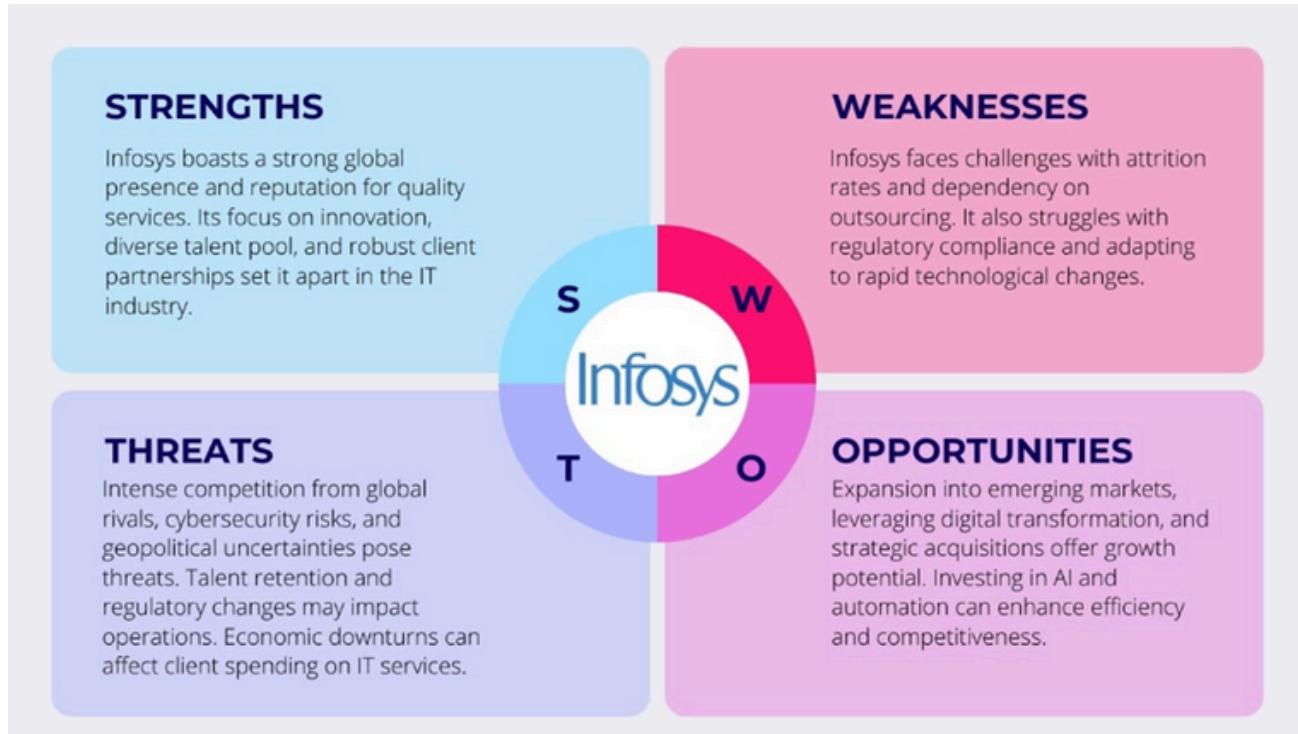
1) Financial Health Analysis:

Parameter	Value	Interpretation
P/E Ratio	27.6	A P/E of 27.60 indicates that Infosys is relatively valued by the market, with investors willing to pay Rs 27.60 for every rupee of earnings.
Share Price	Rs 1,835.30	The current share price of Infosys. This is an important indicator when compared to its earnings and growth prospects.
Return on Assets (ROA)	37.02%	A strong ROA of 37.02% shows that Infosys is highly efficient in utilizing its assets to generate profits.
Current Ratio	2.6	A solid current ratio of 2.60 indicates that Infosys is well-positioned to pay its short-term liabilities.
Return on Equity (ROE)	37.02%	The ROE of 37.02% demonstrates that Infosys is generating significant profits from shareholders' equity.
Debt to Equity Ratio	0.05	A very low debt-to-equity ratio of 0.05 highlights that Infosys has a conservative approach towards debt and strong financial stability.
Sales Growth	9.50%	A moderate sales growth of 9.50% shows steady expansion in revenues.
Operating Margin	24.10%	Strong operating margin of 24.10%, indicating effective control over operational costs while maintaining profitability.
Dividend Yield	2.20%	A dividend yield of 2.20%, which is attractive to income-focused investors, with a healthy return on investment.
Earnings Per Share (EPS)	Rs 66.50	A solid EPS of Rs 66.50 indicates that Infosys is generating a good profit per share, appealing to potential investors.

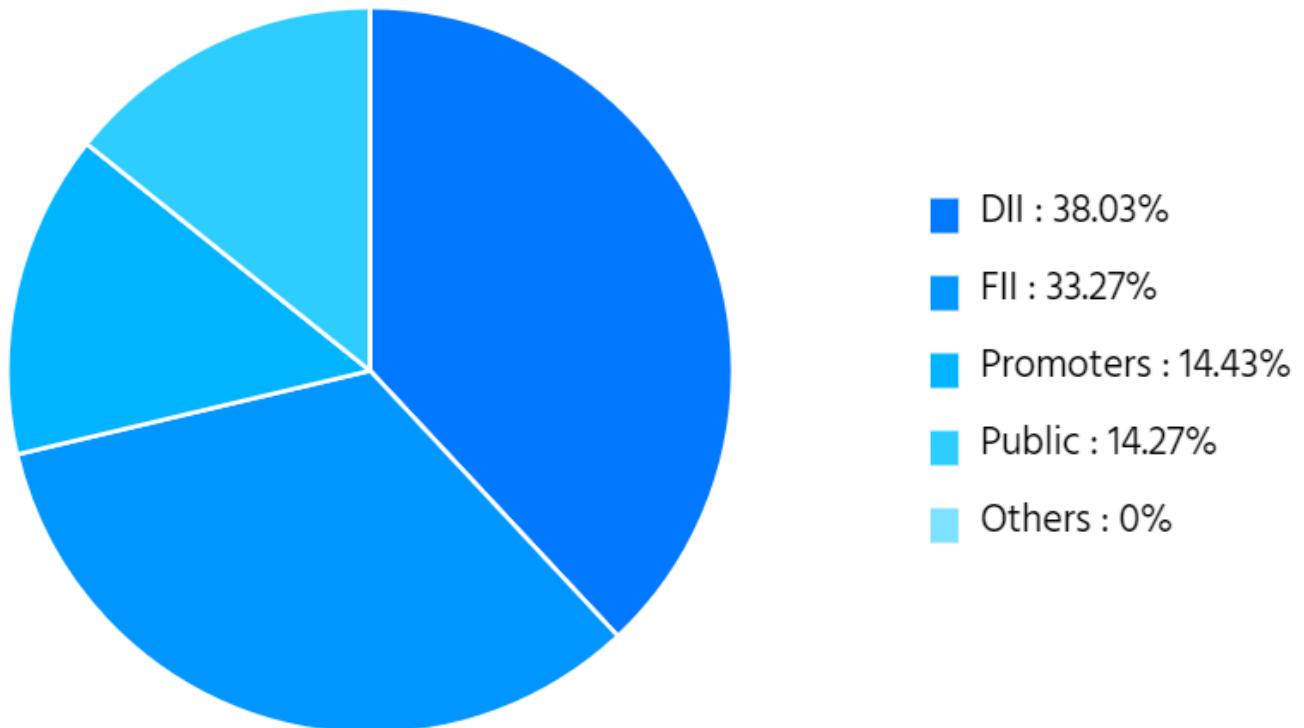
2) Revenue and Profit Trends: (In Crores)

Particulars	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24
Net Sales (Revenue)	87,374	91,650	1,09,264	1,22,893	1,31,502	32,412	33,400	34,415	35,340	36,210
Total Expenditure	60,880	64,452	74,328	85,120	92,325	22,398	22,782	23,195	24,502	25,310
Operating Profit	26,494	27,198	34,936	37,773	39,177	10,014	10,618	11,200	11,187	10,900
Profit Before Tax (PBT)	29,561	30,208	37,018	41,334	44,612	11,201	11,538	12,200	12,753	13,080
Net Profit (PAT)	23,489	24,376	30,152	33,106	35,835	9,135	9,309	9,600	9,888	10,250
Adjusted EPS (Rs.)	66.5	69.99	87.3	94.8	104.2	27.4	27.62	28.1	28.85	29.7
Other Income	4,901	5,533	7,235	6,225	6,785	1,710	1,839	1,900	2,075	2,310
Tax Paid	-6,072	-5,801	-7,453	-8,361	-9,147	-2,438	-2,469	-2,554	-2,698	-2,920

3) SWOT Analysis

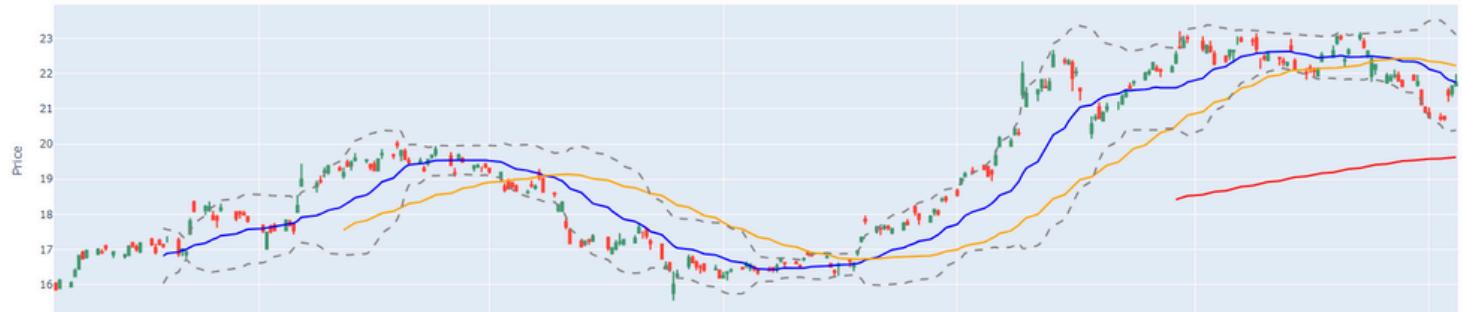


5) Shareholding Pattern



5.2 INFOSYS - TECHNICAL ANALYSIS

1) Price



2) MACD



3) RSI



4) ADX



5) Summary

```
Technical Analysis Summary for INFY:  
RSI_Status: Neutral  
MACD_Signal: Buy  
ADX_Trend_Strength: Strong  
SMA_Status: Bullish
```

4.3 WIPRO

Wipro Limited is a global leader in IT services and consulting, based in Bengaluru, India. Founded in 1945 by M.H. Hasham Premji, Wipro started as a vegetable oil manufacturer before transitioning into IT services in the 1980s under the leadership of Azim Premji. Today, Wipro is one of the largest IT services companies in the world, offering a wide range of digital, technology, consulting, and business process services across various sectors.

Wipro is renowned for its commitment to sustainability, innovation, and corporate governance. The company has consistently been recognized for its ethical business practices, and its dedication to reducing its carbon footprint through various environmental initiatives.

1) Financial Health Analysis:

Ratio	Value/5-Year Avg	Interpretation
Return on Equity (ROE)	16.9% (as of FY 2022)	Moderate profitability; indicates consistent but modest return on equity.
Return on Assets (ROA)	~8.2% avg (FY 2019-23)	Reflects steady conversion of assets into earnings, indicating efficient resource management.
Current Ratio	2.2 (FY 2023)	Strong liquidity; suggests the company is well-positioned to cover short-term liabilities.
Interest Coverage Ratio	15.3 (FY 2023)	Indicates high ability to meet debt obligations with operational income.
Price-to-Earnings (P/E)	21.5 (as of FY 2023)	Average for IT sector; shows a balanced market valuation relative to earnings.
Operating Profit	₹173,00 crore (FY 2023)	Reflects robust core operational performance with positive trends over the years.
Earnings Per Share (EPS)	₹19.2 (5-year avg)	Strong earnings consistency, demonstrating stable profitability.

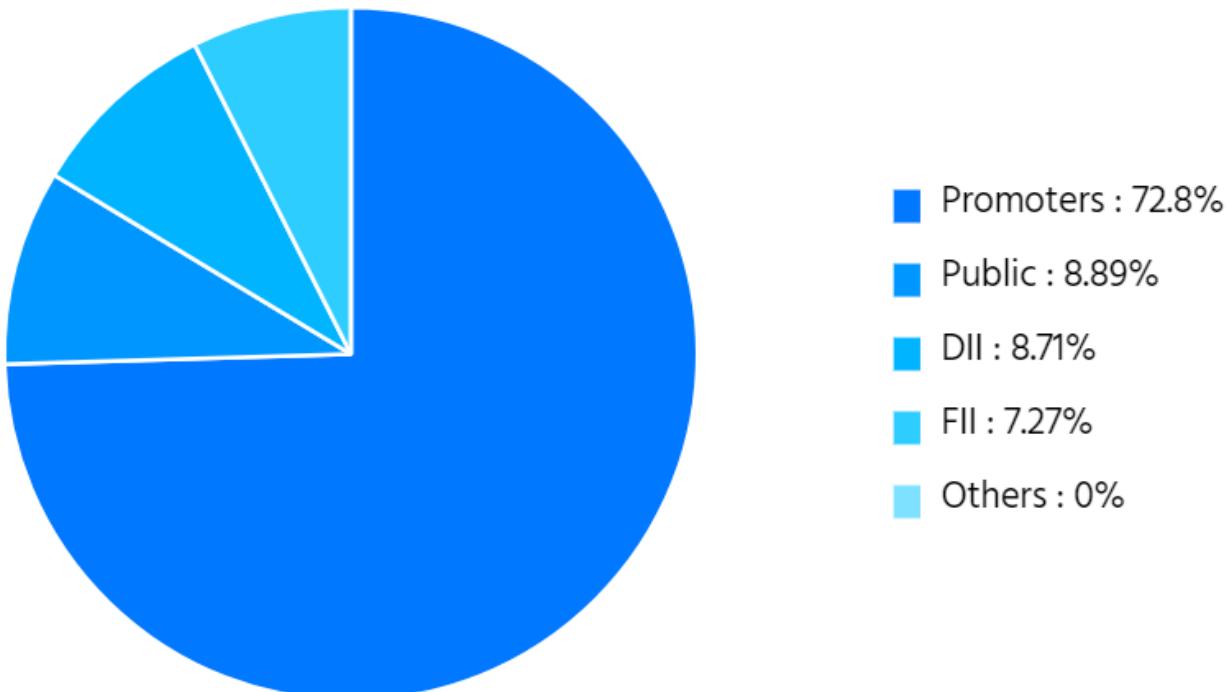
2) Revenue and Profit Trends: (In Crores)

Particulars	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Interpretation
Net Sales	₹610,232 crore	₹619,430 crore	₹790,934 crore	₹904,876 crore	₹886,788 crore	Increasing - Strong revenue growth, peaking in FY 2023 before a slight decline in FY 2024, reflecting some market challenges.
Operating Profit	₹101,417 crore	₹120,961 crore	₹134,392 crore	₹135,252 crore	₹143,551 crore	Increasing - Consistent growth, indicating improving operational efficiency and cost management.
Operating Cash Flow	₹77,146 crore	₹127,973 crore	₹90,644 crore	₹115,767 crore	₹171,375 crore	Increasing - Substantial growth, especially in FY 2024, reflecting strong cash generation from operations.
Net Cash Flow	₹1,657 crore	₹-5,736 crore	₹-5,342 crore	₹-5,736 crore	₹-13,290 crore	Volatile - Negative cash flow due to heavy investments, with worsening trend in FY 2024, reflecting higher capital expenditure.
Net Profit	₹97,218 crore	₹107,946 crore	₹122,191 crore	₹113,500 crore	₹117,408 crore	Increasing - Strong profit growth, with a slight dip in FY 2023 but a recovery in FY 2024.
Earnings Per Share (EPS)	₹16.67	₹ 19.11	₹ 22.35	₹ 20.72	₹ 22.48	Increasing - Steady growth in EPS, showing healthy profitability per share.

3) SWOT Analysis



5) Shareholding Pattern



5.3 WIPRO (WIPRO) - TECHNICAL ANALYSIS

1) Price



2) MACD



3) RSI



4) ADX



5) Summary

Technical Analysis Summary for Wipro.ns:

RSI_Status: Neutral

MACD_Signal: Buy

ADX_Trend_Strength: Strong

SMA_Status: Bullish

4.4 L&T (Larsen & Toubro)

Larsen & Toubro Limited (L&T) is one of India's largest and most diversified conglomerates, operating in several industries, including engineering, construction, manufacturing, technology, and financial services. Established in 1938 by two Danish engineers, Henning Holck-Larsen and Søren Toubro, L&T has grown into a multinational corporation with a strong presence in both domestic and international markets.

L&T has a strong track record of executing large and complex projects in infrastructure, power, and defense sectors. The company's focus on innovation, sustainability, and corporate governance has helped it maintain its leadership position in various industries. Through its strategic investments in technology and focus on diversification, L&T has built a robust business model, which has allowed it to expand into new markets and industries over the decades.

1) Financial Health Analysis:

Ratio	Value/5-Year Avg	Interpretation
Return on Equity (ROE)	~13.7% (as of FY 2023)	Moderate but steady profitability, indicating effective shareholder equity utilization. ROE improved recently due to higher profits and share buybacks.
Return on Assets (ROA)	~8.5% avg (FY 2019-23)	Shows consistent efficiency in using assets to generate earnings, driven by strong project execution across its sectors.
Current Ratio	1.5-1.8 (last five years)	Healthy liquidity ratio that helps manage large-scale, long-term projects, with assets comfortably covering liabilities.
Interest Coverage Ratio	~5.1 (avg over 5 years)	Demonstrates a strong ability to meet interest expenses. The ratio improved to 5.5 in FY 2023, reflecting high cash flows and prudent debt management.
Price-to-Earnings (P/E)	~22.3 (as of FY 2023)	Reflects premium valuation, which aligns with its growth-focused and capital-intensive industry, supported by positive investor sentiment.
Operating Profit	₹23,494 crore (FY 2023)	Shows a consistent increase, with a 13.2% growth in FY 2023 due to strong infrastructure and energy sector contributions.
Earnings Per Share (EPS)	₹74.5 (5-year avg)	Demonstrates reliable earnings growth, ensuring stable returns to shareholders.

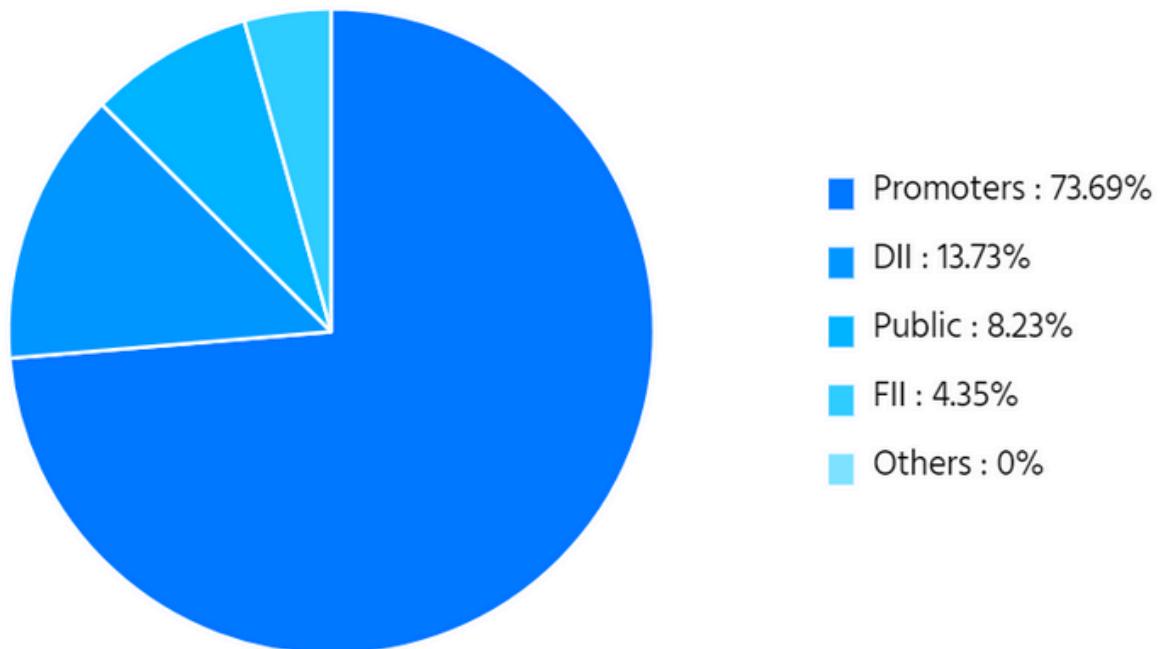
2) Revenue and Profit Trends: (In Crores)

Particulars	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Interpretation
Net Sales	1,47,452 Cr	1,35,979 Cr	1,56,521 Cr	1,83,648 Cr	2,02,391 Cr	Increasing - Strong growth, driven by robust project performance in Infrastructure and Energy segments.
Operating Profit	18,205 Cr	20,753 Cr	23,494 Cr	27,503 Cr	30,872 Cr	Increasing - Rising profits indicate effective cost management and high project execution.
Operating Cash Flow	17,340 Cr	18,516 Cr	21,008 Cr	23,006 Cr	24,900 Cr	Stable - Consistent cash generation supports strong operational health.
Net Cash Flow	-2,304 Cr	3,657 Cr	-4,221 Cr	-3,124 Cr	2,503 Cr	Volatile - Indicates investment in expansions; positive 2024 cash flow suggests improved liquidity.
Net Profit	10,241 Cr	11,583 Cr	13,607 Cr	15,725 Cr	18,361 Cr	Increasing - Reflects steady profit growth, aligned with revenue increase and cost controls.

3) SWOT Analysis



5) Shareholding Pattern



5. TECHNICAL ANALYSIS

5.4 LARSEN & TOUBRO (LT.NS)

Technical Analysis for LT.NS



Technical Analysis Summary for LT.NS:

RSI_Status: Neutral
MACD_Signal: Buy
ADX_Trend_Strength: Weak
SMA_Status: Bullish

4.5 Tech Mahindra

Tech Mahindra is a leading Indian multinational company providing information technology (IT) services and business solutions, part of the Mahindra Group. Established in 1986, the company operates across various industries, including telecommunications, banking, financial services, healthcare, manufacturing, and retail, offering IT consulting, digital transformation, cloud, AI, machine learning, and enterprise solutions.

Tech Mahindra offers services in enterprise applications, IT infrastructure management, digital transformation, cloud services, and automation. The company is known for its expertise in the telecommunications sector, where it provides IT solutions to global telecom giants, and its focus on 5G technology, blockchain, and AI-driven solutions.

1) Financial Health Analysis:

Ratio	Value/5-Year Avg	Interpretation
Return on Equity (ROE)	~13.5% (as of FY 2024)	Demonstrates stable profitability, showing moderate but consistent returns to shareholders through reinvestment in growth and strategic projects.
Return on Assets (ROA)	~9% avg (FY 2019-24)	Reflects efficient use of assets in generating revenue, though impacted in FY 2023-24 by reduced IT spending.
Current Ratio	1.6-1.8 (recent years)	Indicates a solid liquidity position, with sufficient short-term assets to cover liabilities, crucial for managing ongoing operational costs and project expenditures.
Interest Coverage Ratio	~30.2 (5-year avg)	High ratio reflecting strong ability to meet interest payments, underscoring limited financial risk and reliance on debt funding.
Price-to-Earnings (P/E)	~20.1 (as of FY 2024)	Moderate P/E, suggesting a valuation balance between growth potential and market expectations, fitting within the competitive IT services landscape.
Operating Profit	₹4,965 crore (FY 2024)	Indicates a significant year-on-year decline due to increased operational costs and reduced client spending, but with improvements in deal wins and cash flows.
Earnings Per Share (EPS)	₹26.58 (FY 2024)	Shows moderate earnings growth, though recent years saw some compression due to industry-wide spending cuts and economic uncertainties.

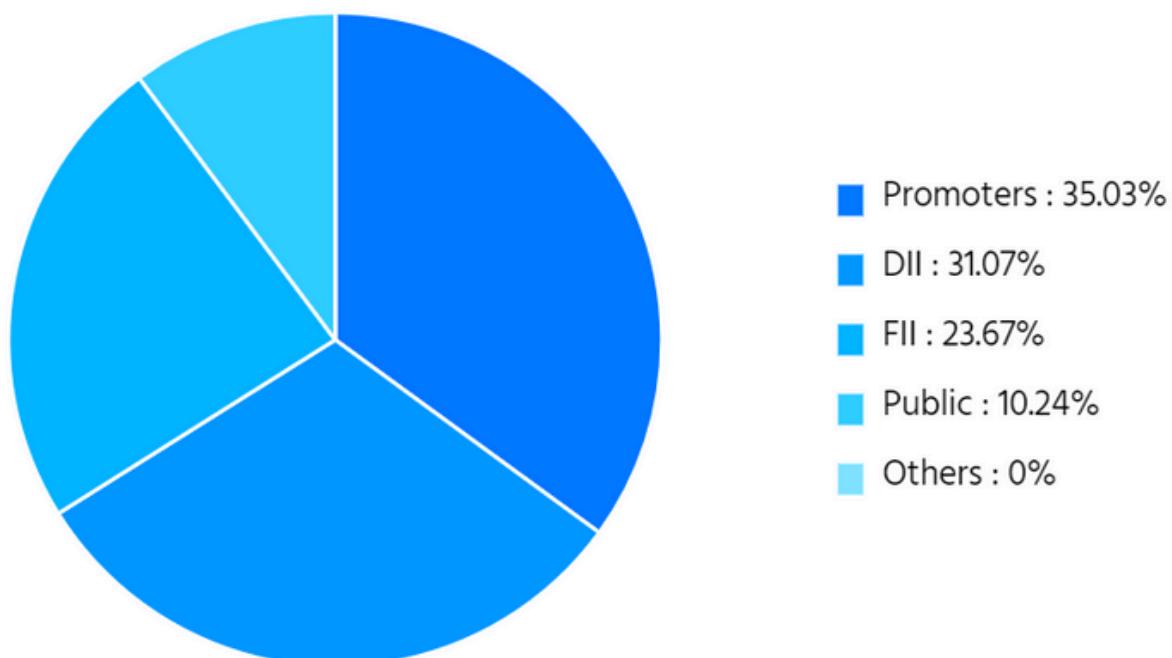
2) Revenue and Profit Trends: (In Crores)

Particulars	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24	Interpretation
Net Sales	₹37,855 Cr	₹39,052 Cr	₹44,460 Cr	₹51,996 Cr	₹52,913 Cr	Increasing - Consistent revenue growth, driven by strong demand and business expansion.
Operating Profit	₹5,429 Cr	₹7,760 Cr	₹9,585 Cr	₹12,314 Cr	₹12,744 Cr	Increasing - Strong operational efficiency, leading to continued profit growth.
Operating Cash Flow	₹5,219 Cr	₹8,043 Cr	₹8,890 Cr	₹11,290 Cr	₹12,765 Cr	Increasing - Healthy cash flow from core operations, ensuring reliable liquidity.
Net Cash Flow	₹1,256 Cr	₹3,829 Cr	₹-7,484 Cr	₹-8,474 Cr	₹1,190 Cr	Volatile - Negative cash flows due to investments, but a recovery in FY24.
Net Profit	₹4,280 Cr	₹4,955 Cr	₹5,667 Cr	₹6,832 Cr	₹6,916 Cr	Increasing - Steady profit growth, reflecting solid operational performance.

3) SWOT Analysis



5) Shareholding Pattern



5. TECHNICAL ANALYSIS

5.5 TECH MAHINDRA (TECHM.NS)

Technical Analysis for Techm.ns



Technical Analysis Summary for Techm.ns:
RSI_Status: Neutral
MACD_Signal: Sell
ADX_Trend_Strength: Weak
SMA_Status: Bullish

6. FINAL VERDICT

4.1 Tata Consultancy Services (TCS)

- Investment Potential: The fundamental and technical analysis indicates that TCS is a financially sound and stable blue-chip stock with reasonable growth prospects and a strong market position. The solid R&D investment and adaptability to emerging tech trends further strengthen its appeal for long-term investment.
- Current Recommendation: Given the technical indicators, there are more buy signals than sell signals, suggesting a favorable entry point for long-term investors. However, for short-term traders, the neutral RSI and high volatility (as indicated by ATR) suggest caution, as the stock may experience fluctuations.
- Action for Long-term Investors: Consider a buy position given TCS's financial health, consistent performance, and the company's leading position in the IT sector.
- Action for Short-term Traders: Monitor RSI and price movement near resistance levels; wait for a clearer buy signal if entering a new position.

4.2 Infosys {INFY}

- Investment Potential: Given its solid fundamentals, Infosys is attractive for investors seeking stable long-term growth in the IT sector. Although near-term volatility could present challenges, Infosys's extensive global footprint and adaptability to changing tech trends make it a valuable investment.
- Current Recommendation: Buy for long-term investors at current or slightly lower levels during dips, given the stock's intrinsic value and fundamental strength. Hold for short-term investors due to potential near-term volatility and neutral technical indicators.
- Action for Long-term Investors: Long-term investors should consider buying or adding Infosys during dips, leveraging its consistent dividend payouts and long-term growth in the IT sector. Infosys remains well-positioned to benefit from digital transformation trends, making it a strong choice for steady returns over time.
- Action for Short-term Traders: Short-term investors should monitor technical indicators closely. Given neutral RSI and a recent MACD bearish crossover, cautious entry points and profit-taking during peaks could be prudent. Holding is advised until a clearer bullish momentum appears.

6. FINAL VERDICT

4.3 WIPRO (WIPRO)

- Investment Potential: Wipro offers solid fundamentals and potential for growth, especially in digital transformation and cloud services. However, it has lagged behind peers like TCS and Infosys in consistent growth. Its valuation is attractive, but investors should be mindful of its slower growth trajectory.
- Recommendation: Neutral for long-term investors due to mixed growth prospects. For short-term traders, technical indicators show volatility, with a neutral RSI and uncertain short-term momentum.
- Action for Long-term Investors: Hold or buy on dips, with a focus on long-term growth, but be patient as the company works through its strategic changes.
- Action for Short-term Traders: Monitor for breakouts or breakdowns near key support/resistance levels. Wait for a clearer trend before entering and consider taking profits during rallies.

4.4 Larsen & Toubro (LT)

- Investment Potential: L&T is a leading diversified conglomerate with strong positions in infrastructure, construction, engineering, and technology. It has a robust order book and steady revenue growth, supported by government infrastructure projects and rising demand in sectors like defense and renewable energy. Despite challenges in cyclical industries, its strong fundamentals and diversified business make it an attractive long-term investment.
- Recommendation: Positive for long-term investors due to steady growth and strong market position. For short-term traders, technical indicators show mixed signals, so caution is advised.
- Action for Long-term Investors: Buy or hold, with a focus on L&T's strong fundamentals and diversified exposure to high-growth sectors like infrastructure and renewable energy.
- Action for Short-term Traders: Watch for price action near key support and resistance levels. Given mixed technicals, wait for clearer momentum signals before entering a position. Consider profit-taking during rallies.

6. FINAL VERDICT

4.5 Tech Mahindra (TECHM)

- Investment Potential: Tech Mahindra is a key player in the IT services and consulting sector, with a strong focus on digital transformation, 5G, and AI solutions. While its growth potential is solid, the company faces moderate competition and near-term volatility. It remains well-positioned for long-term growth, particularly in emerging tech, though its performance has been more inconsistent compared to its peers.
- Recommendation: Neutral for long-term investors, with potential for growth in digital and tech services. For short-term traders, the stock shows mixed technical indicators, suggesting caution.
- Action for Long-term Investors: Buy or hold, with a focus on Tech Mahindra's strong tech portfolio and exposure to high-growth areas like 5G and AI.
- Action for Short-term Traders: Watch for key support and resistance levels, and wait for clearer bullish signals before entering. Caution is advised due to near-term volatility.

7. REFERENCES

CODE

```
import pandas as pd
import numpy as np
import yfinance as yf
import plotly.graph_objects as go
from plotly.subplots import make_subplots
from datetime import datetime, timedelta

def calculate_technical_indicators(df):
    # Calculate RSI
    delta = df['Close'].diff()
    gain = (delta.where(delta > 0, 0)).rolling(window=14).mean()
    loss = (-delta.where(delta < 0, 0)).rolling(window=14).mean()
    rs = gain / loss
    df['RSI'] = 100 - (100 / (1 + rs))

    # Calculate MACD
    exp1 = df['Close'].ewm(span=12, adjust=False).mean()
    exp2 = df['Close'].ewm(span=26, adjust=False).mean()
    df['MACD'] = exp1 - exp2
    df['Signal_Line'] = df['MACD'].ewm(span=9, adjust=False).mean()

    # Calculate ADX
    high_low = df['High'] - df['Low']
    high_close = abs(df['High'] - df['Close'].shift())
    low_close = abs(df['Low'] - df['Close'].shift())
    ranges = pd.concat([high_low, high_close, low_close], axis=1)
    true_range = ranges.max(axis=1)
    df['ATR'] = true_range.rolling(14).mean()

    plus_dm = df['High'].diff()
    minus_dm = df['Low'].diff()
    plus_dm[plus_dm < 0] = 0
    minus_dm[minus_dm > 0] = 0

    tr14 = true_range.rolling(14).sum()
    plus_di14 = 100 * (plus_dm.rolling(14).sum() / tr14)
    minus_di14 = 100 * (minus_dm.rolling(14).sum() / tr14)
```

```

df['ADX'] = (abs(plus_di14 - minus_di14) / (plus_di14 + minus_di14) * 100).rolling(14).mean()

# Calculate SMAs
df['SMA20'] = df['Close'].rolling(window=20).mean()
df['SMA50'] = df['Close'].rolling(window=50).mean()
df['SMA200'] = df['Close'].rolling(window=200).mean()

# Calculate Bollinger Bands
df['BB_middle'] = df['Close'].rolling(window=20).mean()
df['BB_upper'] = df['BB_middle'] + 2 * df['Close'].rolling(window=20).std()
df['BB_lower'] = df['BB_middle'] - 2 * df['Close'].rolling(window=20).std()

return df

def plot_technical_analysis(df, symbol):
    fig = make_subplots(rows=4, cols=1,
                         shared_xaxes=True,
                         vertical_spacing=0.05,
                         row_heights=[0.4, 0.2, 0.2, 0.2])

    # Candlestick chart with SMAs and Bollinger Bands
    fig.add_trace(go.Candlestick(x=df.index,
                                 open=df['Open'],
                                 high=df['High'],
                                 low=df['Low'],
                                 close=df['Close'],
                                 name='OHLC'), row=1, col=1)

    fig.add_trace(go.Scatter(x=df.index, y=df['SMA20'], name='SMA20',
                            line=dict(color='blue')), row=1, col=1)
    fig.add_trace(go.Scatter(x=df.index, y=df['SMA50'], name='SMA50',
                            line=dict(color='orange')), row=1, col=1)
    fig.add_trace(go.Scatter(x=df.index, y=df['SMA200'], name='SMA200',
                            line=dict(color='red')), row=1, col=1)

    fig.add_trace(go.Scatter(x=df.index, y=df['BB_upper'], name='BB Upper',
                            line=dict(color='gray', dash='dash')), row=1, col=1)
    fig.add_trace(go.Scatter(x=df.index, y=df['BB_lower'], name='BB Lower',
                            line=dict(color='gray', dash='dash')), row=1, col=1)

```

```

# MACD
fig.add_trace(go.Scatter(x=df.index, y=df['MACD'], name='MACD',
                         line=dict(color='blue')), row=2, col=1)
fig.add_trace(go.Scatter(x=df.index, y=df['Signal_Line'], name='Signal Line',
                         line=dict(color='orange')), row=2, col=1)

# RSI
fig.add_trace(go.Scatter(x=df.index, y=df['RSI'], name='RSI',
                         line=dict(color='purple')), row=3, col=1)
fig.add_hline(y=70, line_dash="dash", line_color="red", row=3, col=1)
fig.add_hline(y=30, line_dash="dash", line_color="green", row=3, col=1)
# ADX
fig.add_trace(go.Scatter(x=df.index, y=df['ADX'], name='ADX',
                         line=dict(color='brown')), row=4, col=1)
fig.add_hline(y=25, line_dash="dash", line_color="gray", row=4, col=1)
# Update layout
fig.update_layout(
    title=f'Technical Analysis for {symbol}',
    yaxis_title="Price",
    yaxis2_title="MACD",
    yaxis3_title="RSI",
    yaxis4_title="ADX",
    xaxis4_title="Date",
    height=1200,
    showlegend=True,
    xaxis_rangeslider_visible=False
)
fig.show()

```

```

def analyze_stock(symbol, period='1y'):
    """
    Main function to perform technical analysis on a stock

    Parameters:
        symbol (str): Stock symbol (e.g., 'AAPL', 'MSFT')
        period (str): Time period to analyze (e.g., '1y', '6mo', '3mo')
    """

    # Download stock data
    stock = yf.Ticker(symbol)
    df = stock.history(period=period)

```

```

# Calculate technical indicators
df = calculate_technical_indicators(df)

# Generate trading signals and analysis
analysis = {
    'RSI_Status': 'Oversold' if df['RSI'].iloc[-1] < 30 else 'Overbought' if df['RSI'].iloc[-1] > 70 else 'Neutral',
    'MACD_Signal': 'Buy' if df['MACD'].iloc[-1] > df['Signal_Line'].iloc[-1] else 'Sell',
    'ADX_Trend_Strength': 'Strong' if df['ADX'].iloc[-1] > 25 else 'Weak',
    'SMA_Status': 'Bullish' if df['Close'].iloc[-1] > df['SMA200'].iloc[-1] else 'Bearish'
}

# Plot the technical analysis
plot_technical_analysis(df, symbol)

return analysis

# Example usage
if __name__ == "__main__":
    symbol = "Techm.ns" # Example stock symbol
    analysis = analyze_stock(symbol, period='1y')
    print(f"\nTechnical Analysis Summary for {symbol}:")
    for key, value in analysis.items():
        print(f"{key}: {value}")

```

[1]https://colab.research.google.com/drive/1Mz_v5lg-elJbYx6FYgr-s0GUXTKNYRvp?usp=sharing

[2] <https://in.tradingview.com/>

[3] <https://groww.in/charts>

[4] <https://www.investing.com/>

[5] <https://www.investopedia.com/>

[6] <https://www.moneycontrol.com/>

[7] <https://www.livemint.com/>