Analysis of Key Performance Indicators to Study the Growth and Development of Selected Software Companies in India

V. Karpagavalli [1*]

Abstract

The Indian software industry plays a significant role in developing the national economy, from an inward looking economy into a dynamic digitally empowered society. Nearly 95% of the foreign exchange inflows in the service sector are contributed by IT and Buisness Process Outsourcing (BPO) industries. Indian government policy was introduced in 1986 and modified in 1988 in relation with the world market policy, Software Technology Parks of India scheme support to attract Foreign Direct Investment. Recent advancement in the field of information and communication has significantly modified the role of IT in all organizations. Enormous growth in IT industry has changed the outsourcing strategy and buying behavior. Organizations can realize more benefits by investing more funds in IT. India is considered a pioneer in software development and a favourite destination for software and IT enabled services. IT industry has produced a revolutionary variation in the economic scenario and a huge number of personnel are working with higher productivity and association with Multi National Corporations (MNCs).

Keywords : **Communication, economy, inflows, software industry**

I. INTRODUCTION

In India, software companies are playing a vital role in contribution to GDP and employment generation. From the days of economic liberalization till recent days, India's Information Technology industry has registered an evolutionary and revolutionary growth. It has established the sector through phenomenal growth in terms of numerical strength of software companies [1, 2]. The amazing performance and growth has resulted in high rate of return to investors and attracted a good number of investors from within and abroad. Investors in the category of both Foreign Direct Investment and Foreign Institutional Investments will be interested in knowing the financial strength of software companies [3, 4].

IT/ITES exports have grown to a range of US $ 46.3 billion in 2008–09 and the sector currently employs 2.2 million professionals directly and another 8 million people indirectly accounting for over 7.7% of the GDP. It was estimated that in the year 2010–2011, Indian software and services exports were expected to reach US $60 billion and by 2011-2012, which was also the final year of the 11th 5-year plan, this figure was predicted to be increased by a further US $12 billion. Though the IT industry and the software sector particularly have proved its health and wealth, few of the following questions are left unanswered during the previous studies and the investors too are concerned about finding answers to the questions and ultimately to have a knowledge base on the financial strength of software. Thus, the research study has been conducted to build an apprehension on financial performance of selected software companies.

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II. OBJECTIVES OF THE STUDY

The objectives of the present research work were:

- To study the growth and development of software companies in India
- To analyse the asset, capital employed, sales, and profitable performance of the selected NSE rated software companies in India.

III. METHODOLOGY

The present study is analytical and exploratory in nature. The study analyses the financial position of software companies in a descriptive manner and it is based on secondary data.

In this study, the population of software industry is divided into three strata based on the companies' profitability and software exports. Large scale, medium scale and small scale are the three strata considered. From the strata of large scale companies, out of 39 companies, top 15 companies were selected. These are:

(1) Tata Consultancy Services (TCS)

(2) Wipro

(3) Infosys

(4) HCL Technologies

(5) Mphasis

(6) L&T Infotech

(7) Iflex Oracle Financial Services

(8) Mindtree

(9) IGate Global Solutions Limited

(10) Zensar Technologies Ltd.

(11) KPIT Technologies Ltd.

(12) NIIT Technologies Ltd.

(13) Accelya

(14) HP and

(15) Mastek

A. Period of the Study

The research work has taken effort to analyze the financial performance and capital structure of software companies. The study was conducted during 2022 to analyze the profitability of software companies since 2005. The study is based on secondary data taken from the Centre for Monitoring Indian Economy (CMIE) data, annual reports published by institutions, information from official websites of software companies and some other authorities concerned with software companies in India.

B. Analysis of Key Performance Indicators (KPI) – To study the growth and development of the selected software companies in India

The growth and development of software companies is mostly measured by key indicators like total assets, net sales, capital employed, net profit, share capital and net worth of the companies. These key indicators are analysed to know the financial performance of the software companies by applying tools like Mean, Standard Deviation, and Compound Annual Growth Rate.

1) Total Assets

Table I reveals the analysis of the total assets of selected software companies in India. Mean, Standard Deviation and Compound Annual Growth Rate (CAGR) are used in the analysis.

Table I reveals the performance of total assets of the selected software companies during the study period. The total assets range from ₹ 79.49 crores to ₹ 25,243.10 crores and overall mean score is ₹ 6,165.50 crores in the present study. From the analysis, it is inferred that Infosys has the highest total assets of ₹ 25,243.10 crores with Compound Annual Growth Rate (CAGR) of 21.44% followed by Wipro with total assets of ₹ 23,463.32 crores with CAGR of 20.28%. The CAGR of IGate on total assets has the highest growth rate of 26.08% followed by Mindtree which has 26.00% growth rate. The overall growth rate percentage of total assets is 17.57%. The growth rate of total assets of ten companies is greater and has a high growth rate of total assets by maintaining the wealth of business. The growth rate of 5 software companies is lower while comparing 15 selected software companies because those companies have not recovered from the recession and have reduced assets due to market fluctuations in India. It reveals that the growth of 10 software companies in terms of total assets is

TABLE I.

TOTAL ASSETS OF THE SELECTED SOFTWARE COMPANIES IN INDIA (IN ₹ CRORE)

Company	Mean	*SD*	Min	Max	CAGR %
TCS	22348.87	14828.35	5644.83	46538.35	23.49
Wipro	23463.32	11104.10	6470.61	41025.90	20.28
Infosys	25243.10	13734.98	6897.00	48098.00	21.44
HCL	8327.97	6023.77	2589.25	19928.09	22.64
Mphasis	2749.19	1345.57	830.54	4230.64	17.68
L&T Infotech	1161.17	606.32	303.86	2207.19	21.93
Iflex Oracle	4468.69	2314.64	1362.73	8517.63	8.45
Mindtree	946.99	573.61	202.94	2047.40	26.00
IGate	1360.19	1162.52	308.26	3170.80	26.08
Zensar	386.67	212.31	156.78	785.91	17.49
KPIT	79.49	52.40	26.53	180.57	17.92
NIIT	587.36	291.55	259.44	1090.85	15.44
Accelya	98.57	18.60	75.02	134.86	3.01
HP	905.71	383.32	714.02	1364.10	5.91
Mastek	355.19	75.69	203.28	451.25	8.30
Overall	**6165.50**	**3515.18**	**1736.34**	**11984.80**	**17.57**

Source : CMIE Data, 2005 – 2022

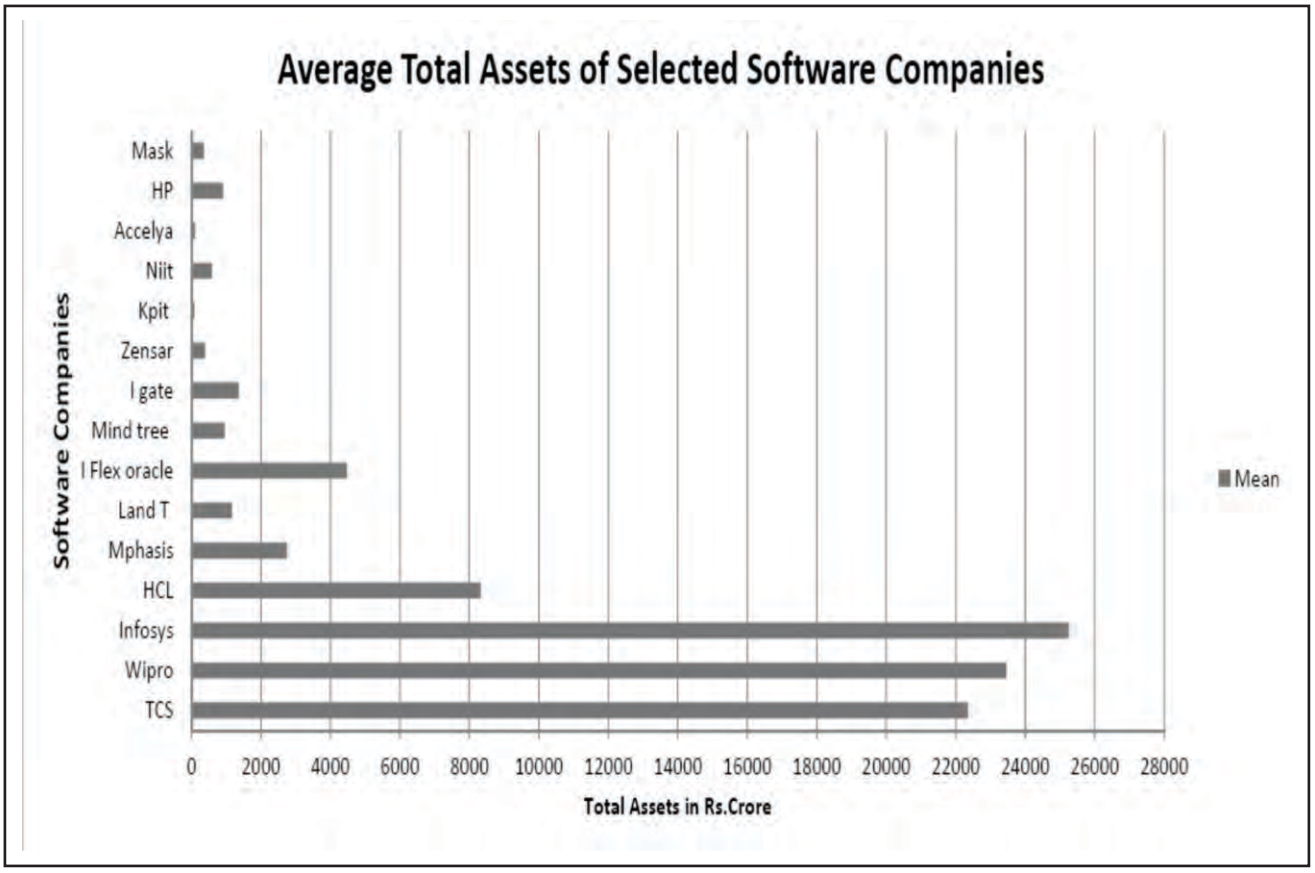

Fig. 1. Total Assets of the Selected Software Companies in India

TABLE II.

NET SALES OF THE SELECTED SOFTWARE COMPANIES IN INDIA (IN ₹ CRORE)

Company	Mean	*SD*	Min	Max	CAGR %
TCS	34398.71	21437.35	11236.01	73582.15	20.67
Wipro	25770.91	10409.1	10264.09	41210	14.91
Infosys	26427.4	13119.14	9028	47300	18.01
HCL	8304.111	5284.923	3032.92	17153.44	18.92
Mphasis	2593.494	1055.097	1102.85	3770.09	10.62
L&T Infotech	2569.359	1375.866	793.38	4744.4	19.58
Iflex Oracle	2335.985	703.4937	1153.82	3341.1	11.22
Mindtree	1638.376	1058.804	448.8	3547.4	22.97
IGate	1648.623	1221.112	563.48	3424.7	19.52
Zensar	589.05	289.5664	229.08	1079.93	16.78
KPIT	615.704	298.9247	262.14	1258.21	16.99
NIIT	727.722	408.7052	220.09	1346.09	19.86
Accelya	162.72	84.70585	62.58	283.21	15.84
HP	1812.61	990.4947	1029.48	3293.85	12.34
Mastek	492.393	100.8535	364.33	665.12	17.82
Overall	**7361.103**	**3847.163**	**2652.737**	**13733.31**	**17.07**

Source : CMIE Data , 2005 – 2022

healthier, compared to other companies taken up for the study.

2) Net Sales

Table II shows net sales performance of the selected companies during the period. The average net sales range from ₹ 162.72 crores to ₹ 34,398.71 crores and the high mean performance is ₹ 7,361.10 crores. TCS has the highest average net sales of ₹ 34,398.71 crores with growth rate of 20.67% followed by Infosys which has a net sales of ₹ 26,427.40 with growth rate of 18.01% in the present study. The Compound Annual Growth Rate of Mindtree recorded a higher growth rate of 22.97% followed by TCS with 20.67%. The overall growth rate of net sales is 17.07%. The growth rate of net sales of most of the companies has performed well and software export increased better than that of software companies in the United States (US). The selected software companies have produced more software within the organization and outsourcing from other allied companies. The growth rate of software companies has quite reduced by recession during 2008.

3) Capital Employed of the Software Companies

It is inferred from Table III that the average capital employed ranges from ₹ 98.57 crores to ₹ 23,463.32 crores and overall mean is ₹ 570.46 crores. Wipro has the highest mean value of ₹ 23,463.32 crores with a growth rate of 20.29% followed by TCS, which has average total assets of ₹ 22,348.87 with growth rate of 23.49% in the present study. The CAGR of IGate has the highest growth rate of 26.09% followed by Mindtree, which has 26% growth rate. The overall growth rate is 17.76%. Among the selected companies, the overall Compound Annual Growth Rate of IGate is higher during the study period. Majority of the selected software companies had utilized the capital invested for the exports of software products, while few concentrated only on domestic sales due to inefficient profit management.

4) Net Profit

Table IV narrates the net profit of the selected software companies. The average net profit ranges between ₹ 32.51 crores and ₹ 8,930.32 crores and overall mean is

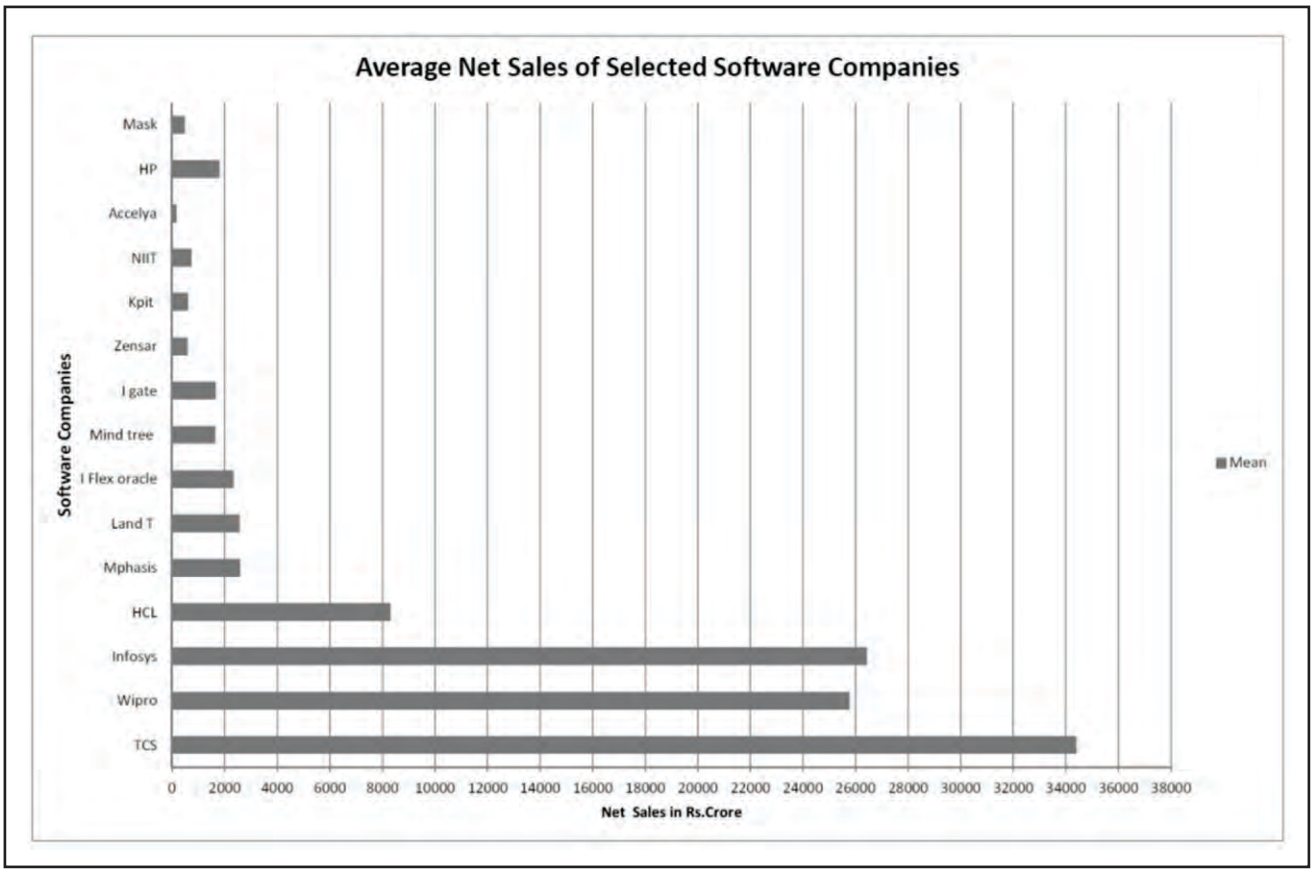

Fig. 2. Net Sales of Selected Software Companies in India

TABLE III.

CAPITAL EMPLOYED OF THE SELECTED SOFTWARE COMPANIES IN INDIA (IN ₹ Crore)

Company	Mean	*SD*	Min	Max	CAGR %
TCS	22348.87	14828.35	5644.83	46538.35	23.49
Wipro	23463.32	11104.10	6470.61	41025.90	20.29
	20957.50	12435.97	5242.00	42456.00	23.27
HCL	8327.97	6023.77	2589.25	19928.09	22.64
Mphasis	2683.45	1443.06	526.88	4230.65	23.16
L&T Infotech	1161.17	606.32	303.86	2207.19	21.93
Iflex Oracle	4468.69	2314.63	1362.73	8517.62	8.44
Mindtree	946.99	573.61	202.94	2047.40	26.00
IGate	1360.16	1162.48	308.26	3170.70	26.09
Zensar	386.66	212.32	156.76	785.92	17.48
KPIT	732.54	490.55	225.38	1508.17	20.95
NIIT	587.36	291.55	259.44	1090.84	15.47
Accelya	98.57	18.60	75.02	134.86	3.02
HP	905.71	383.32	714.02	1364.10	5.90
Mastek	355.19	75.69	203.28	451.24	8.31
Overall	**570.46**	**260.58**	**267.23**	**1092.02**	**17.76**

Source : CMIE Data, 2005 – 2022

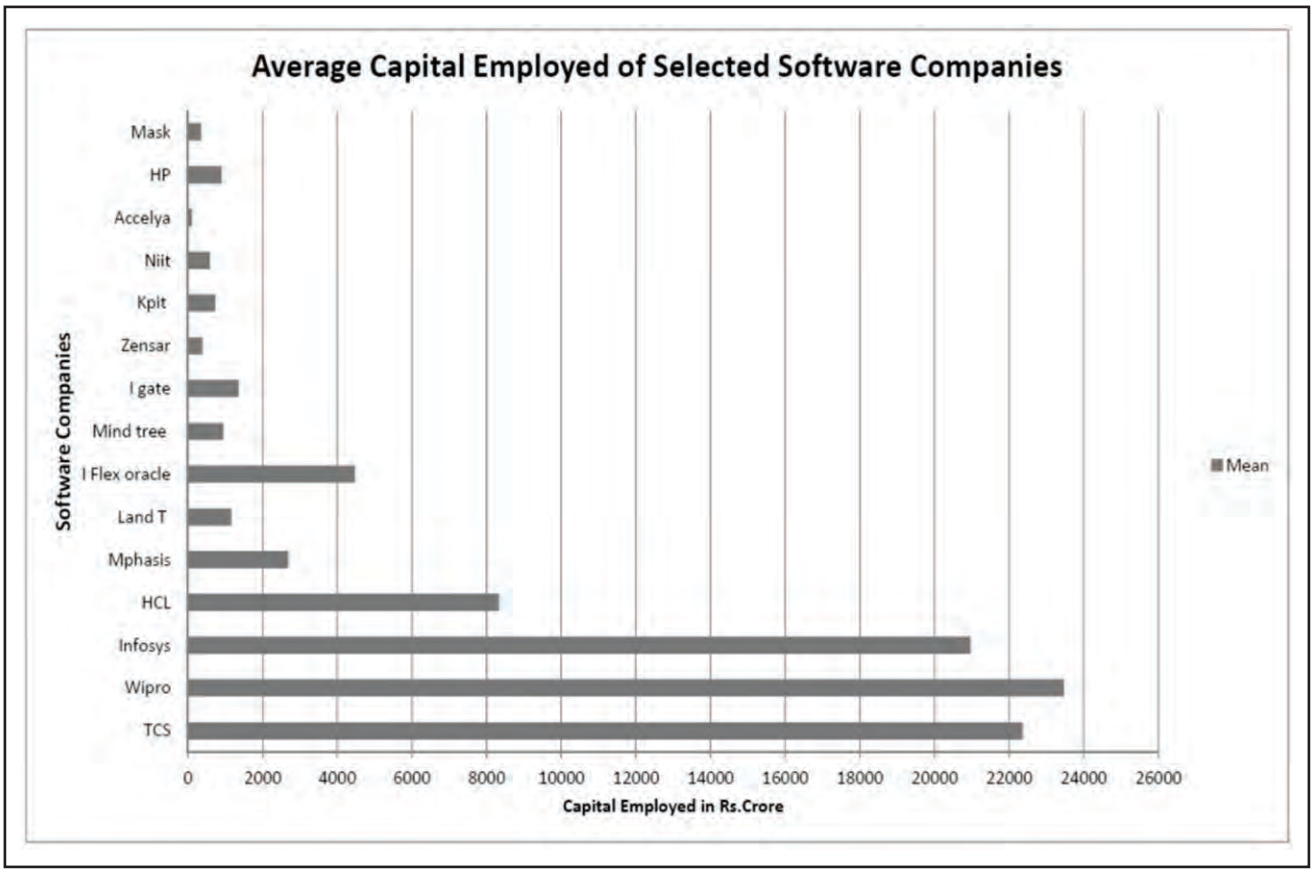

Fig. 3. Capital employed of the selected software companies in India

TABLE IV.

NET PROFIT OF THE SELECTED SOFTWARE COMPANIES IN INDIA (IN ₹ CRORE)

Company	Mean	*SD*	Min	Max	CAGR %
TCS	8930.32	5963.19	2713.89	18662.65	21.27
Wipro	4293.97	2380.35	25.91	7887.18	14.71
Infosys	6784.32	2975.50	2421.00	11858.42	17.22
HCL	2317.79	2171.74	563.27	6243.39	27.20
Mphasis	514.33	296.68	132.77	996.22	14.96
L&T Infotech	369.29	233.05	69.93	773.21	27.15
Iflex Oracle	755.15	323.78	241.18	1148.18	15.95
Mindtree	210.01	166.91	28.06	512.28	25.70
IGate	217.61	166.79	15.18	494.63	41.86
Zensar	92.11	56.63	25.03	187.10	21.89
KPIT	84.07	43.00	27.02	160.04	18.86
NIIT	124.17	42.62	58.66	205.10	10.00
Accelya	32.51	31.21	5.77	87.29	27.66
HP	199.27	126.23	0.00	387.54	14.52
Mastek	45.28	34.19	–4.78	96.64	2.71
Overall	**1667.26**	**1000.21**	**427.89**	**3313.33**	**20.11**

Source : CMIE Data, 2005–2022

₹ 1,667.26 crores. During the study period, TCS has an average net profit of ₹ 8,930.32 crores with a growth rate of 21.27% followed by Infosys, which has an average net profit of ₹ 6,784.32 with a growth rate of 17.22%. The CAGR of IGate is 41.86%, next in order is Accelya, which has 27.66% growth rate. The overall growth rate of net profit is 20.11%. Majority of the software companies have earned more profits by more software exports and reduced expenditure of the business. Few companies have not recovered from the recession effect of United States and the earnings in the domestic market are at moderate level.

IV. CONCLUSION

Indian IT companies had a decent year in terms of financial performance driven by factors like digitization and non-linear growth models. Indian IT companies continued to move up the value chain by providing more end-to-end solutions and engaging more closely with clients. The drive towards digital technologies, internal cost optimization to improve profitability continued in the financial year 2017–18. The Indian IT industry grew by 7.7% in the financial year in 2017–2018. India's share in the global sourcing market is about 38% in the financial year in 2017–2018. However, the growth will be driven by new digital technologies while legacy business will be under pressure but at the same time, the adoption of new digital technologies will bring huge disruption of the industries' traditional business model. After the effect of COVID-19, growth of IT industry accelerated during 2022.

AUTHOR'S CONTRIBUTION

Dr. V. Karpagavalli is the sole author of the present paper. She has performed the entirety of the work described in this paper.

CONFLICT OF INTEREST

The author certifies that she has no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in the manuscript.

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REFERENCES

[1] A. Ajitabh and K. Momaya, "Competitiveness of firms: Review of theory, frameworks and models," *Singap. Manage. Rev.,* vol. 26, no. 1, pp. 45–61, 2004. [Online]. Available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2146487

[2] S. D. Wu, M. Erkoc, and S. Karabuk, "Managing capacity in the high-tech industry: A review of literature," *The Eng. Economist*, vol. 50, no. 2, pp, 125–158, 2005, doi: 10.1080/00137910590949887.

[3] S. MacCurtain, P. C. Flood, N. Ramamoorthy, M. A. West, and J. F. Dawson, "The top management team, reflexivity, knowledge sharing and new product performance: A study of the Irish software industry," *Creativity Innov. Manage.*, vol. 19, no. 3, pp. 219–232, 2010, doi: 10.1111/j.1467-8691.2010.00564.x

[4] H. Edison, N. B. Ali, and R. Torkar, "Towards innovation measurement in the software industry," *J. Syst. Softw.*, vol. 86, no. 5, pp. 1390–1407, 2013, doi: 10.1016/j.jss.2013.01.013.

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