

Deal Rationales for Technology M&A: An Analysis of the Two Year Value Generated

by

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Submitted to the System Design and Management Program
in partial fulfillment of the requirements for the degree of

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Abstract

The technology sector is driven by rapid innovations, the pace and magnitude of technological changes and complexities, and a reliance on specialized skills and expertise. Not all firms are able to organically develop all the technologies and capabilities they need to stay competitive. Mergers and acquisitions (M&A) give buyers looking to achieve strategic goals an alternative to organic growth. Technology companies have often pursued M&A as a means to acquire new technology, as an alternative to organic technology development. Strategic motives such as broadening scope, achieving cost synergies, getting access to skills or technologies faster, and several others drive companies to engage in M&A. These motives are widely reported in the literature and are deemed to be critical in improving an organization's financial performance and increasing shareholder value. This thesis summarizes a subset of these motives or deal rationales that are most prominent in the technology sector, analyzes a sample of past technology deals between 2008 and 2018, and categorizes them based on the strategic intent behind the deal-making. This study examines the long-term value these motives generate in each category by measuring and comparing financial metrics pre- and post-merger. Various financial metrics like quick-ratio, CAGR (compound annual growth rate) and total shareholder return (TSR) are analyzed in the process and ultimately TSR has been chosen to measure the long-term value of the deals in this study. This study concludes “Cross-Selling” and “Acquiring technical capabilities” as having probability of higher returns and higher success rate among those studied.

Thesis Supervisor: Dr. Bruce G. Cameron

Title: Director, System Architecture Group

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Studying at MIT has been the greatest experience of my life. Coming from an engineering background, I couldn't have imagined a better place to do my master's program. SDM program has equipped me with the critical technical and leadership skills that I could use across the disciplines to find innovative solutions to solve industry problems. Experience of working on industry standard projects with knowledgeable students had helped me better understand various aspects of the product life cycle. Systems thinking that was introduced in our core course by our professors provided us the ability to reframe problem, understand the interconnection between system's constituents and think of solutions from a holistic approach.

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Chapter 1

Introduction

1.1 Motivation

The number of Mergers and Acquisition(M&A) has expanded greatly over the past quarter of the century. According to IMAA¹, the compound annual growth rate (CAGR) for the number of deals from 1985 to 2018 was 5.86% while the value grew at 5.32%. Although there has been about 11% dip in M&A value in 2019, the total value of transactions is still significant at 1860 billion USD, which is more than double the value of transactions since a decade ago in 2009 (877 billion USD). M&A popularity stems from the widely held view among corporate executives that, compared to internal development, acquisitions provide organizations a quicker, easier, and seemingly less risky means of achieving their diversification and growth objectives (Bradley & Korn, 1981; Sonenclar, 1984).

¹ <https://imaa-institute.org/m-and-a-us-United-states/> - Announced M&A in the United States by Numbers and Value by Years

Companies and industries moved into survival mode during the early days of COVID-19, suggesting a reversal of the longer-term trend. 451 Research's 2020 report indicates buyers around the world announced tech and telecom acquisitions worth just \$4bn in April, compared with an average monthly spending in 2019 of nearly \$40bn. Although global M&A activity has plummeted as a result of pandemic, Deloitte's 2020 Future of M&A Trends Survey² reports that 61% of US deal makers expect M&A activity to return to pre-COVID-19 levels within the next 12 months. Accenture analysis of CapitalIQ data (2020)³ also shows encouraging results that firms who bought in a downturn tend to have a higher three-year total shareholder return (TSR) than their S&P 500 sector average.

Naharandi and Malekzadeh⁴ pointed out that despite the popularity of mergers and acquisitions, the general consensus is that about 80% of M&A do not reach to their financial goals. Bruner⁵ also confirmed that about 70-80% of M&A do not create significant value above the annual cost of capital. In Deloitte's 2020 M&A trends report⁶, out of 1000 executives from Corporate and PEI (Private Equity Investor) firms surveyed, 46% responded that less than half of their transactions of past two years have generated the value or return on investment. One of the Harvard Business Review article states that "M&A is a mug's game: Typically, 70%–90% of acquisitions are abysmal failures"⁷. These trends have encouraged substantial research endeavors over the last few decades and resulted in literature in various aspects of M&A activity.

Despite the vast amounts of money and resources spent on takeovers and the substantial academic research and meta research⁸ investigating firm performance around and after a merger, the factors determining a deal's ultimate success are still not well understood.

² <https://www2.deloitte.com/us/en/pages/mergers-and-acquisitions/articles/m-a-trends-report.html>

³ https://www.accenture.com/_acnmedia/PDF-122/Accenture-COVID-19-Rebalance-for-Resilience-Mergers-and-Acquisitions.pdf

⁴ A. Nahavandi, A. R. Malekzadeh, "Organizational Culture in the Management of Mergers," Westport, CT: Quorum Books, 1993.

⁵ R. F. Bruner, "Does M & A pay? A survey of evidence for the decision-maker," Journal of Applied Finance, ISSN 1534- 6668, 12 (1): 48-69, 2002.

⁶ <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/mergers-acquisitions/us-mna-trends-2020-report.pdf>

⁷ <https://hbr.org/2016/06/ma-the-one-thing-you-need-to-get-right>

⁸ Cartwright, Schoenberg in "30 years Of Mergers and Acquisitions Research", British Journal of Management, Volume 17 Issue S1, 2006

There are several explanations for why M&As occur, and Seth, Song, and Pettit (2002) argue that understanding these motives or the strategic intent is key for understanding M&A success or failure. When the M&A process starts with strategy, a firm generally achieves better results than firms that simply react to suggested deals (Harding & Rovit, 2004; Bruner, 2005).

It has been noticed that many technology-based companies acquire other companies with newer technologies to enhance their own products⁹. This enables them to not only acquire already developed, tested and proven newer technology solution faster, and can reduce costs by avoiding royalty payments on licensing patented technologies (if the firm or an alternate technology can be bought). This can be seen in deals like Apple buying SIRI, the automated personal assistant, in 2010 to enhance its iPhones and then purchased Novauris Technology in 2014 to further enhance Siri's capabilities. One of the McKinsey's survey identified cross-selling as the most often pursued rationale¹⁰. The Adobe and Marketo merger exemplify a deal that followed this strategy. According to Koller et al.(2010), some larger companies acquire smaller companies to accelerate the sales growth of smaller companies' innovative products by utilizing their large-scale sales force. IBM pursued this strategy when it acquired 43 companies for an average of USD 350 million each between 2010 and 2013¹¹.

M&A is expected to create economic value through reduced cost, increased market share or both (Lubatkin,1983; Chatterjee, 1986). According to an IMAA study¹² conducted by Accenture in 2011, the top two reasons for Mergers and Acquisitions are to gain market share and to drive top line growth in revenues. According to Hitt, Harrison and Ireland¹³, debt was an important factor when they studied successful and unsuccessful acquisitions. Total Shareholder Return is another critical metric to measure value created by M&A

⁹ Six types of successful acquisitions - <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-six-types-of-successful-acquisitions>

¹⁰ Seven rules to crack the code on revenue synergies in M&A - <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/seven-rules-to-crack-the-code-on-revenue-synergies-in-ma>

¹¹ IBM investor briefing 2014 – ibm.com

¹² <https://imaa-institute.org/the-role-of-finance-in-successful-serial-ma/> - The Role of Finance in Successful Serial M&A By Oksana Kukurudza, Jeff East, Aneel Delawalla and Sara Cima – Accenture

¹³ Book – Mergers and Acquisitions: A Guide to creating value for Stakeholders, 2001 Author: Hitt, Micheal A., Harrison, Jeffrey S., Ireland, R. Duane.

activity¹⁴. Given these financial goals behind M&A activity, success and failure can be based on the financial metrics like CAGR, Quick Ratio and Total Shareholder Return.

By categorizing M&A deals based on deal's driving strategic intent and applying data analytic techniques on financial metrics of public companies pre and post-merger, the thesis aims to discover long term value these deal-rationales generate for organizations that go through M&As in technology sector.

1.2 Background

Companies have historically invested in R&D to remain competitive, drive innovation and provide sustainable growth. This model, however, is eroding due to a number of factors. KPMG's managing director of corporate finance said "We are seeing buy vs build mentality that we haven't seen in a long time" for following reasons¹⁵:

- "Onboarding fresh ideas and innovation from new companies is the easiest path to growth for businesses that are often built around inertia with an old guard that doesn't reward fresh ideas.
- Acquisitions help established companies to accelerate their organization's transformations, the speed of which is impossible to outpace organically.
- Bringing new companies onboard also helps neutralize them as a threat"¹⁶.

What is emerging is a more open model, where companies recognize that not all good ideas will come from inside the organization and not all good ideas created within the organization can be successfully marketed internally¹⁷. Figure 1-1 shows US spending on R&D in billion USD from 1953 to 2017 and in comparison, Figure 1-2 shows the amount spent on M&A deals also in billion USD from 1985 to 2020. As can be seen, spending on

¹⁴ IMAA Study- Taking A Longer-Term Look At M&A Value Creation- Author: Theresa Lorriman <https://imaa-institute.org/taking-longer-term-look-ma-value-creation/> -

¹⁵ <https://sourcingjournal.com/topics/retail/mergers-acquisitions-retail-growth-kpmg-72647/>

¹⁶ <https://sourcingjournal.com/topics/retail/mergers-acquisitions-retail-growth-kpmg-72647/>

¹⁷ <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1467-9310.2006.00428.x>

R&D stayed under \$600 billion over the years, where as M&A deal volume almost stayed above that point since 1995 except for the year 2002, where the deal volume fell to \$520 billion. The record of total value of deals took place in 2015 with 2.4 trillion USD. Although R&D expenditure shows an upward trend, it must be noted that adjusted for inflation, the US R&D total over 2010 – 2017 grew modestly faster than US GDP (with average annual growth rates respectively of 2.7% and 2.2%)¹⁸.

U.S. R&D, by performing sector and source of funds: 1953–2017

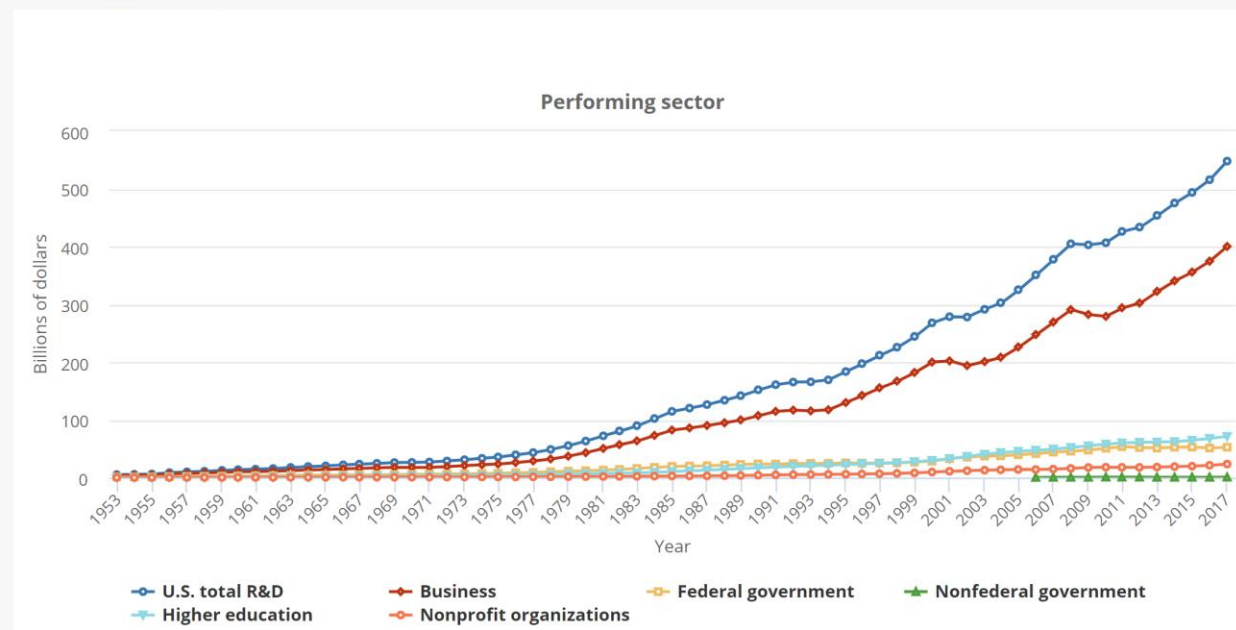


Figure 1-1: US R&D trend 1953 – 2017

Source: <https://nces.nsf.gov/pubs/nsb20203/recent-trends-in-u-s-r-d-performance>

¹⁸ <https://nces.nsf.gov/pubs/nsb20203/conclusion>

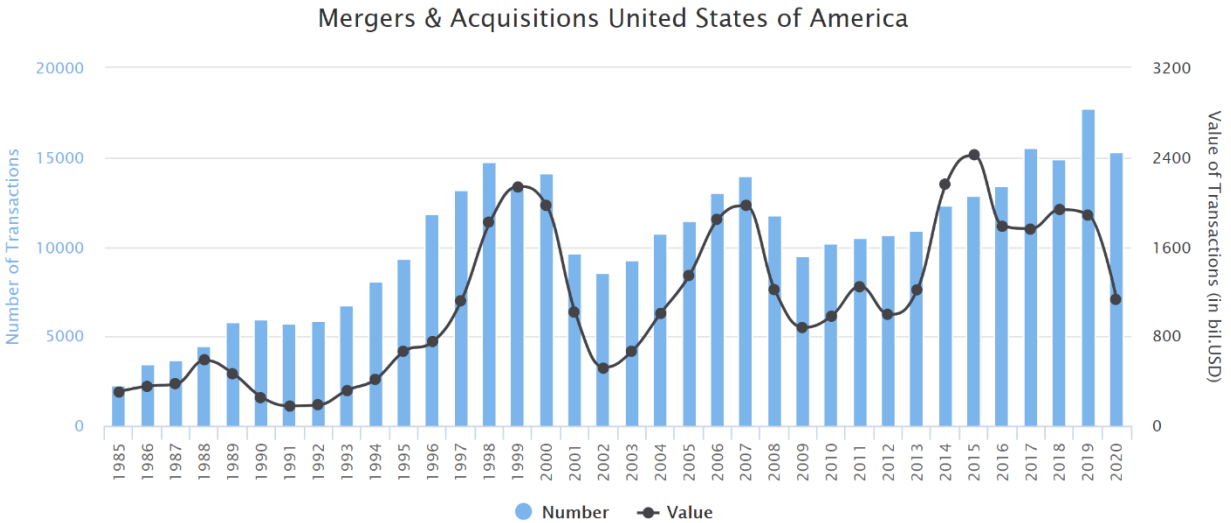


Figure 1-2: M&A deal trends in US 1985 – 2020
 Source: <https://imaa-institute.org/m-and-a-us-united-states/>

Mergers and Acquisitions have become popular among firms as a way to expand and pursue corporate goals (Gaughan, 2005). In response to the growth prospects, mergers and acquisitions, just like internal investments, are a means for companies to increase their capital base, as concluded by Andrade, Stafford (2004). Mergers and acquisitions have become common business tools, implemented by thousands of companies in world to create shareholder value. Many managers today regard buying a company for access to markets, products, technology, resources, or management talent as less risky and speedier than gaining the same objectives through internal efforts¹⁹. Before we dig into further details of this study, it is imperative to define what a Merger and an Acquisition mean.

Mergers: According to Gaughan (2007), DePamphilis (2003), Scott (2003) a merger is a combination of two corporations in which only one corporation survives and the merged corporation goes out of existence. According to Investopedia, a merger occurs when two separate entities combine forces to create a new joint organization²⁰. In a merger, the

¹⁹ <https://hbr.org/1986/03/acquisitions-the-process-can-be-a-problem>

²⁰ <https://www.investopedia.com/ask/answers/021815/what-difference-between-merger-and-acquisition.asp>

acquiring company assumes the assets and liabilities of the merged company.

Acquisitions: An acquisition is a process in which one company takes a controlling ownership interest, a legal subsidiary, or selected assets of another firm (DePamphilis, 2003). In other words, an acquisition is the purchase of an asset such as a plant, a division, or even an entire company (Scott, 2003). In an acquisition, the target company is often consumed and ceases to exist with its assets becoming part of the larger company. On the surface, the distinction in meaning of “merger” and “acquisition” may not really matter, since the net result is often the same: two companies (or more) that had separate ownership is now operating under the same roof, usually to obtain some strategic or financial objective²¹. Hence, for the purposes of this paper, we would consider M&A to represent either/both these kinds of transactions unless explicitly called out for differentiation.

1.3 Typical M&A workflow



Figure 1-3: Typical M&A Transaction Process

While no two deals are exactly alike or take the same amount of time to complete, all deals flow through some basic stages as listed in Figure 1-3. Typical M&A workflow must begin with identifying the strategic goal or motive behind the deal. Possible motives include market expansion, cost synergies, acquiring technical capabilities etc. With clear acquisition strategy next step is to determine key criteria to identify potential targets and evaluate target companies. Next stage is valuation analysis, wherein the target company’s financials and other substantial information is evaluated. During negotiation phase,

²¹ <http://www.tksi.org/JOURNAL-KSI/PAPER-PDF-2009/2009-4-03.pdf> - Definitions

acquirer presents its initial offer and both target and acquiring firms negotiate terms in more detail. Once offer has been accepted, due diligence process aims to confirm or correct acquirer's assessment of the value of the target company by conducting a detailed analysis of every aspect of target company's operations - its financial metrics, assets and liabilities, customers, human resources, etc²². Barring any surprise findings during diligence, the final contract for the sale will be developed during purchase and sales contract phase. In the last phase, the deal closes and the management teams from both acquirer and target companies begin integration activities to merge both firms.

Extensive academic research and the experience of investment bankers and other advisors has placed emphasis on valuation and purchase/sales contract phases of a merger. However, the use of sound theory and best practices during the strategy phase, which provides the all-important direction and foundation for the phases that follow, does not appear to have migrated into the M&A process at most firms (Stephen G Morrisett, 2013). Neither brilliant financial engineering nor excellent merger integration work can overcome a flawed deal – successful acquisitions must start with a solid rationale which ensures the deal is tied to the firm's overall strategy and will clearly advance the firm along its defined strategic path²³. Hence, this research study is focused on “Developing Strategy” phase which according to earlier studies is one of the crucial stages in the M&A process workflow.

1.4 Technology Acquisitions

High-tech companies have emerged as leaders in the economy through their technological advancements, job growth creation, and efficiency gains. The rapid growth of technology-based industries suggests that targets from these sectors may be able to provide greater shareholder wealth benefits for acquiring companies than non-tech target companies.

²² <https://corporatefinanceinstitute.com/resources/knowledge/deals/mergers-acquisitions-ma-process/>

²³ <http://prvadv.com/PDFs/M&A%20Framework.pdf>

Company found 60% of M&A deals of \$1 billion or more an year ago were those in which the buyer seeks to expand its product or service offerings faster and less expensively than it could on its own — an increase from 50% in 2018 and 40% five years ago²⁶.

According to Brian Burke, Research VP, Gartner, Figure 1.5 Hype Cycle highlights technologies that will significantly affect business, society and people over the next five to 10 years.

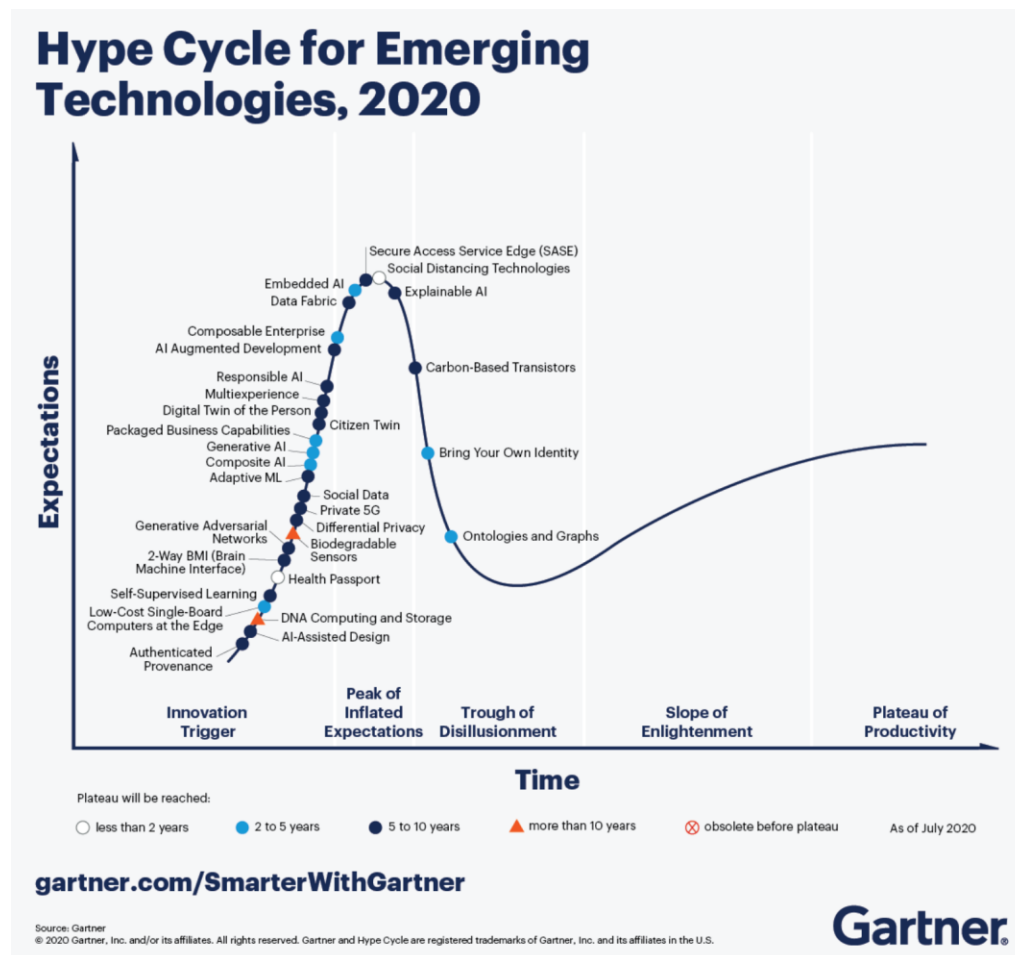


Figure 1-5: Hype Cycle for Emerging Technologies

Source: <https://www.gartner.com/smarterwithgartner/5-trends-drive-the-gartner-hype-cycle-for-emerging-technologies-2020/>

Advancements in technology, such as artificial intelligence and cloud storage, have accelerated digital transformation in companies of all kinds, traditional sectors such as

²⁶ https://www.bain.com/globalassets/noindex/2020/bain_report_corporate_m_and_a_report_2020.pdf

manufacturing, construction, chemicals, automotive and energy are no exception. These changes bring both opportunities and challenges as leaders look for the best approach to adopting new technology and planning for growth over the years to come. Traditional companies are no longer looking to expand their global footprint or increase the volume of the workforce. Instead, companies are engaged in acquiring technology and technological expertise through external means through acquisitions and JVs²⁷. According to FACTSET November 2020 report, most companies acquired targets from technology services sector in 2019 and this trend continued in 2020 as well.



US Sector Activity & Value

November 2020

SECTOR BY ACTIVITY

Target Sector	L3M 10/31/20 Deal Count	L3M 10/31/19 Deal Count	Difference
Technology Services	730	592	138
Transportation	85	76	9
Retail Trade	136	127	9
Health Services	167	158	9
Communications	44	38	6
Electronic Technology	92	86	6
Miscellaneous	5	4	1
Non-Energy Minerals	46	48	(2)
Health Technology	135	141	(6)
Energy Minerals	29	37	(8)
Government	0	9	(9)
Consumer Durables	40	53	(13)
Consumer Non-Durables	83	108	(25)
Utilities	52	78	(26)
Process Industries	89	117	(28)
Industrial Services	158	187	(29)
Producer Manufacturing	171	221	(50)
Finance	450	509	(59)
Distribution Services	178	242	(64)
Consumer Services	167	288	(121)
Commercial Services	433	559	(126)
Total	3,290	3,678	(388)

Figure 1-6: FACTSET - US Sector Activity & Value

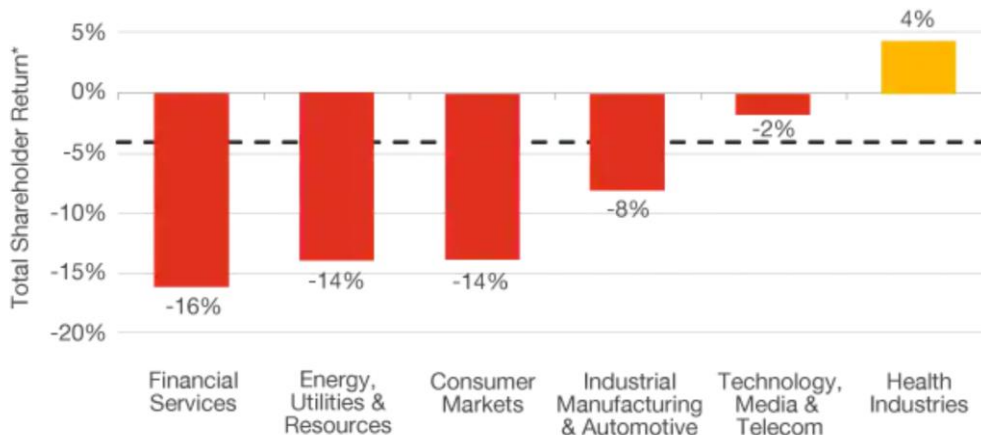
Source: https://www.factset.com/hubfs/mergerstat_em/monthly/US-Flashwire-Monthly.pdf

While the pandemic has hurt the broader economy, the technology sector has been less impacted, as consumers and businesses have looked for technology solutions to support

²⁷ <https://www.bakermckenzie.com/en/insight/publications/2019/10/how-technology-is-transforming-traditional-ma>

new ways of working and living²⁸. This can be seen in the S&P CapitalIQ and PwC analysis of total shareholder return by industry from January – June 2020, (Figure 1-7).

Total Shareholder Return by Industry, Jan-Jun 2020



* Total shareholder return calculated for the period Jan-June 2020 using a weighted average of the S&P 500, FTSE 100 and Shanghai Stock Exchange indices
Source: S&P Capital IQ and PwC analysis

Figure 1-7: Total Shareholder Return by Industry

Source: <https://www.pwc.com/us/en/industries/tmt/library/technology-quarterly-deals-insights.html>

Global Quarterly TMT M&A activity report (Figure 1.8) and 451Research Quarterly report (Figure 1.9) show although technology deal activity plummeted in first and second quarters of 2020, it increased significantly in the third quarter.

²⁸ <https://www.pwc.com/us/en/industries/tmt/library/technology-quarterly-deals-insights.html>

Global Quarterly TMT M&A Activity - Last 3 Years

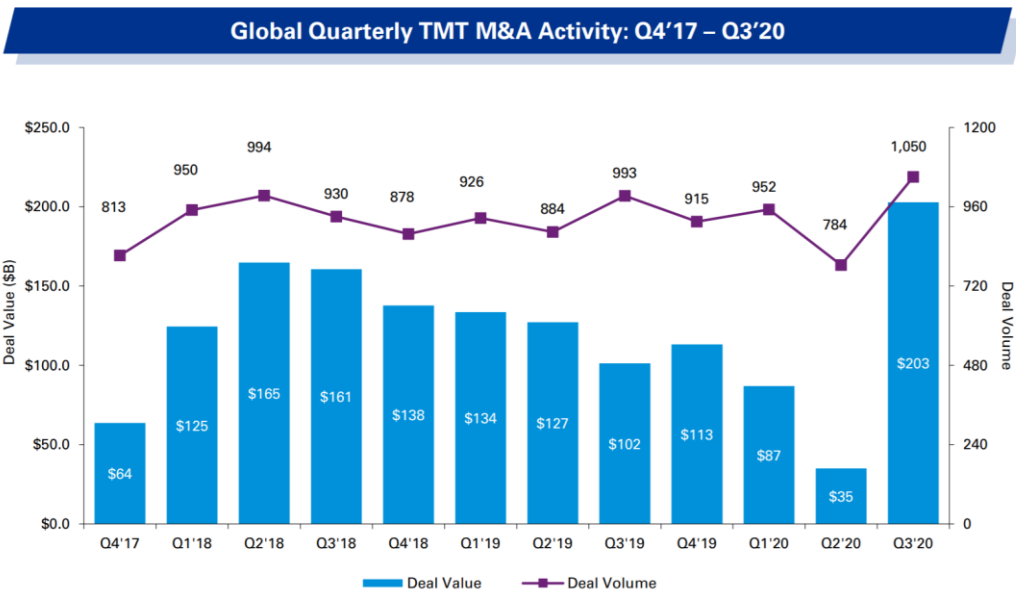
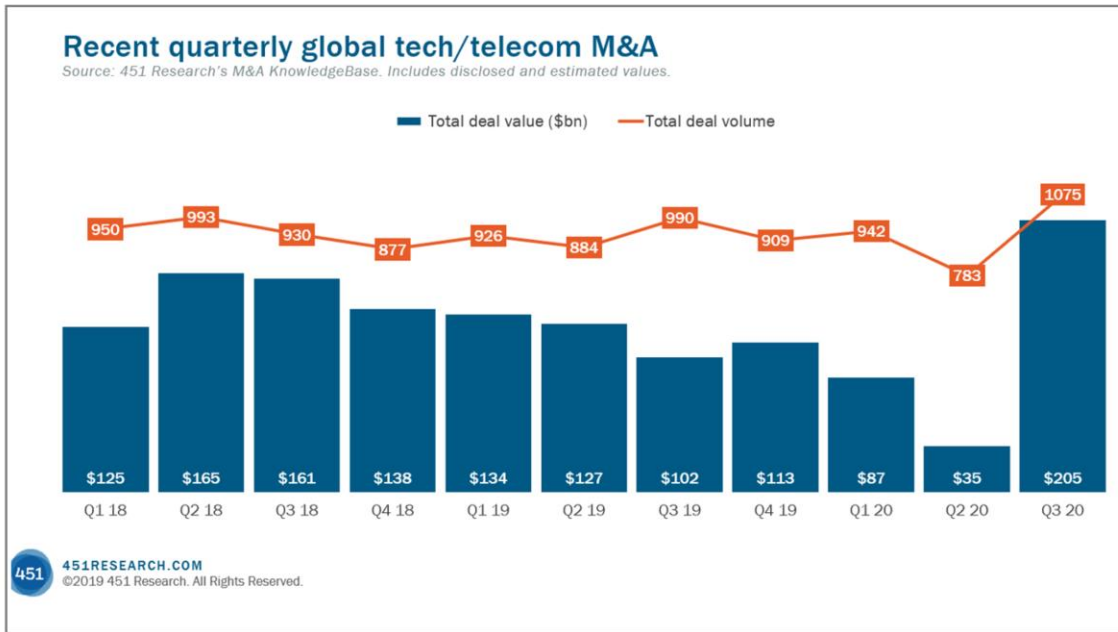


Figure1-8: Global Quarterly TMT M&A Activity
 Source: <https://corporatefinance.kpmg.us/insights/2020/tmt-global-update-q3-2020.html>

Tech M&A Activity



Source: 451 Research's M&A KnowledgeBase

Figure1-9: Tech M&A Activity
 Source: 451Research.com

Many experts believe that COVID-19 has acted as a catalyst for trends we expected to see later in the future. As a result, many companies are shifting to remote work for the longer term and choosing to pivot to SaaS-based offerings. This shift is making tech companies attractive M&A targets to supplement companies' existing capabilities²⁹. According to PwC's Global Trend M&A report, M&A will be a cornerstone of the recovery as companies seek to act with agility to repair, rethink, and reconfigure their businesses. They assert that the dealmakers should consider 3 things to increase the success of their transactions:

- **Ensure strategic deal rationale:** companies with a clear, long-term strategic M&A plan aligned to corporate strategy and value creation, rather than an opportunistic mindset, are likely to make successful deals in this market.
- **Perform robust due diligence:** boards and investment committees need to understand the impact of COVID-19 and ESG considerations for any transaction if it is to create value in the long term.
- **Embrace analytics and digital innovation:** dealmakers should look to leverage data and analytics to uncover opportunities and risks, and embrace new digital tools such as drones to conduct virtual site visits.

1.5 Objective

In this research work, I review strategic deal rationales in the technology sector, categorize the past deals based on acquiring company's strategic intent and analyze the effects of these deal-rationales on the deal outcome. I evaluate deal outcome by comparing the total shareholder return of the acquiring and target companies pre- and post-merger and make suggestions on which strategic deal-rationales in the technology sector have high probability of producing long term value.

²⁹ <https://www.pwc.com/us/en/industries/tmt/library/technology-quarterly-deals-insights.html>

1.6 Outline

Chapter 2 provides the significance of deal-rationale in M&A process, describes deal-rationales used in this analysis and summarizes one deal per category to explain how the deal had been analyzed and categorized into one of the deal rationale categories.

Chapter 3 looks at the next aspect of this study, financial metrics. Financial metrics and mathematical formulae used in this analysis are described in this section. This chapter also describes some limitations associated with two of the metrics.

Chapter 4 presents the data and its results. It starts with discussing dataset and statistics, then it talks about the success/failure deals and analyzes these results in comparison with actual deal results. Then the deal categorization and results per each metrics are presented and discussed. This chapter also talks about sensitivity analysis of the adjusted dataset and compares the results with the original dataset. It concludes with the discussion on final results.

Chapter 5 presents conclusions and future directions for this research study and how this study can be further extended.

Chapter 2

Deal Rationales

This chapter identifies past categorizations of deal rationales and outlines the set of deal rationales that will be used in this study. Deal rationales that have been chosen are further discussed in detail with an example of deal that falls into that deal rationale category.

2.1 Significance of strategic deal-rationales

Succeeding at Mergers and Acquisitions has never been easy or without risk. Several well-structured studies calculate 50 to 75% of acquisitions actually destroy shareholder value instead of achieving cost and/or revenue benefits³⁰. Bruner (2002) confirmed that about 70-80% of M&A do not create significant value above the annual cost of capital. King (2004)³¹ found that M&A have failed over the years to significantly add value to the

³⁰ <https://www.bain.com/insights/strategic-leader/>

³¹ D. King, "Meta-analysis of post-acquisition performance: Indications of unidentified moderators," *Strategic management journal*, 25(2), 187-200, 2004.

acquiring firm. According to Bain&Co, following are the five root causes for M&A transaction failure:

1. Poor strategic rationale, or a poor understanding of the strategic levers
2. Overpayment for the acquisition, based on overestimated value
3. Inadequate integration planning and execution
4. A void in executive leadership and strategic communications
5. A severe cultural mismatch

Of the five, this study will focus on the strategic rationale failure mode. The rationale helps identify the right target and set boundaries for negotiations. Being clear on the deal's strategic logic is critical both for pre- and post-merger activities. Bain's analysis also suggests that failure to get strategic intent right can trigger the four other causes of failure³². Clayton M. Christensen, Richard Alton, Curtis Rising, and Andrew Waldeck (2011) say that many acquisitions fall short of expectations because executives incorrectly match candidates to the strategic purpose of the deal, failing to distinguish between deals that might improve current operations and those that could dramatically transform the company's growth prospects³³. These studies emphasize that having a strategic rationale constitutes the bedrock for capturing the value that spurred M&A transaction.

Over the last century M&A activity shows a clustering pattern. An analysis by Sudi Sudarsanam(2003) characterizes this clustering pattern as a wave interspersed with relative inactivity. Although the length and start of each wave was not specific, various research studies attributed war, recession, and crisis as possible reasons for the fall of the wave. Until now there have been 6 waves of M&A activity and many frameworks have been developed based on these 6 waves to understand motivations behind M&A deals and Bower's framework, McKinsey framework, Boston Consulting Group growth strategies and Bain and Co. rationales have been referenced in analyzing strategic intent behind the deals in this dataset.

³²<https://www.bain.com/insights/strategic-leader/#:~:text=Of%20the%20five%2C%20getting%20strategic,four%20other%20causes%20of%20failure.>

³³ <https://hbr.org/2011/03/the-big-idea-the-new-ma-playbook>

Bower's Framework

According to Prof. Joseph L Bower of Harvard University , acquisitions occur for five reason³⁴:

- to deal with overcapacity through consolidation in mature industries.
- to roll-up competitors in geographically fragmented industries.
- to extend into new products or markets.
- as a substitute for R&D
- to exploit eroding industry boundaries by inventing an industry.

McKinsey's Framework

McKinsey's Marc Goedhart, Tim Koller and David Wessels(2017), based on their acquisitions work with companies, suggest that an acquisition's strategic rationale should be a specific articulation of one of the following archetypes to be successful³⁵:

1. Improve the target company's performance - buy a company and reduce costs to improve margins and cash flows and in some cases, focus on accelerating revenue growth.
2. Consolidate to remove excess capacity from industry.
3. Accelerate market access for target (or buyer's) products.
4. Get skills or technologies faster or at lower cost than they can be built.
5. Exploit a business's industry specific scalability – large company buys a subscale company to exploit economies of scale in a specific industry.
6. Pick winners early and help them develop their business.

McKinsey's framework also lists some other strategies but warns these strategies create value relatively rarely:

- Roll-up strategy.- Consolidation in highly fragmented market where the

³⁴ <https://hbswk.hbs.edu/item/not-all-mas-are-alikeand-that-matters>

³⁵ <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-six-types-of-successful-acquisitions>

current competitors can't achieve scale economies. This strategy is about multiple related acquisitions made to roll-up under one parent company.

- Consolidate to improve competitive behavior. This strategy is about consolidating into just 3 or 4 companies to keep out new entrants, else smaller companies or new entrants have the advantage of pricing discounts.
- Enter into a transformational merger. Bringing organizational changes like redefining company's mission, strategy, culture, portfolio etc., and restructuring R&D are some of the reasons to implement this strategy.
- Buy cheap.

In another McKinsey's study, John Chartier, Alex Lui, Nikolaus Raberger and Rui Silva (2018) based on their detailed research, analysis, in-depth interviews with leaders and their own experience suggest that opportunities for revenue synergies exist in the following three dimensions³⁶:

1. What to sell

- Bundles and solutions
- Rebranding
- Brand extensions
- New products

2. Where to sell

- Cross-selling to existing customers
- Geographic expansion
- Channel expansion in overlapping markets

3. How to sell

- Revenue management

³⁶ <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/seven-rules-to-crack-the-code-on-revenue-synergies-in-ma>

- Salesforce effectiveness and enablement
- Coverage optimization
- Channel optimization

Breakdown of revenue synergies by lever; average across industries
Percent

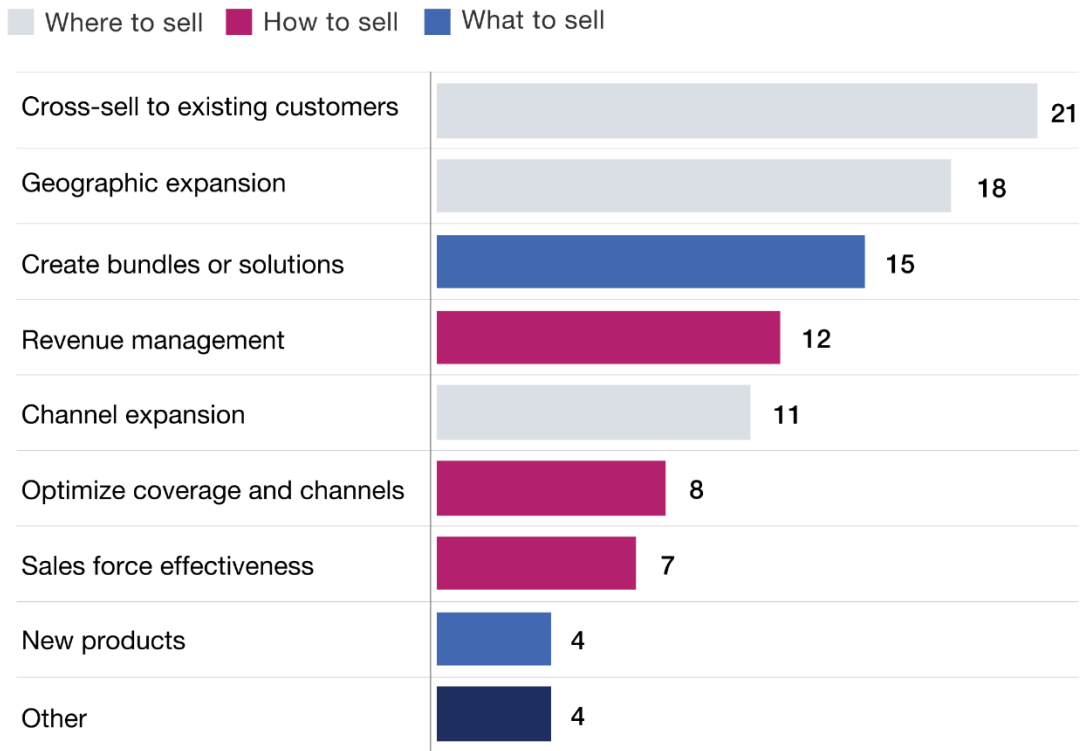


Figure 2-1 Opportunities for revenue synergies
Source: McKinsey's Analysis

This study shows that although opportunities exist in all three dimensions, “where to sell” is the leading source of value and the study also identified “cross-selling” as the revenue synergy most often pursued (Figure 2.1).

Boston Consulting Group growth strategies

Boston Consulting Group study on 705 public companies for the ten-year period from 1993 to 2002 suggests following three common strategies using which acquisitions can make decisive contribution to competitive advantage³⁷:

1. Reducing costs relative to competitors.
2. Acquiring necessary capabilities.
3. Building a new business model.

Bain and Co. Rationales

Bain and Co. study by Orit Gadiesh and Charles Ormiston(2002) defined following six rationales to guide merger success³⁸:

1. Active Investing – acquiring a company and running it more efficiently and profitably by improving performance and stripping out costs.
2. Growing scale – gaining scale in specific elements of a business and using these elements to become more competitive overall.
3. Building adjacencies – by expanding business to new locations, new products, higher growth markets or new customers that are closely related to the acquirer’s existing business.
4. Broadening scope – to broaden the scope of product or technologies, a serial acquirer buys specific expertise to either accelerate or substitute for a traditional new business development or technology R&D function.
5. Redefining the acquirer’s business – This is an appropriate strategic rationale when an organization’s capabilities and resources grow stale and firm cannot quickly refresh its technology or knowledge by making internal investments and incremental adjustments. In such cases, deployed strategically, mergers and acquisitions can redefine a business.

³⁷ Growing Through Acquisitions - Kees Cools, Kermit King, Chris Neenan, Miki Tsusaka - 2004

³⁸ The strategic leader: Six rationales to guide merger success – Orit Gadiesh, Charles Ormiston, 2002

6. Redefining the industry – Sometimes a bold, strategic acquisition can redefine and entire industry, changing the boundaries of competition and forcing rivals to reevaluate their business model.

Besides these frameworks there are several other schools of thoughts developed by academic researchers and industry experts that provide basis for understanding motivations behind M&A deals. Considering the significance of strategic deal rationale in M&A process and based on these frameworks provided by experts, I picked 4 deal rationales that were more prominent in the technology acquisitions in this dataset. “Cost Synergies”, “Cross-Selling”, “Scale Up” and “Acquiring Technical Capabilities” came up as the most common strategic intents in the dataset. Figure 2-2 shows how these frameworks can be mapped to the chosen 4 categories.

	Cost Synergies	Technical Capabilities	Scale Up	Cross-Selling
Bain and Co Rationales	Active investing	Broadening scope	Growing scale	Building adjacencies
McKinsey's Studies	6 Archetypes - Consolidate to remove excess capacity	6 Archetypes - Get skills or technologies faster or at lower cost than can be built	6 Archetypes - Accelerate market access for buyer's or target's products	Revenue synergy opportunities – Where to Sell : Cross-selling to existing customers.
Bower's Framework	Consolidation in mature industries	As a substitute for R&D	To extend into new products or markets	
Boston Consulting Group	Reduce costs relative to competitors	Acquiring necessary capabilities		

Figure 2-2 Mapping frameworks to the chosen 4 categories

To begin to validate this choice of four central deal rationales, I studied the deals in this dataset to come up with the strategic intent behind acquiring the target company and listed all the possible deal rationale types for each deal. While the presence of instantiations within each of the four categories is not evidence of the categorization's validity, it does show the categorization's potential to cover some of the heterogeneity in the sample.

2.2 Defining Deal Rationale

2.2.1 Rationale1: Cross-Selling

According to Investopedia "Cross-Selling" is defined as selling related or complementary products to an existing customer³⁹. In M&A context it is delivering products and services traditionally sold to one set of customers to another set of customers⁴⁰. Cross-selling is also regarded as a sales technique used to get a customer to spend more by purchasing a product that's related to what's being bought already. One piece of folk wisdom is that it costs five time more to win a new customer than to increase business from existing customers⁴¹. While a healthy customer base indicates that there is a clear need for the firm's product or service, failing to build on the knowledge of these existing customers and capitalizing on cross-sell opportunities can stunt the firm's revenue growth⁴². McKinsey's research suggests that cross-selling accounts for approximately 20 percent of the value companies derive from revenue synergies.

Cross-selling both the acquiring company's and target company's products and services can help quickly capture post-close revenue synergies. One advantage of cross-selling is that it benefits customers and the company. Customers win with the convenience of buying several different products or services from a company they already trust and may get discounted pricing. The company earns a larger piece of their customers' spending and strengthens their bond with their existing customers⁴³.

Example: Cisco acquires BroadSoft

Cisco acquired BroadSoft on February 02, 2018 for a purchase price of approximately \$1.9 billion net of cash. It was cited in the press release that "BroadSoft will accelerate Cisco's

³⁹ <https://www.investopedia.com/terms/c/cross-sell.asp>

⁴⁰ <https://www.mckinsey.com/business-functions/m-and-a/our-insights/capturing-cross-selling-synergies-in-ma>

⁴¹ <https://www.invespcro.com/blog/customer-acquisition-retention/>

⁴² <https://blog.marketo.com/2016/05/lessons-from-financial-services-cross-sell-to-your-customers-without-pushing-them-away.html>

⁴³ <https://www.achrnews.com/articles/135135-technology-makes-cross-selling-easy>

cloud strategy and collaboration portfolio by adding the industry's leading cloud calling and contact center solutions to Cisco's leading calling, meetings, messaging, customer care, hardware endpoints and services portfolio"⁴⁴.

Press-Release

"Together, Cisco and BroadSoft will deliver a robust suite of collaboration capabilities across every market segment," said Rowan Trollope, senior vice president and general manager of Cisco's Applications Business Group. "We believe that our combined offers, from Cisco's collaboration technology for enterprises to BroadSoft's suite for small and medium businesses delivered through Service Providers will give customers more choice and flexibility." "We are excited about this transaction, which represents the culmination of a robust process undertaken by BroadSoft's Board of Directors to maximize shareholder value," said Michael Tessler, president and CEO, BroadSoft. "As businesses continue to move toward the cloud in search of simplicity and speed, joining Cisco will allow us to deliver best-in-class collaboration tools and services. BroadSoft's hosted offerings, sold through the Service Providers and aimed at small and medium businesses, are highly complementary to Cisco's on-premises and enterprise-centric HCS offerings. Together, we can inspire teams to create, collaborate and perform in ways never before imagined."⁴⁵

451 research interpretation of deal-rationale

"The acquisition of BroadSoft reinforces Cisco's commitment to Unified Communications and enhances its ability to address the millions of aging TDM lines poised to transition to IP technology and cloud native solutions over the coming years."⁴⁶

The statements from Cisco's VP and BroadSoft's CEO indicate that the primary objective for acquiring BroadSoft is to cross-sell Cisco's enterprise offerings to BroadSoft's small

⁴⁴ <https://newsroom.cisco.com/press-release-content?type=webcontent&articleId=1908621>

⁴⁵ <https://newsroom.cisco.com/press-release-content?articleId=1887125>

⁴⁶ Source: Acquirer press release, 10/23/17

and medium customers and vice-versa. Cisco was already providing other cloud-based services in collaboration business like Spark and WebEx so it doesn't look like it acquired BroadSoft, which also provides cloud based collaboration services for small and medium scale customers, for its technical capabilities. Also, from the press-release and the statements from Cisco's VP and BroadSoft's CEO, there is no mention about operational efficiencies or cost savings from this acquisition so we can tell that cost synergy is not the motive behind this acquisition. This acquisition has been made not just to sell Cisco's enterprise offerings to BroadSoft's customers, but also to offer BroadSoft's hosted offerings sold through service providers to Cisco's customers. Hence this deal was not classified as "Scale up" deal.

2.2.2 Rationale 2: Acquiring Technical Capabilities

Acquisition of external technologies is an essential means by which established firms add to their technical capabilities and products, enhance their market power, and achieve strategic renewal (Agarwal & Helfat, 2009; Eisenhardt & Martin, 2000; Santos & Eisenhardt, 2009). Technology acquisitions involve bringing in new technologies from external sources rather than using the firm's own internal research and development activities. Bringing in new technologies can provide the acquiring company with the opportunity both to develop new products and enter new markets. A company makes a technology acquisition because specialist technical expertise and capabilities are often difficult to obtain and firm may not have ability or resource availability to develop a technology internally. Acquisitions can cost less than it would to develop technology, expertise, or product from scratch. Capron & Mitchell (2009) study suggest that firms should ask 3 questions when deciding between internal development or acquisitions.

- Do you already have relevant resources?
- Do you and your provider have a shared understanding of value?
- How deeply involved do you have to be with your partner?

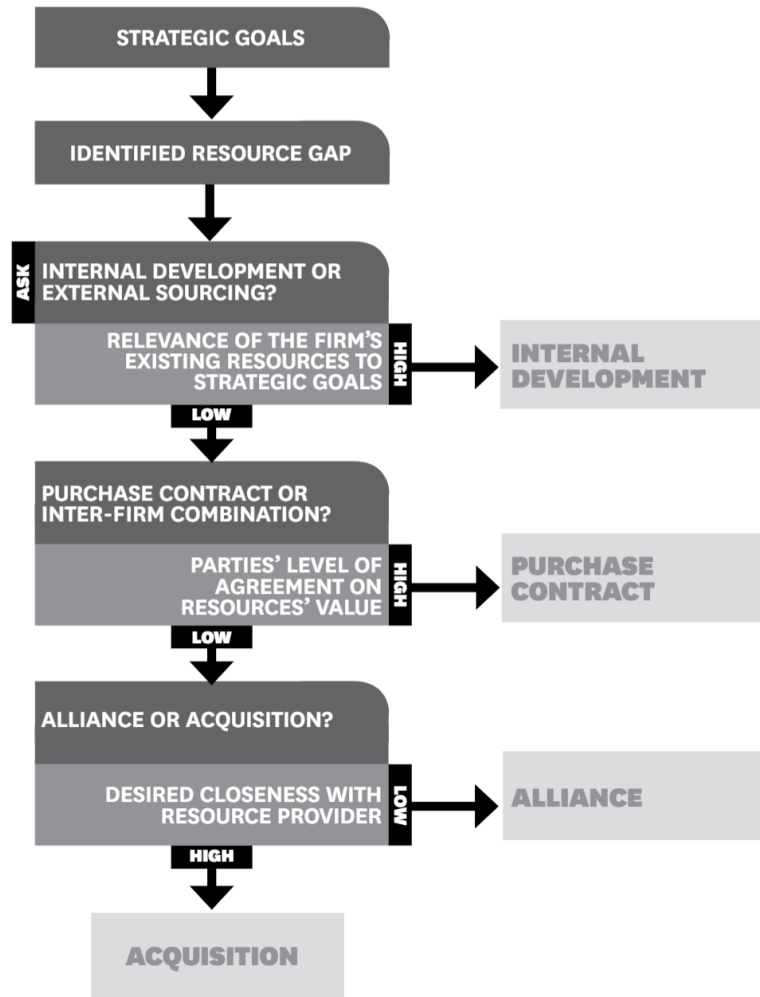


Figure 2-3 Finding the right path for acquisitions
 Source: Harvard Business Review – Finding the right path

Based on these 3 questions, firms can decide which option to pursue as depicted in the Figure 2-3. Thus, acquisition may be superior to internal development when the desired resources are distant from the firm's current areas of expertise, partner's don't have shared understanding of resources' value and relationship with the resource provider involves highly strategic assets . Many technology companies like Apple, Google, Cisco, Oracle and Facebook made such deals to gain target company's expert resources and intellectual property.

Example: IBM acquires Netezza Corporation

On September 20, 2010 IBM (NYSE: IBM) and Netezza Corporation (NYSE: NZ) announced they have entered into a definitive agreement for IBM to acquire Netezza, a publicly held company based in Marlborough, Mass., in a cash transaction at a price of \$27 per share or at a net price of approximately \$1.7 billion, after adjusting for cash. The deal was closed on November 11, 2010.

Press-Release

"This [acquisition] really accelerates our business analytics efforts," said Arvind Krishna, general manager of IBM's Software Group's Information Management business, during a joint teleconference. "Studies by IBM have revealed that 83 percent of chief investment officers have identified analytics as a top priority. These opportunities are what play to the combined strength of IBM and Netezza at a time when organizations of all sizes are looking to gain more insight." "It's no longer just the CIO -- every single department from finance to marketing professionals is tapping into the capabilities of analytics to draw meaningful insights. But clients cannot sacrifice time, cost or performance by deploying solutions that do not best meet each of their business needs," said Arvind Krishna, general manager, Information Management, IBM. "The addition of Netezza will reinforce IBM's focus in understanding clients' needs by providing them a broader set of analytics capabilities and bringing the power of analytics right into the hands of business users at every level within an organization." "Our vision of an appliance-based Intelligent Economy aligns very well with IBM's Smarter Planet strategy. Netezza appliances set the standard for performance and simplicity in data warehousing and analytics," said Jim Baum, President and CEO of Netezza. "Our customers choose our appliances for their fast time to value and how they simplify analytics against big data. Together with IBM, we are looking forward to extending our capabilities to a much broader market."⁴⁷

451 Research interpretation of deal-rationale

⁴⁷ <https://www-03.ibm.com/press/us/en/pressrelease/32514.wss>

"This deal is not so much about obtaining market share as it is about gaining momentum. What Netezza adds to IBM is technology – specifically its field-programmable gate arrays, which are used to filter data to improve query performance and reduce I/O bottlenecks, as well as for compression and decompression. The company's TwinFin appliances fit neatly into Big Blue's portfolio. Released in 2009, they marked the shift to IBM blade servers and Intel (Nasdaq: INTC) processors. Having migrated to commodity IBM components in 2009, Netezza focused its attention on improving its database software to take advantage of the new architecture, with improvements scheduled for delivery in 2011. ... We do know that Big Blue intends to add the Netezza wares to its InfoSphere data-warehousing portfolio, and we expect the company to pair Netezza's TwinFin hardware architecture with its existing InfoSphere data-warehouse software, as well as its Cognos BI software and SPSS analytics assets."⁴⁸ "Netezza strongly complements our business analytics capabilities and client base. Together, we have the opportunity to quickly leverage the technology and accelerate the offering ... The acquisition expands IBM's information and analytics offerings, including services available through IBM's Business Analytics and Optimization Consulting organization."⁴⁹

Analysis

IBM and Netezza deal announcement came around the time IBM Corp was shifting its focus from increasingly commoditized hardware to higher-margin software and services, particularly analytics, which help clients analyze market data to plot trends or prevent fraud⁵⁰. Allan B. Krans, senior analyst at Technology Business Research, says he considers Netezza a significantly more mature business in the data warehousing appliance marketplace than DatAllegro and Greenplum, which were recently purchased by Microsoft and EMC, respectively. "Managing, analyzing, and making decisions based on massive amounts of data is a process that is extremely well-suited for using pre-packaged and optimized appliances versus a pick and play combination of off the shelf

⁴⁸ Source: The 451 Group, 9/20/10.

⁴⁹ Source: Acquirer press release, 9/20/10

⁵⁰ <https://www.reuters.com/article/us-netezza-ibm/ibm-to-buy-analytics-company-netezza-for-1-7-billion-idUSTRE68J26220100920>

[technology] products," Krans writes in a blogpost about the deal. IBM also said the speed of Netezza's technology had convinced it to buy the company. Tech giants have been seeking to build their exposure to the storage and analytics markets, which have been growing quickly as companies and governments use more space to hold the billions of emails, customer orders and other vital information needed to run their operations. Netezza provides technology that allows companies and government agencies to quickly analyze huge amounts of data—something IBM says will give it an advantage in its analytics business⁵¹. Netezza offers "a much simpler way to get started on analytics and data warehousing than anyone else in the industry," said Arvind Krishna, IBM general manager for information management. He said Netezza's system can be operated by one person instead of "an army of people." Based on these statements I think IBM acquired Netezza for its analytics and data warehousing capabilities. IBM did not specifically mention about cross-selling these new capabilities to its existing customers or about operational efficiencies. Hence, this deal can't be categorized as having cross-selling or cost synergy motives. Although this deal provides Netezza access to much broader market for extending its capabilities, IBM's primary motive seems to be for acquiring technical capabilities and expanding its information and analytics offerings.

2.2.3 Rationale 3: Cost Synergies

Whether they are called "roll ups," "consolidation of shrinking industries," "Economies of scale," "Cost Synergies," or "natural resource transactions," these deals all succeed in the same way. The acquiring company plugs certain resources from the acquisition into its existing model, discarding the rest of the acquired model and shutting down, laying off, or selling redundant resources⁵². Cost synergies refer to the opportunity for the combined company to reduce costs more than the two companies would be able to do individually⁵³. The performance boost results from using the target's resources in such a way that scale economics can drive down costs⁵⁴. For companies in industries where fixed costs

⁵¹ <https://www.wsj.com/articles/SB10001424052748703989304575503554245091876>

⁵² <https://hbr.org/2011/03/the-big-idea-the-new-ma-playbook>

⁵³ <https://supp-co.com/2015/12/15/revenue-synergies-cost-synergies-and-consolidation/>

⁵⁴ The performance boost results from using the target's resources in such a way that scale economics can drive down costs.

represent a large percentage of total costs, increasing scale through acquisitions results in substantial cost savings⁵⁵.

EY analysis of 178 technology deals from 2005 through 2015, each valued at over US\$500 million, shows that approximately 80% (143) of the deals identified general and administrative (SG&A) expenses, people-related costs, and procurement and supply chain as key value drivers.

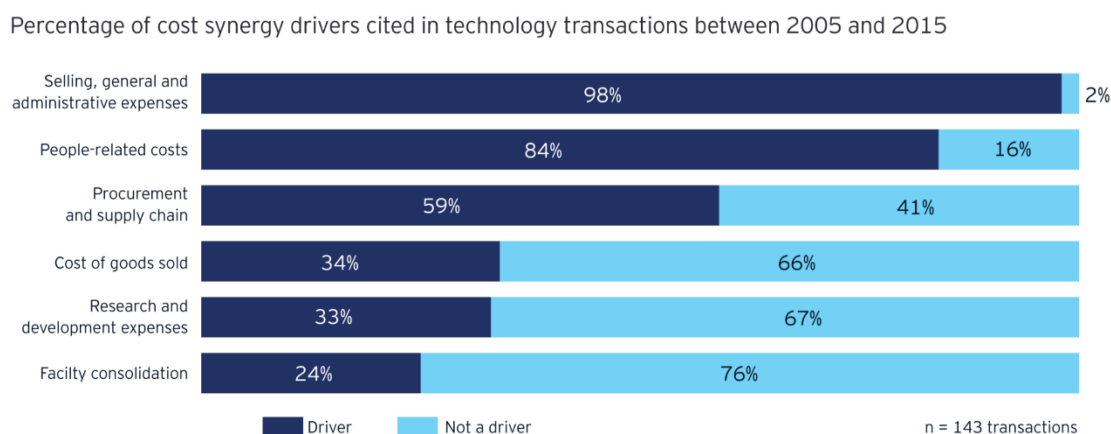


Figure 2-4: Cost Synergy drivers in Technology M&As

Source: https://www.ey.com/en_us/strategy/three-actions-technology-execs-can-take-to-unlock-m-a-cost-synergies

The E&Y analysis also identified following 4 overlooked cost-saving opportunities which, if addressed early on, can help technology companies reap significant long-term rewards⁵⁶:

Working capital: Although working capital doesn't improve EBITDA, it releases cash from payables, receivables and inventory⁵⁷. The E&Y analysis says, on average, tech companies may derive cash benefits in a magnitude of 5%-7% of revenue through working capital levers.

⁵⁵ <https://www.valoraccion.com/a-playbook-for-ma/>

⁵⁶ https://www.ey.com/en_bh/strategy/three-actions-technology-execs-can-take-to-unlock-m-a-cost-synergies

⁵⁷ https://www.ey.com/en_bh/strategy-transactions/improving-liquidity-and-working-capital

Legal entity rationalization: Analysis found that companies, on average, report annual carrying costs of US\$25,000 to US\$50,000 per legal entity, which indicates a potential savings of US\$2.5 million to US\$5.0 million annually for every 100 entities eliminated.

Real estate optimization: Analysis suggests that tech companies can typically save ½ to 1 % of revenue on real estate expenses that can be achieved through assessing and planning real estate related costs proactively.

Tax: Before closing the deal, it is important to identify target’s historic tax liabilities that buyer will inherit post-closing and adjust the transaction price accordingly.

Example: Knowles acquiring Audience Inc.

“On July 1, 2015 Knowles Corporation (NYSE: KN), a market leader and global supplier of advanced micro-acoustic solutions and specialty components, today announced the successful completion of its cash and stock tender offer for all the outstanding shares of common stock of Audience, Inc. Under the terms of the transaction, Knowles will pay approximately \$5.00 per share, comprised of \$2.50 in cash and \$2.50 in Knowles common stock, subject to the collar described below. The transaction values Audience at an enterprise value of approximately \$85 million, net of Audience’s cash balance of \$44 million as of March 31, 2015.”⁵⁸

Press-Release

“We are excited to acquire Audience’s world-leading engineering talent focused on audio processing solutions for mobile devices,” said Jeffrey Niew, President and CEO of Knowles. “This acquisition will benefit our customers and shareholders by broadening our intelligent audio offerings, and will uniquely position us to deliver end-to-end

⁵⁸<http://investor.knowles.com/press-releases/press-release-details/2015/Knowles-to-Acquire-Audience/default.aspx>

solutions for acoustics – from microphones to signal processing to speakers. These solutions will deliver better performance for our customers and drive higher dollar content as we create new applications for the mobile consumer market. In addition, we expect to realize annualized cost synergies of approximately \$25 million and expect the transaction to be accretive by Q4 of 2016.”⁵⁹

451 Research interpretation of deal-rationale

“This acquisition will benefit our customers and shareholders by broadening our intelligent audio offerings and will uniquely position us to deliver end-to-end solutions for acoustics – from microphones to signal processing to speakers. These solutions will deliver better performance for our customers and drive higher dollar content as we create new applications for the mobile consumer market. In addition, we expect to realize annualized cost synergies of approximately \$25 million and expect the transaction to be accretive by Q4 of 2016.”⁶⁰

Analysis

Knowles, which has a market value of about \$1.7 billion, said it expected to save about \$25 million on an annual basis after the deal closes, with the acquisition adding to earnings by the fourth quarter of 2016⁶¹. Knowles CEO also mentioned about the performance boost this deal brings for Knowles customers that can further reduce costs through economies of scale. Hence, this deal can be categorized as having “Cost Synergies” as motive. Knowles and Audience have both pioneered in connected device audio capabilities so acquiring technical capabilities doesn’t seem to be the motive for this acquisition. Also, there is no mention about cross-selling in the press-release, so this deal

⁵⁹<http://investor.knowles.com/press-releases/press-release-details/2015/Knowles-to-Acquire-Audience/default.aspx>

⁶⁰ Source: Acquirer press release, 4/30/15.

⁶¹ <https://www.reuters.com/article/audience-ma-knowles/update-2-distressed-audio-chip-maker-audience-sells-itself-to-knowles-idUSL4NOXR6DI20150430>

can't be categorized as having cross-selling motive. No statements were made that Knowles acquired Audience for selling its current solutions to Audience customers. Instead, acquisition was made to broaden Knowles audio offerings so scaling up was not considered as a motive.

2.2.4 **Rationale 4: Scale Deals**

In scale deals, companies attempt to increase their market share in a specific industry⁶². Scale deals involve a high degree of business overlap between the target and acquirer, fueling a company's expansion in its existing business⁶³. In a scale acquisition, the acquiring company wants to realize a greater presence in a particular market or sector and aims to achieve greater overall economies of scale by targeting a competitor or a company in a related sector or a new geographic market⁶⁴.

“When a business is underperforming and needs to implement measures that allow it to operate at full capacity, then it may find that it would be less expensive to buy an existing business than to expand internally. Expanding internally would cause business to invest heavily in marketing and sales channels, which ties up its money, making it hard for business to operate. Expanding internally is a slow growth method that could take years to pay off. With acquisition of target in the related business, acquirer will gain access to a wider customer base and easily increase its market share. The target business may have distribution channels and systems that acquirer can use for existing customer base. This allows acquirer to further penetrate its existing market while marketing its existing products or services to the new market.”⁶⁵ Market expansion through acquisition also increases funding opportunities as a firm with improved market share can generally

⁶² <https://www.lexology.com/library/detail.aspx?g=eadd2cfb-ac46-4cbe-8a2c-1605ccd409ed>

⁶³ <https://www.bain.com/insights/the-renaissance-in-mergers-and-acquisitions-how-to-make-your-deals-successful/>

⁶⁴ <https://www.extendedarticle.com/Newsletters/MAF/2013/MAFye13/MAFye131.html>

⁶⁵ <https://www.incorp.asia/blog/driving-business-growth-through-mergers-and-acquisitions/>

receive financing with little trouble⁶⁶. Lenders typically perceive larger borrowers as less risky so a scale merger can improve access to lower-cost financing⁶⁷.

Example: Microsoft acquires Greenfield Online, Inc.

Microsoft Corporation (Nasdaq: MSFT) (“Microsoft”) acquired Greenfield Online, Inc. (Nasdaq: SRVY) on October 8th, 2008 via a cash tender offer for \$17.50 per share in a transaction valued at approximately \$486 million.

Press-Release

“Acquiring one of Europe’s leading price comparison, shopping and consumer reviews sites will further extend Microsoft’s search and ecommerce services in Europe,” stated Tami Reller, Corporate Vice President & CFO for Windows and Online Services, Microsoft Corporation. “The team at Ciao has built a passionate consumer community based on intuitive technology and extensive merchant relationships that we believe will deliver incremental benefit to the Microsoft Live Search platform. Greenfield Online’s ISS business has been a cornerstone of the company’s growth and market value – we are pleased we could find the right strategic partner for ISS to continue its growth.”

Albert Angrisani, Greenfield Online’s President and Chief Executive Officer said: “We are pleased to deliver additional value to our stockholders through this superior offer from Microsoft. We are excited about working with one of the world’s leading corporations to effectuate a smooth transition in both our comparison shopping and global ISS businesses.” Angrisani added, “We believe that the transition will have a positive outcome for our customers and employees.”

451 Research interpretation of deal-rationale

“Acquiring one of Europe’s leading price comparison, shopping and consumer reviews sites will further extend Microsoft’s search and ecommerce services in Europe.”⁶⁸

⁶⁶<http://www.9east.com.au/advantages-of-business-expansion/#:~:text=Business%20expansion%20has%20the%20potential,the%20success%20of%20your%20business.>

⁶⁷ <https://www.extendedarticle.com/Newsletters/MAF/2013/MAFye13/MAFye131.html>

⁶⁸ Source: Target press release, 8/29/08.

Analysis

“The acquisition signals a further milestone investment for Microsoft in Europe and will see Microsoft increase its European commercial search capabilities as part of its intent to make Microsoft Live Search the premier destination for consumers looking to research and purchase goods and services online, as well as enable merchants to drive greater online sales”⁶⁹. Through this deal Microsoft wants to expand its online search services in European market. Hence, I think “Scaling-up” is the motive behind this deal. GreenField is Europe’s leading price comparison, shopping and consumer reviews service provider and Microsoft is not acquiring any technical capabilities from GreenField, instead it wants to extend its current search and ecommerce service in Europe. So, “Acquiring technical capabilities” was not considered as motive for this transaction. There was no mention about IBM offering GreenField’s services to its current customers. So, “cross-selling” was also excluded as motive for this deal. Although economies of scale by expanding into European market could bring some cost savings indirectly for IBM, cost synergies seem incidental and not actual motive.

2.3 Categorization

After categorizing deals in this dataset based on the strategic intent, Figure 2-5 shows the number of deals in each category. The size of the circle reflects the number of deals, bigger the circle, higher the number of deals. As it can be seen, there are more deals with intent to acquire technical capabilities in this dataset. Deals in each category are listed as tables in the Appendix. These tables have details like Target, Buyer/Acquirer and the deal rationale key words for that deal. Deals with multiple motives are also listed in the tables along with the keywords and subsequently binned into single main category that was believed to fit best.

⁶⁹ <https://www.pressebox.com/pressrelease/microsoft-deutschland-gmbh-0/Microsoft-to-Acquire-Greenfield-Online-Including-Its-European-Subsidiary-Ciao-a-Leading-European-Price-Comparison-and-Shopping-Site/boxid/281372>

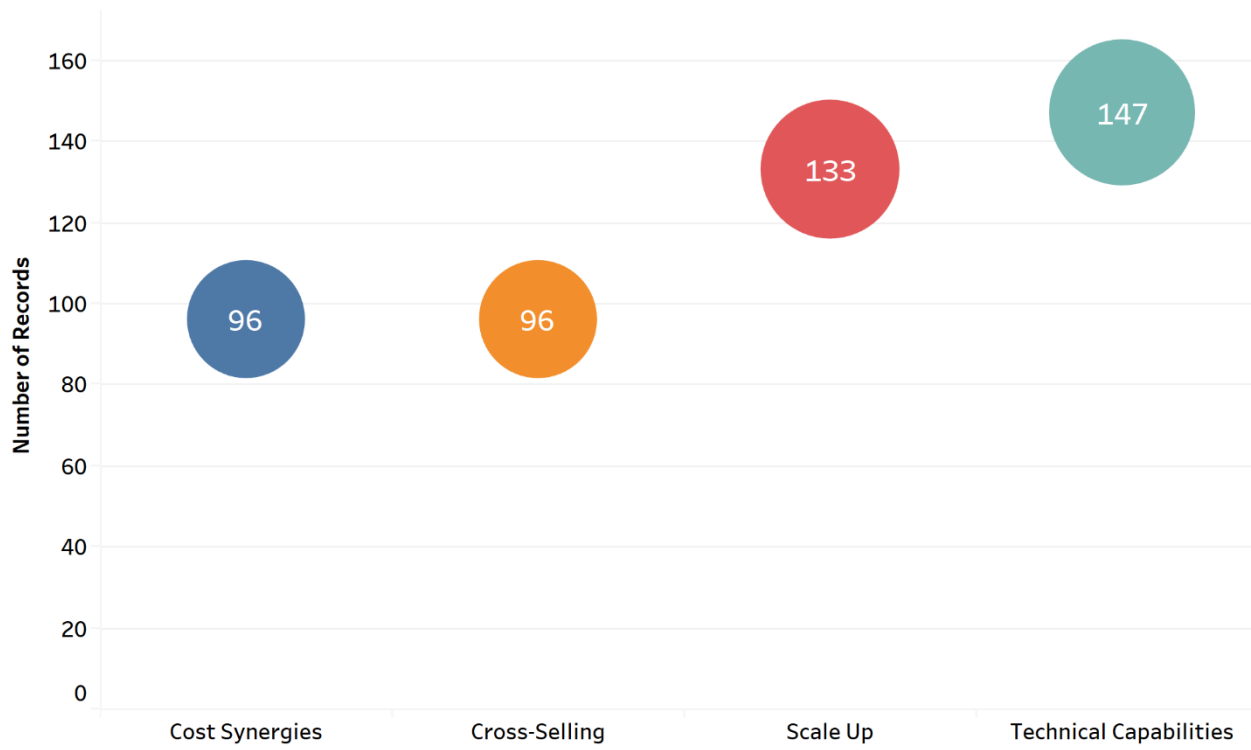


Figure 2-5: Deal Rationale Categorization

Chapter 3

Performance Metrics

Although global M&A activity is reaching unprecedented values, one major concern remains of the M&A activity that if the transaction creates value or not. Measuring the value that mergers and acquisitions create is an inexact science. Companies buy or merge with other companies in hopes of boosting the growth of their own business or to wend off competition among other reasons (Elvis Picardo, 2019 – Investopedia). Also, according to IMAA study by Iain Bamford, Nik Chickermane and Jessica, it's not unusual for companies pursuing M&A to express high hopes that the deal will be a growth engine. Financial ratios are comparative measures used to assess financial health of a company. Total Shareholder Return is another critical metric to measure value created by M&A activity⁷⁰. Hence, I used these three metrics, Quick ratio, CAGR (Compound Annual Growth Rate) and TRS (Total Return to the Shareholders), in this analysis to measure the outcome of each deal.

⁷⁰ IMAA Study- Taking A Longer-Term Look At M&A Value Creation- Author: Theresa Lorriman <https://imaa-institute.org/taking-longer-term-look-ma-value-creation/> -

Quick Ratio:

$$\text{Quick Ratio} = \frac{\text{Cash and Cash Equivalent} + \text{Marketable Securities} + \text{Accounts Receivable}}{\text{Current Liabilities}}$$

It can also be expressed as:

$$\text{Quick Ratio} = \frac{\text{Current assets} - \text{Inventory} - \text{Prepaid expenses}}{\text{Current Liabilities}}$$

The Quick Ratio is a measure of how well a company can meet its short-term obligations. It is the measure of organization's ability to pay its short-term liabilities using its assets that are readily available to convert into cash⁷¹. Assets such as cash, marketable securities and account receivables are considered quick assets as they can be quickly converted into cash. The Quick ratio provides more conservative assessment than current ratio as it excludes inventory and prepaid expenses, as these are not considered sufficiently liquid. A good quick ratio is 1 or higher, a number less than 1 might indicate that a company doesn't have enough liquid assets to cover its current liabilities. In general, the higher the ratio, the greater the company's liquidity.

Some limitations of quick ratio are that it is only useful when comparing companies within the same industry and not across industries. This is because account receivables used in calculating quick ratio may be impacted by longer credit collection cycles in certain industries⁷². Quick ratio also doesn't take into account that during economic downturns companies may have difficulty collecting its receivables⁷³. Another limitation is that quick ratio doesn't provide any information about the company's cash flow, which is the most important factor in the assessment of the liquidity of the company⁷⁴. If liquidity is not assessed correctly, then quick-ratio will not give us the correct details about company's financial health. High growth companies need to maintain lower debt as they would need to leverage debt instruments for future growth. They cannot afford to have high debt in their books compared to companies which have already realized their

⁷¹<https://corporatefinanceinstitute.com/resources/knowledge/finance/quick-ratio-definition/#:~:text=The%20Quick%20Ratio%2C%20also%20known,money%20market%20securities%2C%20banker's%20acceptances.>

⁷² <https://investinganswers.com/dictionary/q/quick-ratio>

⁷³ <https://investinganswers.com/dictionary/q/quick-ratio>

⁷⁴ <https://incomebuddies.com/quick-ratio/>

growth potential. Hence quick-ratio should be viewed in the context of company's growth cycle and cannot be a direct measure to assess growth.

Compound Annual Growth Rate (CAGR):

$$\text{CAGR} = \left(\frac{V_{\text{final}}}{V_{\text{begin}}} \right)^{1/t} - 1$$

CAGR = compound annual growth rate

V_{begin} = beginning value

V_{final} = final value

t = time in years

The Compound Annual Growth Rate (CAGR) is the average rate at which a value increases over a certain period of time. It is used to measure the value of an investment and its growth over a given period of time to estimate the total return on a particular investment. McKinsey's research on software and online services found that acquisitions, done well, can be a tool to accelerate revenue growth and that the rate of growth typically determines whether a company thrives, survives, or dies⁷⁵.

Some drawbacks of using CAGR as performance measure are that it assumes constant growth throughout the selected time period but in reality, there could be volatility. Also, CAGR does not calculate the profitability of an investment sidelining the inflows and outflows that happen during the investment tenure⁷⁶.

⁷⁵

<https://www.mckinsey.com/~media/McKinsey/Industries/Technology%20Media%20and%20Telecommunications/High%20Tech/Our%20Insights/Grow%20fast%20or%20die%20slow%20The%20double%20edged%20sword%20of%20M%20and%20A/Grow%20fast%20or%20die%20slow%20The%20doubleedged%20sword%20of%20MA.pdf>

⁷⁶ https://exceldatapro.com/cagr/#Disadvantages_%E2%80%93_Compound_Annual_Growth_Rate

Total Shareholder Return:

$Price_{begin}$ = share price at beginning of year,

$Price_{end}$ = share price at end of year,

$Dividends$ = dividends paid over year and

TSR = total shareholder return, TSR is computed as

$$TSR = (Price_{end} - Price_{begin} + Dividends) / Price_{begin}$$

Total shareholder return, in the broadest sense, is how much additional money you have for every \$1 invested, regardless of the source of that additional money.⁷⁷

According to Investopedia, TSR represents an easily understood figure of the overall financial benefits generated for stockholders. The figure measures how the market evaluates the overall performance of a company over a specific time period⁷⁸. TSR can be measured over any time period and it is normally assumed that dividend payments are re-invested in the company's shares.

TSR is highly valued as a performance metric because of the relative simplicity in the methodology that it applies to evaluate the overall financial benefits availed by the stockholders over a given period of time⁷⁹. The value created through the acquisition will have a positive effect on the overall firm performance, since the realization of cost and revenue improvements are clearly included in consolidated accounting statements, which in turn will be reflected in stock price movements and consequent returns (Jensen & Ruback, 1983).

One of the BCG article⁸⁰ indicates that TSR is an important measure of a winning company. It is the shareholder's true bottom-line return from capital gains and cash flow contribution. This article also describes another way to look at TSR , as the sum of company's business strategy, financial strategy and investor strategy. Together, these

⁷⁷ <https://www.thebalance.com/how-to-calculate-the-total-shareholder-return-formula-357209>

⁷⁸

<https://www.investopedia.com/terms/t/tsr.asp#:~:text=Total%20shareholder%20return%20is%20the,and%20still%20owns%20the%20stock.>

⁷⁹ <https://thebusinessprofessor.com/lesson/total-shareholder-return-definition/>

⁸⁰ <https://www.bcg.com/capabilities/corporate-finance-strategy/value-creation-strategy>

strategies should produce value-creating growth that yields differentiated returns for investors⁸¹. In the study 'The Renaissance in Mergers and Acquisitions' of Bain & Company, the consulting firm analyzed the ROI of 1,600 major global deals made by publicly traded companies from 2000 – 2010 and the results showed companies involved in M&A achieved an average Total Shareholder Return (TSR) of 4.5% per year, compared to 3.3% for those that were not involved in any merger or acquisition. The report also shows that companies who are regularly involved in major deals have a higher TSR in the long term. Going by all these studies, I have based this analysis mostly on the results achieved by using TSR as the financial metric.

Research Methodologies

Methodological approach

A mixed method research approach has been employed in this research study as there was a need to collect, analyze and combine both qualitative and quantitative data. A qualitative approach would be appropriate to uncover underlying reasons and motivations to draw conclusions that can be summarized and inferred. By doing literature review I used qualitative approach in understanding strategic intent behind M&A transactions and categorizing deals based on its deal rationale. A quantitative approach focused on numerical data analysis has been used for collecting and analyzing pre- and post-financial metrics of companies that went through M&A process.

Methods of data collection

CapitalIQ(CapIQ) database was used to collect M&A data. Only public companies that went through M&A activity between 2008 and 2018 have been used in this data analysis. Public companies have been chosen for both target and acquirer, as financial metrics for

⁸¹ https://image-src.bcg.com/Images/Break_Up_Or_Shake_Up_Dec_2014_tcm9-79698.pdf

both companies were analyzed in this study. Initial dataset consisted of 1632 deals where the target companies are from Information Technology and Communication Services sectors.

Deal categorization into specific deal-rationale has been done by referring to 451 Research analysis, press releases and other online resources. Out of 1632, after initial data cleanup of eliminating less than 80% percent sought deals, a sample of about 633 deals have been analyzed and categorized into each deal rationale type. Some of the deals had more than one strategic intent behind the deals and these deals have been later adjusted into one of the categories after researching through further details about the acquiring companies. In total 503 deals have been categorized of which a few were further eliminated as the acquirer or target firms did not report financial metrics to Capital IQ and the analysis was done on 472 deals after cleaning deals that were missing financial information.

Any companies that did not have their financial metrics in CapitalIQ database like QuickRatio, Total Revenue and Total Shareholder Return have been eliminated from the dataset. There were 34 records that did not have these metrics reported in CapitalIQ database. Only majority deals with 80% or more stake being acquired have been included in this analysis. Also deals that did not have sufficient data about the merger/acquisition to understand the strategic intent behind the deal have been eliminated from the dataset. There were 109 such deals in the dataset, please refer Appendix (Table 7) for the list of the deal eliminated. After cleaning up the dataset, 472 records have been used for data analysis.

Financial Metric Calculations

To measure the outcome of the deals, all 3 financial metrics have been calculated based on the formulae. Pre-merger metrics for target and acquiring companies have been adjusted as per the market cap and added together to compare with the post-merger metrics. Since the target and acquirer exist as separate companies prior to the deal, these pre-merger metrics have been calculated separately and added together. Since the outcome of the synergy is being measured, the combined (post-merger) effect is compared

to the sum of their separate(pre-merger) effects. Target company doesn't exist post-merger as these are majority deals (percent sought > 80%) so only acquirer metrics are used in the comparison. All post-merger metrics have been calculated 2 years after the deal closed date.

Financial metrics like Total Shareholder Return and Quick Ratio have been weighted as per the market capitalization before adding together and then compared to post-merger metrics. Below are the formulae used for calculating target and acquirer metrics pre-merger.

$$\text{Market Cap Adjusted Target TRS} = \frac{\text{TSR}_{\text{Target}} * \text{MarketCap}_{\text{Target}}}{\text{MarketCap}_{\text{Target}} + \text{MarketCap}_{\text{Acquirer}}}$$

$$\text{Market Cap Adjusted Acquirer TRS} = \frac{\text{TSR}_{\text{Acquirer}} * \text{MarketCap}_{\text{Acquirer}}}{\text{MarketCap}_{\text{Target}} + \text{MarketCap}_{\text{Acquirer}}}$$

Market cap adjusted target and acquirer TRS are added together and compared to post-merger TRS. If post-merger TRS is greater than pre-merger combined value and also positive, then the deal is marked as "Success" else it is marked as "Failure". Post-merger TRS should be positive to show that there has been improvement in the TRS value after merger. Quick ratio and CAGR are also computed similarly and compared to get deal outcome based on those 2 metrics.

Chapter 4

Data Analysis and Results

4.1 Data

The initial sample (1632) from CapitalIQ database included deals by all public companies that acquired other public companies from “Information Technology” and “Communications Services” sectors between 2008 – 2018. This dataset was further filtered to only contain “Majority” transactions (percent sought = 80 – 100%) bringing the record count to 633. After analyzing deal-rationale based on the availability of deal press-releases in 451 Research site and other online resources, the final dataset used for analysis has come down to 472 records.

4.1.1 Time frame for comparing pre and post-deal metrics:

McKinsey’s research suggests that the deal is 2.6 times more likely to succeed and deliver 40 percent more total returns to shareholders if the company meets its synergy targets within the first two years post-close, compared with taking more than four years to achieve those targets. A Kearney article also suggests that by the end of the second year, 92 to 97 percent of the full run rate can be reached by capitalizing on the merger’s window of opportunity, leaving as little as possible to be delivered in year three, when the merger will seem like a distant memory. Based on these studies and considering that synergies get less and less attention on earnings calls as other business changes materialize, I used 2 years post-merger metrics as the time-period to measure the value generated by deal-rationales.

Mergers have a window of opportunity to deliver synergies

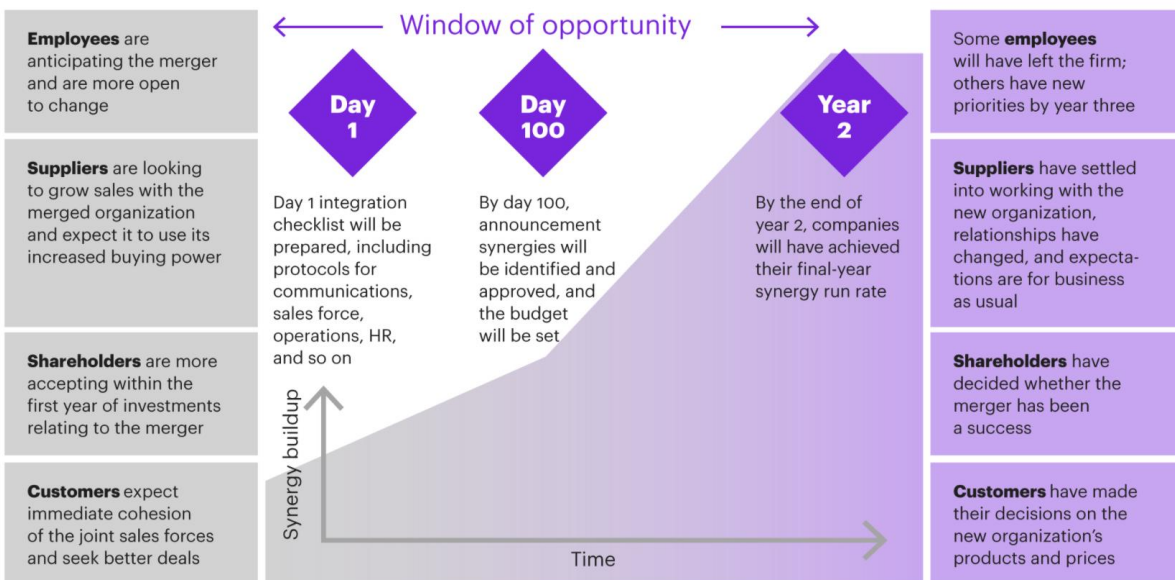


Figure 4-1: Window of opportunity to deliver synergies

Source: <https://www.es.kearney.com/mergers-acquisitions/article/?a/what-shape-is-your-curve>

4.1.2 Industry Classification:

Target companies are from Information Technology and Communication Services sectors. Figure 4-2 shows the classification of these target companies into subsectors. Most target companies in the dataset belong to “Application Software” subsector followed by “Semiconductors” within Information Technology sector.

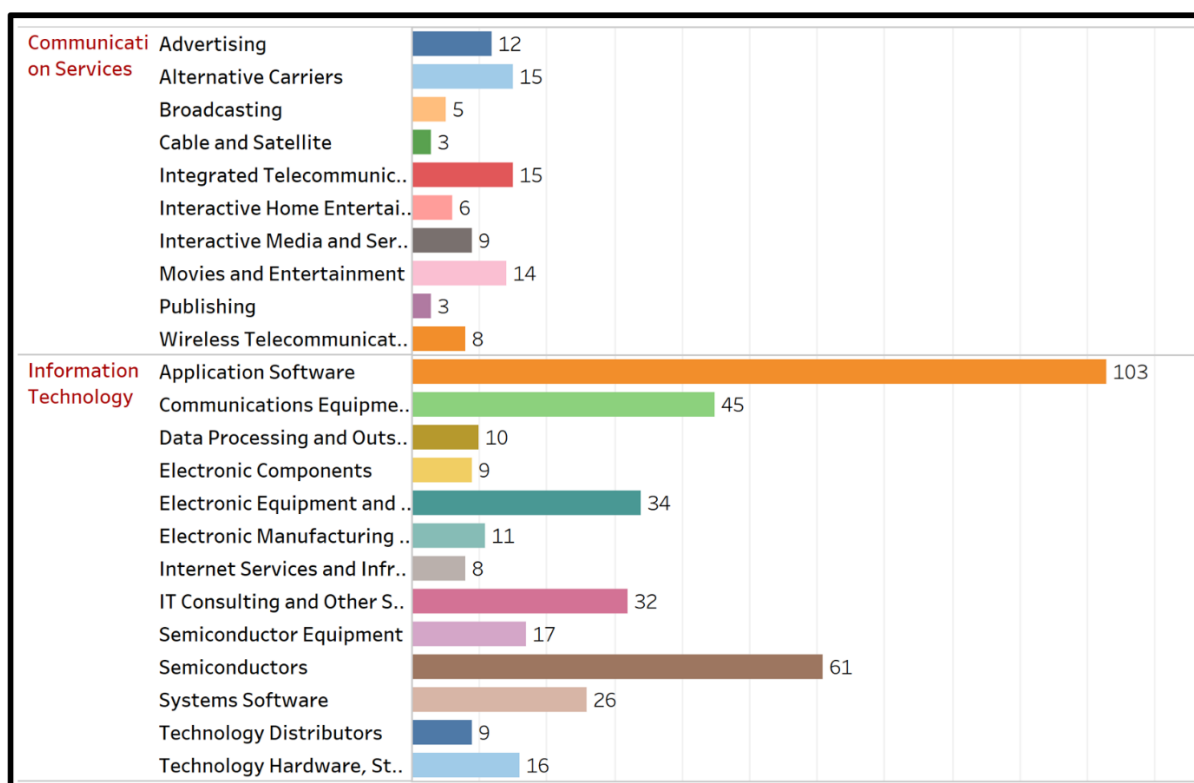


Figure 4.2: Dataset Industry Classification

4.1.3 Deal Volume

Figure 4.3 shows the total transaction value for the deals in this dataset. There are about 5 outliers with deal value over 100 billion like “Topcon Corporation acquisition of Sokkia Topcon Co. Ltd”, “LG Innotek Co. Ltd acquisition of LG Micron Ltd”, “Ymobile Corporation acquisition of SoftBank Group Corp”, “Innolex Corporation acquires Chi Mei Optoelectronics Corp” and “ASML Holding NV acquisition of Hermes Microvision, Inc”. About 50% deals are in the range 10 million – 500 million.

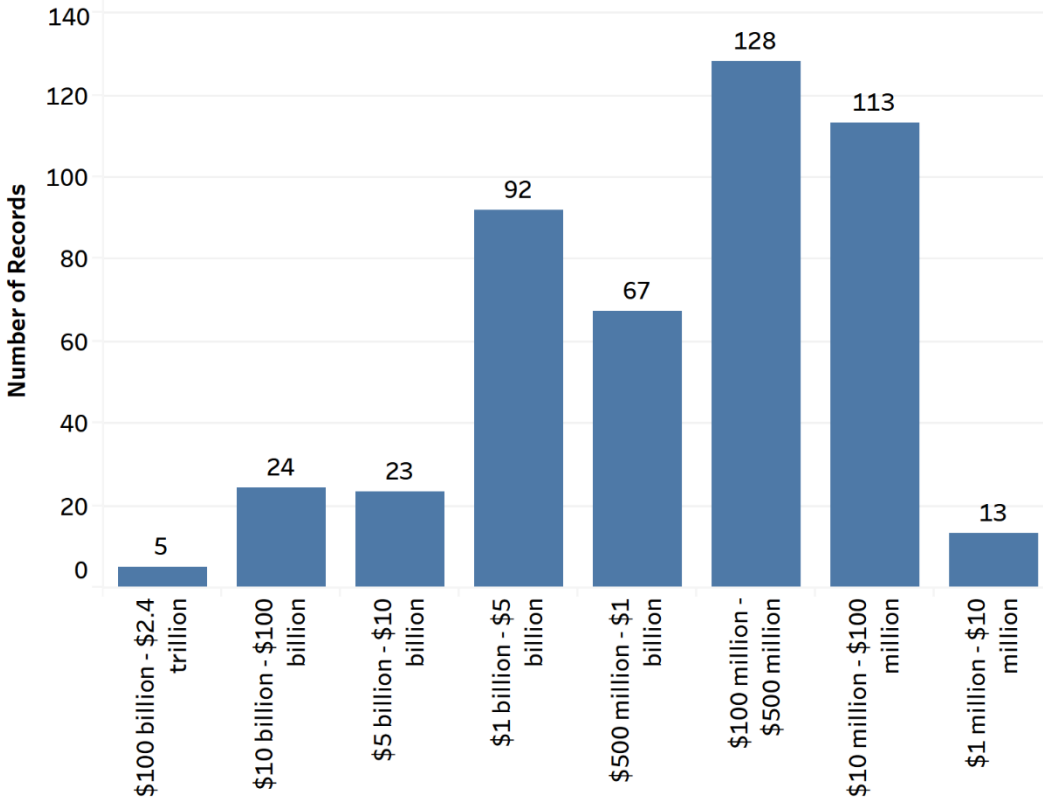


Figure 4.3: Dataset Deal Value

To measure the performance of each deal, financial metrics like Quick-Ratio, CAGR and TRS have been calculated for the companies involved in the deal. Pre-deal metrics for both target and acquirer are calculated, adjusted to the market-cap and added together to compare with just the acquirer metrics post-deal. As mentioned earlier, post-deal metrics were calculated 2 years after the deal closed date. Since the deals in this dataset are all majority deals, target company post-merger metrics are excluded from the comparison. If the post-merger metrics are higher than pre-merger metrics, then those deals are classified as “success” else, “failure”.

4.2 “Failure” Deals

Figure 4.4 is a sample of deals that are classified as “failure” according to the TRS metric in this analysis. For complete list of failure deals please refer Appendix.

Target/Issuer	Buyers/Investors	M&A Closed Date
Atos Syntel Inc.	Atos SE (ENXTPA:ATO)	10/09/2018
Xplore Technologies Corp.	Zebra Technologies Corporation (NasdaqGS:ZBRA)	08/14/2018
Artidium Group Limited	Pareteum Corporation (NasdaqCM:TEUM)	10/01/2018
Datalink Corporation	Insight Enterprises, Inc. (NasdaqGS:NSIT)	01/06/2017
Warner Media, LLC	AT&T Inc. (NYSE:T)	06/14/2018
Envivio, Inc.	Telefonaktiebolaget LM Ericsson (publ) (OM:ERIC B)	10/27/2015
Meru Networks, Inc.	Fortinet, Inc. (NasdaqGS:FTNT)	07/07/2015
Alcatel-Lucent	Nokia Corporation (HLSE:NOKIA)	02/03/2016
Aruba Networks, Inc.	HP Inc. (NYSE:HPQ)	05/18/2015
Hittite Microwave Corporation	Analog Devices, Inc. (NasdaqGS:ADI)	07/21/2014
DIRECTV, LLC	AT&T Inc. (NYSE:T)	07/24/2015
Zygo Corporation	AMETEK, Inc. (NYSE:AME)	06/20/2014
AuthenTec, Inc.	Apple Inc. (NasdaqGS:AAPL)	10/04/2012
Psion Holdings Limited	Motorola Solutions, Inc. (NYSE:MSI)	10/01/2012
Hitachi eBworx Sdn Bhd	Hitachi, Ltd. (TSE:6501)	05/22/2012
Microfluidics International Corporation	IDEX Corporation (NYSE:IEX)	03/10/2011
McAfee LLC	Intel Corporation (NasdaqGS:INTC)	02/28/2011
3S Industries AG	Meyer Burger Technology AG (SWX:MBTN)	01/14/2010
Programmed Electrical Technologies Limited	Programmed Maintenance Services Limited	01/20/2010
Metavante Technologies, Inc.	Fidelity National Information Services, Inc. (NYSE:FIS)	10/01/2009
AxisMobile PLC	Synchronica Limited	09/10/2008
Audible, Inc.	Amazon.com, Inc. (NasdaqGS:AMZN)	03/18/2008
Activision, Inc.	Activision Blizzard, Inc. (NasdaqGS:ATVI)	07/09/2008

Figure 4.4: Dataset Sample "Failure" Deals

Failure Example: Nokia acquisition of Alcatel Lucent

Nokia closed on its \$17 billion acquisition of Alcatel-Lucent in early 2016 but reported a steep drop in operating income in 2018 results⁸². In 2020, Reuter reported about Nokia

⁸² <https://www.sdxcentral.com/articles/news/nokia-warns-of-compliance-issues-tied-to-alcatel-lucent-deal/2019/03/>

planning to cut 1,233 jobs at its French subsidiary Alcatel-Lucent International. Nokia said in a statement that the staff reduction was needed because of significant cost pressures⁸³.

	TRS(Pre-Deal)	TRS(Post-Deal)	Result
Nokia	24%	-36%	
Alcatel-Lucent	12%	0	
	21%(market-cap adjusted)	-36%	Failure

Failure Example: AT&T acquisition of DirecTV

AT&T acquired DirecTV in 2015 for \$67.1 billion. Randall Stephenson, AT&T Chairman and CEO said that the intension was to give customers great video entertainment choices along with mobile and high-speed internet service. “This transaction allows us to significantly expand our high-speed Internet service to reach millions more households, which is a perfect complement to our coast-to-coast TV and mobile coverage,” Stephenson said. Will Power, a senior research analyst at Baird, told CNN Business that this acquisition took place around time the pay TV market was changing dramatically. Television customers were switching to other cord-cutting viable options like Netflix and Amazon Prime. And, Power noted, DirecTV rivals like Comcast and Charter also provide internet, which has helped them retain customers in a way DirecTV couldn’t⁸⁴.

“Elliott Management, an activist hedge fund, released a letter to AT&T’s board in which it said that it has taken a 3.3% position in the company and wants to see changes. It specifically called out the DirecTV acquisition in the letter, saying the move has had “damaging results.”

⁸³ <https://www.reuters.com/article/us-nokia-france-layoffs/nokia-to-cut-a-third-of-jobs-at-french-arm-alcatel-lucent-idUSKBN23T17U>

⁸⁴ <https://www.cnn.com/2019/09/10/media/att-directv/index.html>

When AT&T bought DirecTV, the satellite service had 20.3 million US customers, and AT&T's own U-verse cable system had another 5.7 million, for a total of 26 million. As of the second quarter of this year, the two were down to a combined 21.6 million subscribers, a drop of roughly 17% in just four years.

	TRS(Pre-Deal)	TRS(Post-Deal)	Result
AT&T	12%	17%	
DirecTV	51%	0	
	19%(market-cap adjusted)	17%	Failure

Failure Example: Intel acquisition of McAfee

Intel acquired McAfee for \$7.6 billion in 2010 as it elevated the priority of security to be on par with its strategic focus areas in energy-efficient performance and Internet connectivity. Renee James, Intel's senior VP said, "This acquisition is consistent with our software and services strategy to deliver an outstanding computing experience in fast-growing business areas, especially around the move to wireless mobility". "McAfee is the next step in this strategy, and the right security partner for us," she added. "Our current work together has impressive prospects, and we look forward to introducing a product from our strategic partnership next year." Intel and McAfee later went through a mutual breakup and Intel spun off McAfee in 2017. According to TechCrunch 2017 report "Things didn't work out with Intel and so the unit formerly known as Intel Security will be McAfee once again. Intel is officially inking a deal that will spin McAfee out, with the asset management firm TPG taking a 51 percent stake in the company at a \$4.2 billion valuation. Intel will retain a 49 percent stake." McAfee chief technology officer Steve Grobman also told TechCrunch that cybersecurity company like McAfee needs to develop technology from a different place than semiconductor company due to the quick changes in threat landscape. While Intel and McAfee turned out not to be the ideal match, Grobman pointed out that Intel will still benefit from the monetary successes of McAfee⁸⁵.

⁸⁵ <https://techcrunch.com/2017/04/03/intel-security-is-mcafee-again/>

	TRS(Pre-Deal)	TRS(Post-Deal)	Result
Intel	56%	6%	
McAfee	34%	0	
	55%(market-cap adjusted)	6%	Failure

4.3 “Success” Deals

Figure 4.5 is a sample of deals that are classified as “Success” according to the TRS metric in this analysis. For complete list of success deals please refer Appendix.

Target/Issuer	Buyers/Investors	M&A Closed Date
Tesla Energy Operations, Inc.	Tesla, Inc. (NasdaqGS:TSLA)	11/21/2016
LinkedIn Corporation	Microsoft Corporation (NasdaqGS:MSFT)	12/08/2016
Atmel Corporation	Microchip Technology Incorporated (NasdaqGS:MCHP)	04/03/2016
Fairchild Semiconductor International Inc.	ON Semiconductor Corporation (NasdaqGS:ON)	09/16/2016
Yodlee, Inc.	Envestnet, Inc. (NYSE:ENV)	11/19/2015
Symphony International Solutions Limited	Adslot Limited (ASX:ADS)	12/23/2013
ExactTarget, LLC	salesforce.com, inc. (NYSE:CRM)	07/10/2013
Seesmart Technologies, Inc.	Revolution Lighting Technologies, Inc.	12/20/2012
Ymobile Corporation	SoftBank Group Corp. (TSE:9984)	01/01/2013
Princeton Security Technologies, Inc.	Thermo Fisher Scientific Inc. (NYSE:TMO)	07/24/2012
HITT NV	Saab AB (publ) (OM:SAAB B)	10/02/2012
Visonic Group	Tyco International plc	12/06/2011
Advanced Analogic Technologies Incorporated	Skyworks Solutions, Inc. (NasdaqGS:SWKS)	01/09/2012
Zoran Corporation	CSR Limited	08/31/2011
Intec Telecom Systems Limited	CSG Systems International, Inc. (NasdaqGS:CSGS)	11/30/2010
Salary.com, Inc.	Kenexa Corp.	09/30/2010
Intelek Limited	Teledyne Technologies Incorporated (NYSE:TDY)	07/26/2010
Avocent Corporation	Emerson Electric Co. (NYSE:EMR)	12/11/2009
Marvel Entertainment, LLC	The Walt Disney Company (NYSE:DIS)	12/31/2009
Goldleaf Financial Solutions, Inc.	Jack Henry & Associates, Inc. (NasdaqGS:JKHY)	10/01/2009
AXON Group Limited	HCL Technologies Limited (NSEI:HCLTECH)	12/15/2008
Insightful Corp.	TIBCO Software Inc.	09/03/2008
Mediasurface Limited	Alterian plc	07/05/2008

Figure 4.5: Dataset Sample "Success" Deals

Success Example: Salesforce acquisition of ExactTarget

Salesforce acquired ExactTarget in 2013 for \$2.5 billion. Salesforce intends to be world's leading CRM platform and acquisition of ExactTarget will further its mission by adding more marketing power to its arsenal. In July, 2016, 3 years after Salesforce's acquisition of ExactTarget, Scott Dorsey, CEO and co-founder of ExactTarget said in an interview - "I was very, very comfortable that this was the best decision for our shareholders and for our employees and all of our constituents. Now that we're able to see what's transpired over the last three years, I have 100% confidence that this was a huge win for Salesforce and ExactTarget and everybody involved with the company along the way".

	TRS(Pre-Deal)	TRS(Post-Deal)	Result
Salesforce	19%	77%	
ExactTarget	34%	0	
	20%(market-cap adjusted)	77%	Success

Success Example: Microsoft acquisition of LinkedIn

Microsoft acquired LinkedIn in all-cash transaction valued at \$26.2 billion. Microsoft's largest ever acquisition was aimed to fit into a strategy of building up the Microsoft Office suite of workplace productivity products and its cloud computing business. In its attempt to penetrate the professional networking platform, Microsoft has chosen LinkedIn to join them on their journey to 'empower people and organizations' throughout the world⁸⁶. According to BNN Bloomberg 2019 report⁸⁷, 3 years after the deal was announced the bold move seems to have paid-off for following reasons:

- LinkedIn's user base has grown by nearly 50 per cent since the deal was announced – from roughly 433 million users to more than 645 million.

⁸⁶ <http://prachipreaches.com/microsoft-linkedin-acquisition-taking-over-professional-world/>

⁸⁷ <https://www.bnnbloomberg.ca/three-years-after-microsoft-acquisition-linkedin-keeps-quietly-climbing-1.1335990>

- Revenue has also been on the rise. In the fiscal year that recently ended, LinkedIn generated US\$6.8 billion in revenue. That’s a 28 per cent increase from the year before.
- “Things have certainly exceeded our expectations. We had a pretty aggressive plan in place and we’ve been able to outperform that plan,” LinkedIn CEO Jeff Weiner told Bloomberg News in a September television interview.
- “LinkedIn is continually creating new ways for members to connect,” Microsoft CEO Satya Nadella said on Microsoft’s fiscal fourth-quarter earnings call in July.

	TRS(Pre-Deal)	TRS(Post-Deal)	Result
Microsoft	31%	107%	
LinkedIn	-8%	0	
	29%(market-cap adjusted)	107%	Success

Success Example: The Walt Disney acquisition of Marvel Entertainment

On December 31, 2009, The Walt Disney Company closed the deal to acquire Marvel Entertainment for \$4 billion. "We believe that adding Marvel to Disney's unique portfolio of brands provides significant opportunities for long-term growth and value creation," Bob Iger, Disney CEO, said in announcing the transaction. Marvel characters are more popular among boys, an area where Disney could use some help. According to CNBC report, it seems Bob Iger was right. Since releasing its first Disney produced Marvel movie in 2012, the company has earned more than \$18.2 billion at the global box office. And it was already on its way to make billions more⁸⁸. Fortune Tech Media and Entertainment report also says that measured by almost any standard, artistic or financial, Disney’s acquisition of Marvel is arguably one of the best things that CEO Bob Iger has ever done⁸⁹.

⁸⁸ <https://www.cnn.com/2019/07/21/disney-has-made-more-than-18-billion-from-marvel-films-since-2012.html>

⁸⁹ <https://fortune.com/2015/10/08/disney-marvel/>

	TRS(Pre-Deal)	TRS(Post-Deal)	Result
The Walt Disney Company	-20%	9%	
Marvel Entertainment	112%	0	
	-11%(market-cap adjusted)	9%	Success

Calculating TSR, Quick-ratio and CAGR pre and post-merger gave following results for this dataset:

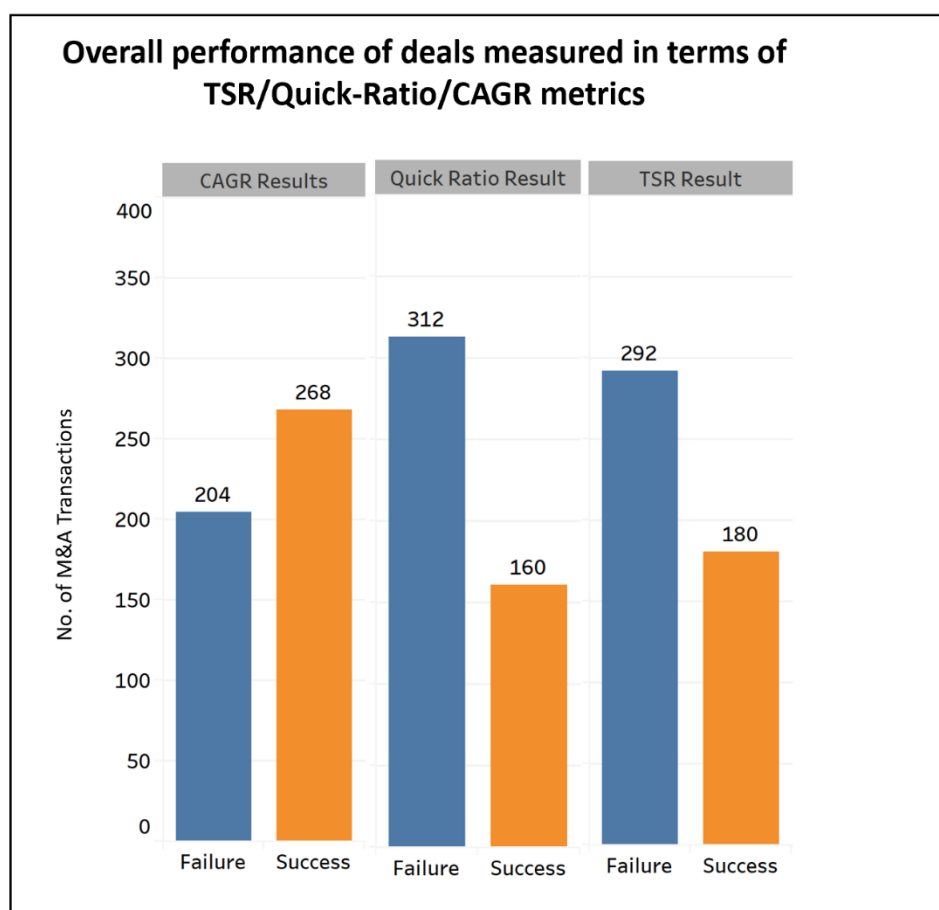


Figure 4-6: Overall performance of deals by metrics

4.4 Deal outcomes as measured by financial metrics

TSR as metric

Comparing total shareholder return pre- and post-merger gave results as can be visualized in Figure 4.7.

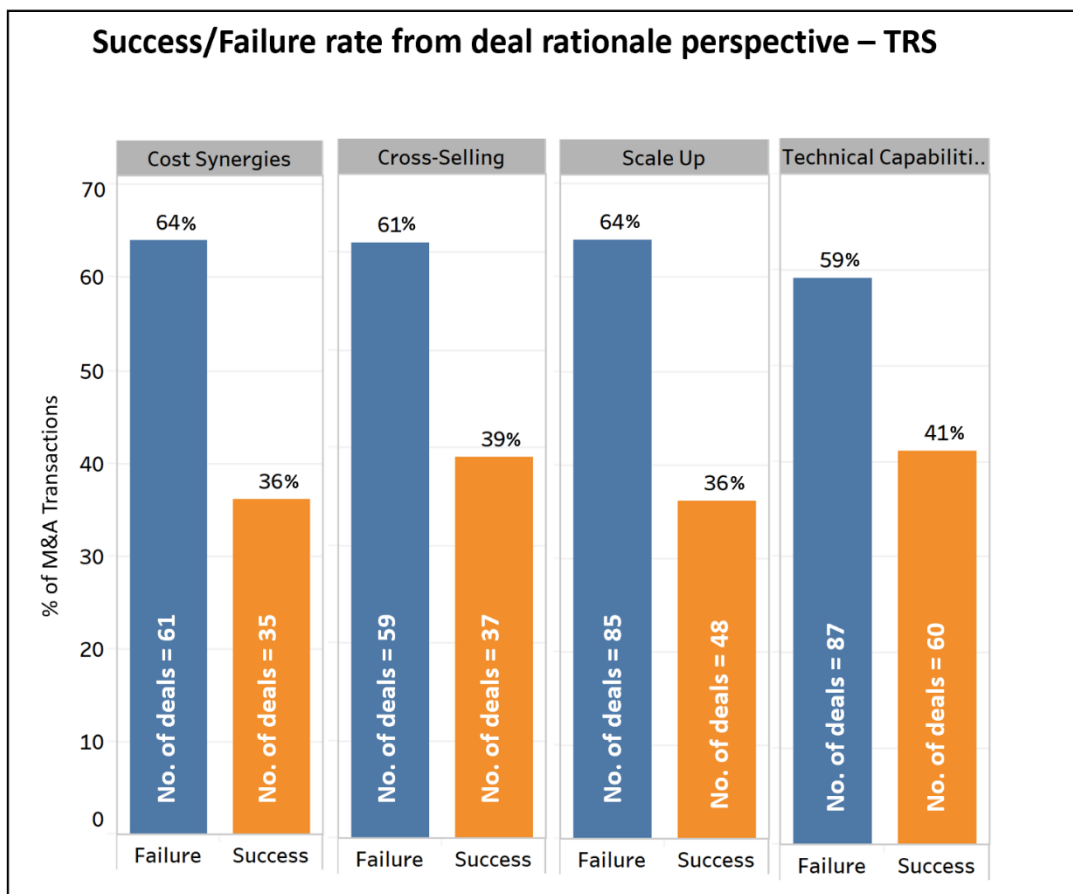


Figure 4.7: Results - TRS as metric

When TSR is used as the metric, deals that are made with the intent of acquiring technical capabilities have relatively higher success rate at 41%, cross-selling has next highest success rate at 39% followed by “Cost synergies” and “Scale up” motives that have 36% success rate.

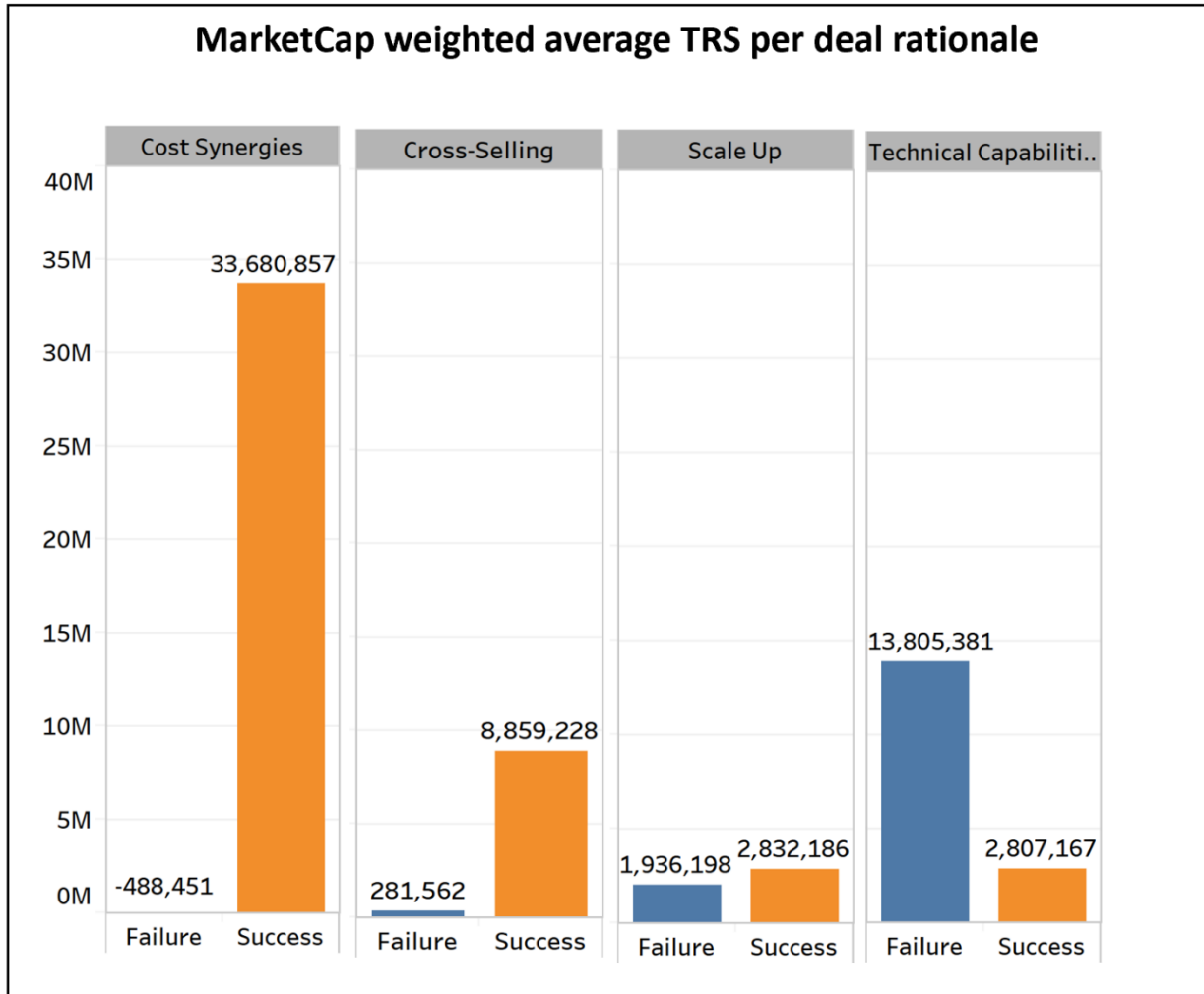


Figure 4-8: MarketCap weighted average TSR per each category

Figure 4-8 shows market-cap weighted average TSR for success/failure deals in each deal-rationale category. It can be seen that deals that are successful in “Cost-Synergies” category have the highest market cap even though the success rate in that category is at “36%”, lower than “Technical Capabilities” category at “41%”. This shows high market-cap companies are relatively successful in achieving their “cost-synergies” motive. Similarly, high market-cap for failure deals in “Technical Capabilities” category shows that high market-cap companies are not so successful when making acquisitions to acquire technical capabilities.

Quick-ratio as metric

With quick-ratio as performance metrics, deals were marked as “Success” when quick-ratio post-merger for acquirer is greater than combined market cap adjusted quick-ratio for target and acquirer pre-merger. Comparing quick-ratio pre- and post-merger gave results as can be seen in Figure 4-9.

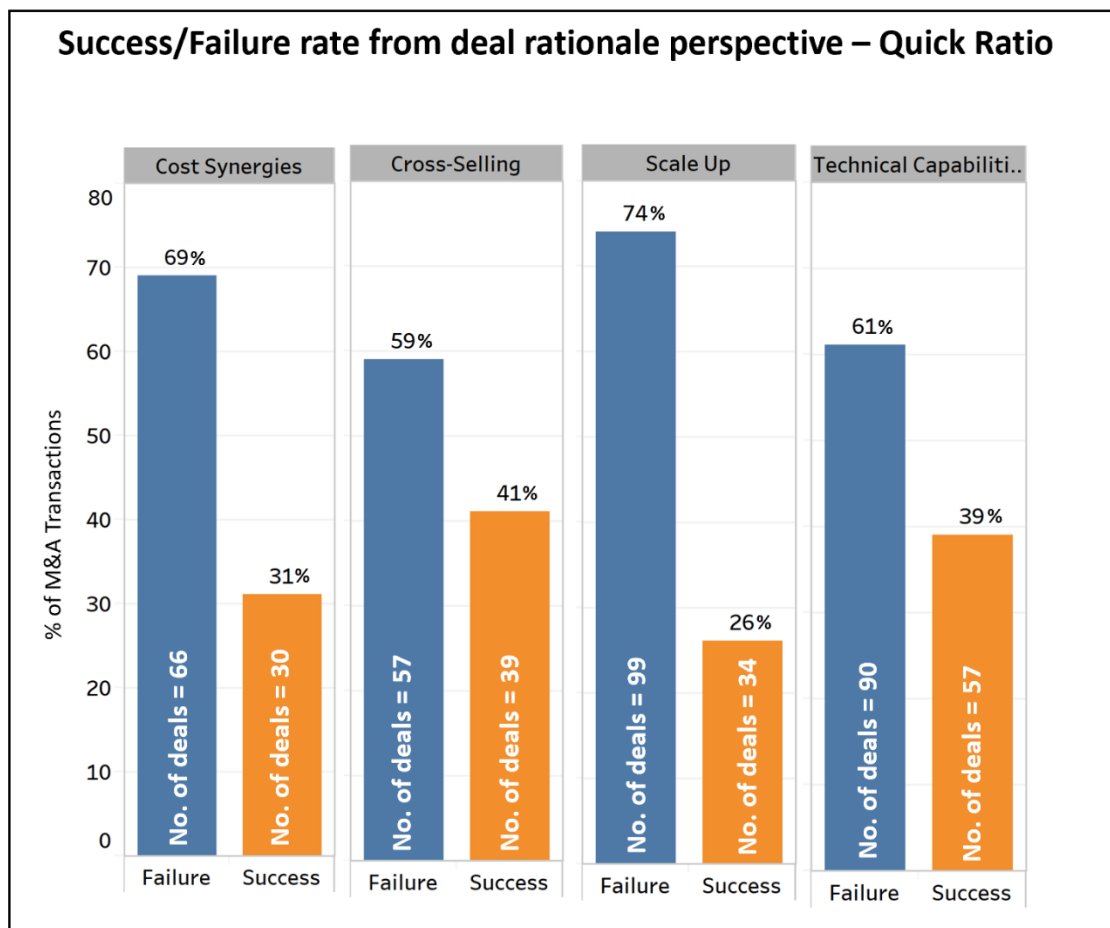


Figure 4-9: Results Quick-Ratio as metric

When quick-ratio is used as the financial metric, deals with “cross-selling” as strategic intent have higher success rate when compared to other categories. These results are not much different from that of TRS results, both “Technical Capabilities” and “Cross-Selling” have higher success rate compared to other 2 categories. It can be seen that “Scale up” deals have the least success rate – 26%.

CAGR as metric

With CAGR as performance metric, combined CAGR for target and acquirer pre-merger is compared with CAGR for acquirer post-merger. Comparing CAGR pre- and post-merger gave results as can be seen in Figure 4-10.

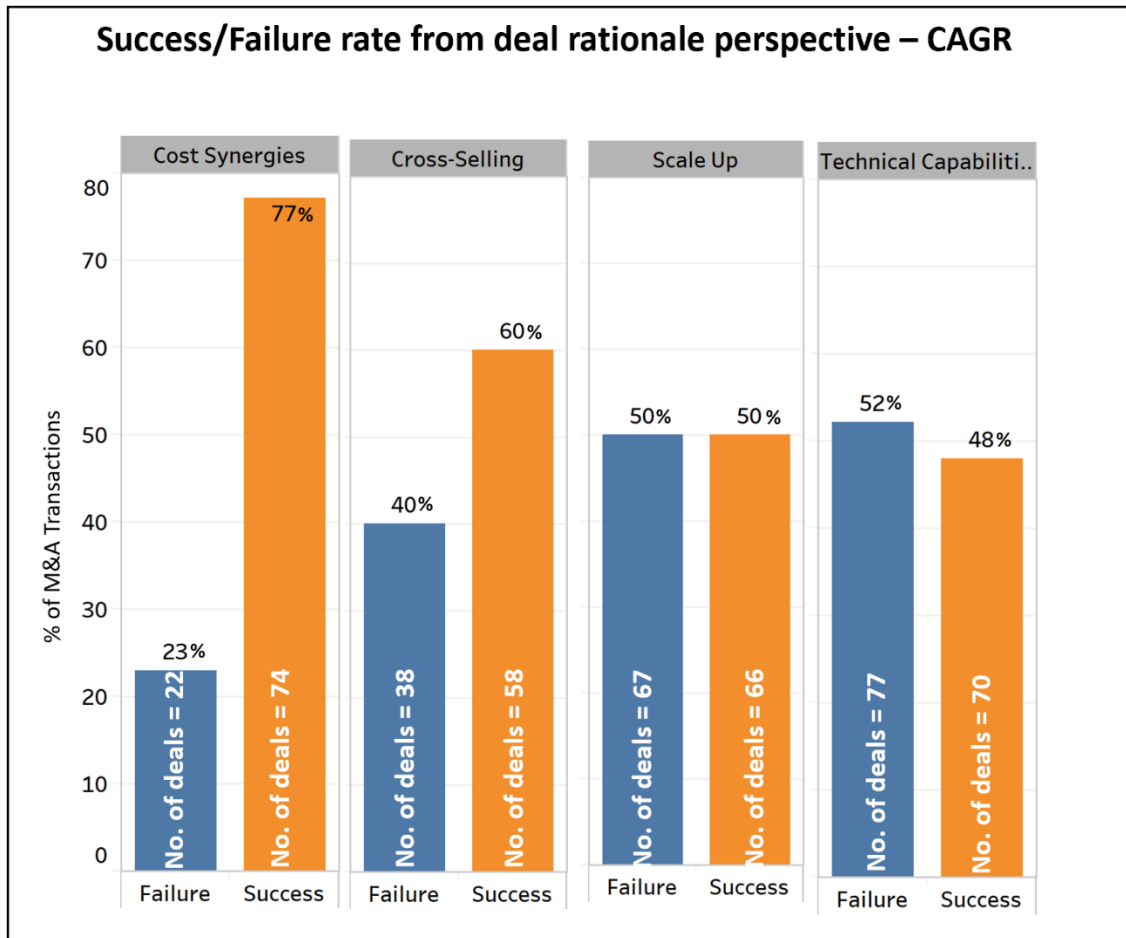


Figure 4-10: Results - CAGR as metric

When CAGR is used as the financial metric, deals with “cost synergies” as strategic intent has higher success rate when compared to other categories. These results do not match with that of TRS, these results are in fact in the reverse order of what we got with TRS as metric. CAGR results shows that the “Technical Capabilities” synergy has the least success rate.

Sensitivity Analysis

To measure the robustness of this study’s TRS results deals with multiple deal rationales that had to be adjusted to fit into one of the categories were removed from the dataset and success rate was calculated for each category again. Below are the results with TRS as metric for the resultant deals in the dataset. “Technical Capabilities” and “Scale Up” categories success rate reduced by 1%, “Cross-Selling” success rate reduced by 2% and “Cost-Synergies” success rate increased by 1%. “Technical Capabilities” category still has the highest success rate. “Cross Selling” and “Cost Synergies” both are second in the list with “37%” success rate and again “Scale Up” category has the least success rate at “35%”. These results are marginally different from the original results in which adjusted deals were also included.

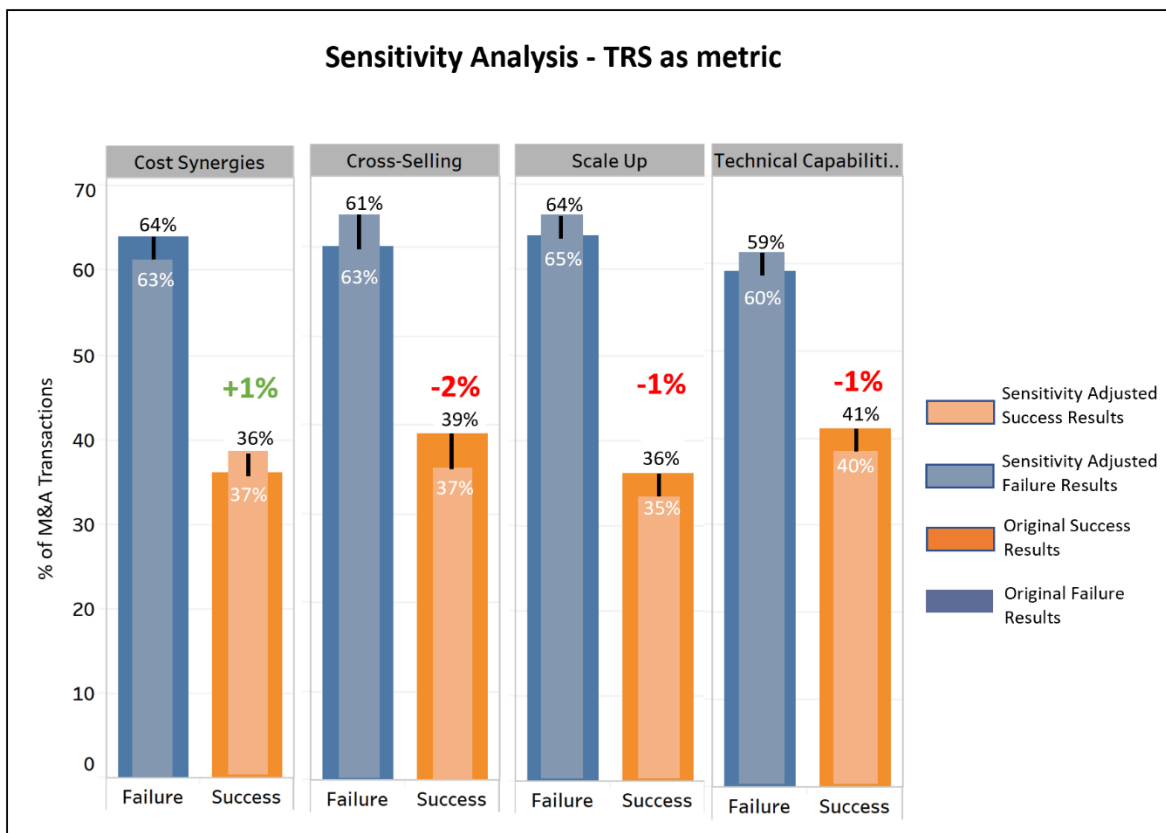


Figure 4-11: Sensitivity Analysis with TRS as metric

4.5 Discussion:

Based on these results it can be said that deals made in technology sector with motives to capture “technical capabilities” and “cross-selling” synergies have higher success rate when compared to “cost synergies” and “scale up” categories. The result show that most successful deals were those in which the acquiring company took the technical capabilities of the target company to enhance the value for their shareholders. The second most successful ones were those where the acquirer and target companies leveraged their existing products and services to generate more value by selling them to each other’s existing customers.

These results as especially encouraging in technology sector where the need for acquiring technical capabilities and cross-selling motives is higher. The rapid innovations cycles in technology sector can give companies massive first movers advantage and help capture large market share when unique technical capabilities are acquired. Also, if technology companies aren’t anticipating the needs of their customers, they are at greater risk of losing their customers to the new entrants or competitors who do⁹⁰.

According to Bain & Company 2019 study, tech deal volume has surged over the past 5 years, growing to more than \$500 billion annually in 2018 from less than \$150 billion in 2013⁹¹. This trend shows that there is higher competition in technology sector which could lead to higher purchase price when acquiring a target. Since other traditional sector deal volume is relatively lower, the categories studied with other sector deals might produce higher success rates.

⁹⁰ <https://www.market-bridge.com/9-requirements-for-effective-cross-selling-in-high-tech/>

⁹¹ [https://www.bain.com/insights/the-new-realities-of-tech-ma/#:~:text=M%26A%20deals%20in%20the%20technology%20sector%20grew%2031%25%20annually%20over%20five%20years&text=Scope%20deals%20have%20accounted%20for,capabilities%20\(see%20Figure%202\).](https://www.bain.com/insights/the-new-realities-of-tech-ma/#:~:text=M%26A%20deals%20in%20the%20technology%20sector%20grew%2031%25%20annually%20over%20five%20years&text=Scope%20deals%20have%20accounted%20for,capabilities%20(see%20Figure%202).)

Deal Rationale	Average TSR
Cost-Synergies	-13.18
Cross-Selling	-12.33
Scale-Up	-21.29
Technical Capabilities	-8.79

Calculating average TSR per each category also gave similar results. “Technical Capabilities” and “Cross-Selling” categories were again top 2 in the list. Although “Cost-Synergies” average TSR was close to “Cross-Selling”, “Scale-up” category had the least average TSR of all.

To further evaluate this dataset, normal distribution graph was created for the increase in TRS value for “Success/Failure” deals in each sector. The difference between pre and post-M&A TRS values for “Success/Failure” deals was computed and used to calculate mean and standard deviation (SD) for each category. Mean and SD have been used to calculate Z-score values for TRS probability to increase over 50% and 100% per category. The results are shown in the table below.

	TRS Success Rate	Probability of increase in TRS > 50%	Probability of increase in TRS > 100%
Cost Synergies	36%	29%	16%
Cross-Selling	39%	29%	15%
Scale Up	36%	29%	17%
Technical Capabilities	41%	29%	15%

The results show there is homogeneity in the probability of increase in TRS for all categories. Hence, acquiring companies in technology sector with any of these 4 motives has 29% probability that the TRS value will increase at-least 50%. Similarly, probability for TRS to increase 100% in these categories is between 15% to 17%.

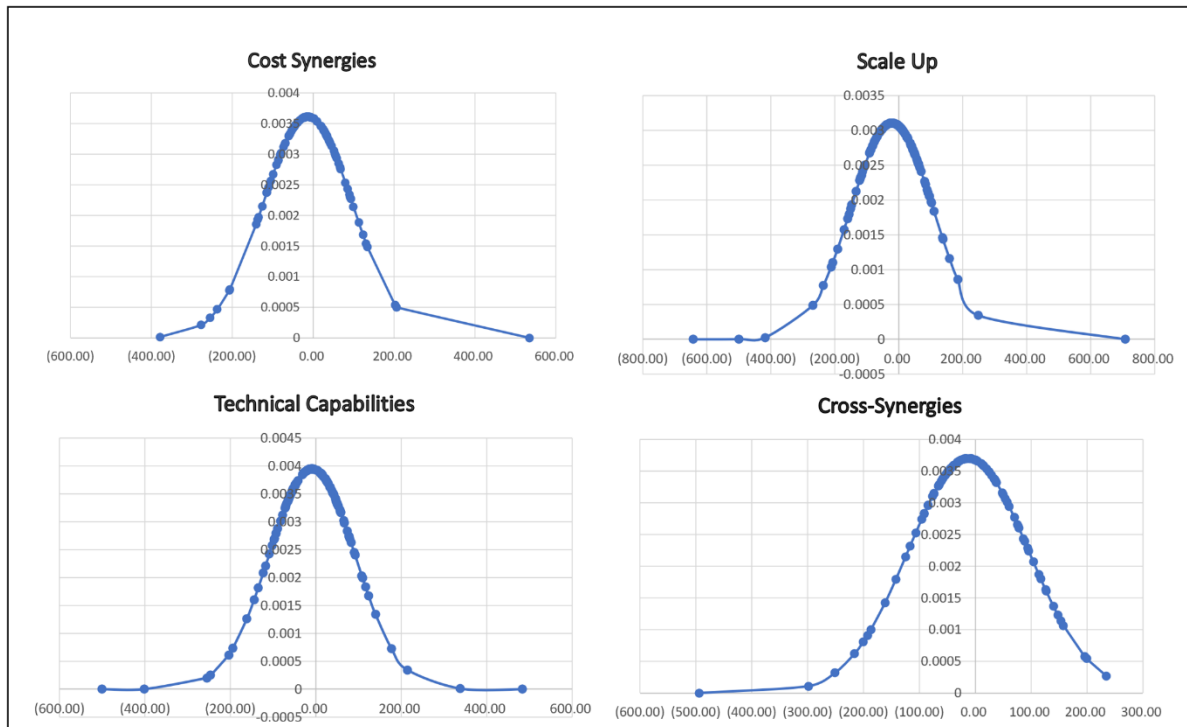


Figure 4-12: Normal Distribution - Change in TSR value Post Merger

The success rate of “Cross-Selling” and “Technical Capabilities” synergies can be an encouraging factor for industry experts in setting the deal strategy during “Developing Strategy” phase and picking the right target during “Target Screening” phase. Also, since “Cross-Selling” and “Technical Capabilities” synergies are showing probability of higher TSR returns, it can be an important consideration during “Valuation” phase as the deal price can be adjusted based on the anticipation of higher returns.

Chapter 5

Conclusion

Mergers and Acquisitions are a vital source of growth in technology sector. Technology companies are looking to acquire targets that can provide quick solutions to accelerate product roadmaps, gain access to new technologies and markets, and to stay competitive. This thesis summarizes four deal-rationales that are most prominent in technology sector and analyzes their impact on outcome of technology M&As. After analyzing a dataset of 472 deals in technology sector, “Cross-Selling” and “Acquiring technical capabilities” came out as having probability of higher returns and higher success rate among the deal rationale categories studied.

Limitations

To conduct this research study only public deals for acquirer and target have been chosen. So, results might come out differently if private deals are also included.

Deals where the percent sought was more than 80% were included in the dataset. Including deals less than 80% might also give different result.

Even though only public companies for both target and acquirer were included in the dataset, some companies have not reported their financial metrics to CapitalIQ database. Hence, those deals have been eliminated from the dataset.

A two-year time frame was considered to measure post-merger metrics. Some deals take longer to realize acquisition benefits. Revenue synergies especially take longer than Cost Synergies to be realized but such differences have not been considered in the analysis.

The outcome of the M&A deals was measured using 3 financial metrics but there are limitations for all 3 metrics used in this analysis. Quick ratio and CAGR limitations have already been discussed in Chapter 2. Although TSR is considered a better metric to measure the deal outcome compared to quick ratio and CAGR, it too has some limitations. TSR value is highly dependent on market perception and any volatility in share prices can impact TSR values. TSR also doesn't factor in performance of peer companies and benchmark index performance.

Future Directions

This research has been confined to technology and communication services sectors, but similar approach can be used in other sectors to measure the outcomes and the results can be compared to check the consistency. Minority deals have been eliminated from this analysis, but this approach can be extended to include minority deals. Target metrics were excluded when calculating post-merger financial values but target financial values may have to be included in post-merger calculations in case of minority deals. Another extension to this study would be to further analyze the results by deal size and see if the results vary based on the deal size. Considering the limitations with the metrics used in this analysis, other metrics like CPI (Corporate Performance Index) can be evaluated to measure the performance of deals in each deal-rationale category. Deals made by private companies have also not been included in this study for the reason that private companies financial metrics are not readily available. Research can be conducted on how to measure performance of deals done by private companies. Difficult part in categorizing deal

rationales had been to pick prime motive when multiple motives existed for that deal. Some deals had to be eliminated from the dataset as those couldn't be binned into one specific category. Existing frameworks help in analyzing deal rationale behind a deal, but there are no frameworks or studies that would help differentiate primary motive from secondary ones. So, research can be done in developing a framework that addresses issues in analyzing deals with multiple deal rationales.

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List of Tables:

1. Deals categorized as “Success”:

Target/Issuer	Buyers/Investors	M&A Closed Date
CA, Inc.	Broadcom Inc. (NasdaqGS:AVGO)	11/05/2018
Sky Limited	Comcast Corporation (NasdaqGS:CMCS.A)	10/11/2018
Avigilon Corporation	Motorola Solutions, Inc. (NYSE:MSI)	03/28/2018
Sevcon, Inc.	BorgWarner Inc. (NYSE:BWA)	09/27/2017
CardConnect Corp.	First Data Corporation	07/05/2017
Global Sources Ltd.	The Blackstone Group Inc. (NYSE:BX)	08/28/2017
MOCON, Inc.	AMETEK, Inc. (NYSE:AME)	06/22/2017
Mobileye N.V.	Intel Corporation (NasdaqGS:INTC)	08/21/2017
NetDimensions (Holdings) Limited	Learning Technologies Group plc (AIM:LTG)	03/28/2017
Ixia	Keysight Technologies, Inc. (NYSE:KEYS)	04/18/2017
Omtool, Ltd.	Upland Software, Inc. (NasdaqGM:UPLD)	01/10/2017
TubeMogul, Inc.	Adobe Inc. (NasdaqGS:ADBE)	12/19/2016
ASG Group Limited	Nomura Research Institute, Ltd. (TSE:4307)	12/12/2016
Intersil Corporation	Renesas Electronics Corporation (TSE:6723)	02/24/2017
Premier Farnell Limited	Avnet, Inc. (NasdaqGS:AVT)	10/17/2016
Tesla Energy Operations, Inc.	Tesla, Inc. (NasdaqGS:TSLA)	11/21/2016
Hermes Microvision, Inc.	ASML Holding N.V. (ENXTAM:ASML)	11/22/2016
QLogic Corp.	Cavium, Inc.	08/16/2016
LinkedIn Corporation	Microsoft Corporation (NasdaqGS:MSFT)	12/08/2016
Demandware, LLC	salesforce.com, inc. (NYSE:CRM)	07/08/2016
FEI Company	Thermo Fisher Scientific Inc. (NYSE:TMO)	09/19/2016
United Online, Inc.	B. Riley Financial, Inc. (NasdaqGM:RILY)	07/01/2016

OPOWER, Inc.	Oracle Corporation (NYSE:ORCL)	06/14/2016
International Datacasting Corporation	Novra Technologies Inc. (TSXV:NVI)	06/15/2016
Zhone Technologies Inc.	DZS Inc. (NasdaqCM:DZSI)	09/09/2016
Newport Corp.	MKS Instruments, Inc. (NasdaqGS:MKSI)	04/29/2016
Cascade Microtech Inc.	FormFactor, Inc. (NasdaqGS:FORM)	06/24/2016
LanTroVision (S) Ltd	MIRAIT Holdings Corporation (TSE:1417)	06/17/2016
Atmel Corporation	Microchip Technology Incorporated (NasdaqGS:MCHP)	04/03/2016
LoJack Corporation	CalAmp Corp. (NasdaqGS:CAMP)	03/17/2016
Fairchild Semiconductor International Inc.	ON Semiconductor Corporation (NasdaqGS:ON)	09/16/2016
Qualmark Corporation	Espec Corp. (TSE:6859)	12/28/2015
COM DEV International Ltd.	Honeywell International Inc. (NYSE:HON)	02/04/2016
Microsemi Storage Solutions, Inc.	Microsemi Corporation	01/14/2016
InfoNow Corporation (OTCPK:INOW)	Model N, Inc. (NYSE:MODN)	10/30/2015
Daegis Inc.	Open Text Corporation (NasdaqGS:OTEX)	11/23/2015
EZchip Semiconductor Ltd.	Mellanox Technologies, Ltd.	02/23/2016
Densitron Technologies plc	Quixant Plc (AIM:QXT)	11/10/2015
Pericom Semiconductor Corp.	Diodes Incorporated (NasdaqGS:DIOD)	11/24/2015
Yodlee, Inc.	Envestnet, Inc. (NYSE:ENV)	11/19/2015
Webtech Wireless Inc.	BSM Technologies Inc.	09/30/2015
Rally Software Development Corp.	CA, Inc.	07/08/2015
Micrel Inc.	Microchip Technology Incorporated (NasdaqGS:MCHP)	08/03/2015
Entropic Communications, LLC	MaxLinear, Inc. (NYSE:MXL)	04/30/2015
Advanced Photonix Inc.	Luna Innovations Incorporated (NasdaqCM:LUNA)	05/08/2015
Viasystems Group, Inc.	TTM Technologies, Inc. (NasdaqGS:TTMI)	05/31/2015
Connecta AB	Acando AB (publ.)	08/25/2014
Bull Société Anonyme	Atos SE (ENXTPA:ATO)	10/02/2014
Accelrys Inc.	Dassault Systèmes SE (ENXTPA:DSY)	04/28/2014
Mindspeed Technologies Inc.	MACOM Technology Solutions Holdings, Inc. (NasdaqGS:MTSI)	12/18/2013
Symphony International Solutions Limited	Adslot Limited (ASX:ADS)	12/23/2013
Active Risk Group Plc	Sword Group S.E. (ENXTPA:SWP)	08/29/2013
ExactTarget, LLC	salesforce.com, inc. (NYSE:CRM)	07/10/2013
Power-One Inc.	ABB Ltd (SWX:ABBN)	07/25/2013
i-design group limited	Cardtronics plc (NasdaqGS:CATM)	03/06/2013
BCD Semiconductor Manufacturing Limited	Diodes Incorporated (NasdaqGS:DIOD)	03/05/2013
Peer 1 Network Enterprises, Inc.	Cogeco Communications Inc. (TSX:CCA)	01/29/2013
Seesmart Technologies, Inc.	Revolution Lighting Technologies, Inc.	12/20/2012
DelSolar Co., Ltd.	United Renewable Energy Co., Ltd. (TSEC:3576)	05/31/2013
Tikit Group plc	BT Group plc (LSE:BT.A)	01/17/2013
Lorex Technology Inc.	FLIR Systems, Inc. (NasdaqGS:FLIR)	12/20/2012
Ymobile Corporation	SoftBank Group Corp. (TSE:9984)	01/01/2013
LML Payment Systems Inc.	Digital River Inc.	01/10/2013
LBi International NV	Publicis Groupe S.A. (ENXTPA:PUB)	01/29/2013
Wellypower Optronics Corporation	Lextar Electronics Corporation (TSEC:3698)	02/01/2013

Twenty20 Media Vision Limited	Porta Communications Plc	09/10/2012
Comverse Technology Inc.	Verint Systems Inc. (NasdaqGS:VRNT)	02/04/2013
Chingis Technology Corporation	Integrated Silicon Solution Inc.	09/14/2012
Brightpoint Inc.	Ingram Micro Inc.	10/15/2012
Network Equipment Technologies Inc.	Ribbon Communications Inc. (NasdaqGS:RBBN)	08/24/2012
Princeton Security Technologies, Inc.	Thermo Fisher Scientific Inc. (NYSE:TMO)	07/24/2012
Ramtron International Corp.	Cypress Semiconductor Corporation	11/20/2012
Open EC Technologies Inc.	QHR Corporation	10/25/2012
HITT NV	Saab AB (publ) (OM:SAAB B)	10/02/2012
Standard Microsystems Corporation	Microchip Technology Incorporated (NasdaqGS:MCHP)	08/02/2012
EasyLink Services International Corporation	Open Text Corporation (NasdaqGS:OTEX)	07/02/2012
Orange Egypt for Telecommunications S.A.E.	Orange S.A. (ENXTPA:ORA)	05/23/2012
Tudou Holdings Limited	Youku Tudou Inc.	08/23/2012
GlobeOp Financial Services S.A	SS&C Technologies Holdings, Inc. (NasdaqGS:SSNC)	06/25/2012
Taleo Corp.	Oracle Corporation (NYSE:ORCL)	04/05/2012
SureWest Communications	Consolidated Communications Holdings, Inc. (NasdaqGS:CNSL)	07/02/2012
March Networks Corporation	Shenzhen Infinova Limited (SZSE:002528)	04/27/2012
Bitstream Inc.	Monotype Imaging Holdings Inc.	03/19/2012
interclick, inc.	Altaba Inc.	12/13/2011
Vertro, Inc.	Inuvo, Inc. (AMEX:INUV)	03/01/2012
BigBand Networks, Inc.	ARRIS International Limited	11/21/2011
AECO Technology Co., Ltd.	WPG Holdings Limited (TSEC:3702)	03/01/2012
Visonic Group	Tyco International plc	12/06/2011
Paracon Holdings Ltd.	Adcorp Holdings Limited (JSE:ADR)	12/05/2011
Motorola Mobility Holdings, Inc.	Alphabet Inc. (NasdaqGS:GOOG.L)	05/22/2012
S1 Corporation	ACI Worldwide, Inc. (NasdaqGS:ACIW)	02/10/2012
Advanced Analogic Technologies Incorporated	Skyworks Solutions, Inc. (NasdaqGS:SWKS)	01/09/2012
Amaya (Alberta) Inc.	The Stars Group Inc.	07/14/2011
AQ Interactive Inc.	Marvelous Inc. (TSE:7844)	09/28/2011
Varian Semiconductor Equipment Associates Inc.	Applied Materials, Inc. (NasdaqGS:AMAT)	11/10/2011
LoopNet, Inc.	CoStar Group, Inc. (NasdaqGS:CSGP)	04/30/2012
Ralink Technology, Corp.	MediaTek Inc. (TSEC:2454)	10/01/2011
Zoran Corporation	CSR Limited	08/31/2011
Teledyne DALSA Inc.	Teledyne Technologies Incorporated (NYSE:TDY)	02/12/2011
Focus Solutions Group plc	Standard Life Aberdeen plc (LSE:SLA)	01/11/2011
Verigy, Ltd.	Advantest Corporation (TSE:6857)	07/04/2011
Actel Corporation	Microsemi Corporation	11/01/2010
Keithley Instruments, Inc.	Danaher Corporation (NYSE:DHR)	12/08/2010
Intec Telecom Systems Limited	CSG Systems International, Inc. (NasdaqGS:CSGS)	11/30/2010
Netezza Corporation	International Business Machines Corporation (NYSE:IBM)	11/10/2010
O.I. Corporation	ITT Inc. (NYSE:ITT)	11/15/2010
Spescom Limited	Jasco Electronics Holdings Limited (JSE:JSC)	12/15/2010
Salary.com, Inc.	Kenexa Corp.	09/30/2010

Unica Corporation	International Business Machines Corporation (NYSE:IBM)	10/05/2010
Mitchell Communication Group Limited	Dentsu International Limited	11/17/2010
Dimension Data Holdings Limited	Nippon Telegraph and Telephone Corporation (TSE:9432)	10/25/2010
Proginet Corporation	TIBCO Software Inc.	09/15/2010
Intelek Limited	Teledyne Technologies Incorporated (NYSE:TDY)	07/26/2010
Virage Logic Corporation	Synopsys, Inc. (NasdaqGS:SNPS)	09/02/2010
Deltek Danmark A/S	Deltek, Inc.	07/06/2010
UNIT4 Teta SA	Unit4 N.V.	07/05/2010
Matrikon Inc.	Honeywell International Inc. (NYSE:HON)	06/28/2010
CyberSource Corporation	Visa Inc. (NYSE:V)	07/21/2010
Symyx Technologies Inc.	Accelrys Inc.	07/01/2010
Bell Microproducts Inc.	Avnet, Inc. (NasdaqGS:AVT)	07/06/2010
Silicon Storage Technology, Inc.	Microchip Technology Incorporated (NasdaqGS:MCHP)	04/08/2010
Merrimac Industries, Inc.	Crane Co. (NYSE:CR)	02/02/2010
STARLIMS Technologies Ltd.	Abbott Laboratories (NYSE:ABT)	03/22/2010
Xenos Group Inc.	Actuate Corporation	02/01/2010
Zilog, Inc.	IXYS, LLC	02/18/2010
Windstream Iowa Communications, LLC	Windstream Holdings, Inc.	06/01/2010
Mentor Graphics Development Services (Israel) Limited	Mentor Graphics Corporation	03/18/2010
Avocent Corporation	Emerson Electric Co. (NYSE:EMR)	12/11/2009
Viasystems Corporation	Viasystems Group, Inc.	02/16/2010
Essentially Group Limited	Chime Communications Limited	11/30/2009
Marvel Entertainment, LLC	The Walt Disney Company (NYSE:DIS)	12/31/2009
Goldleaf Financial Solutions, Inc.	Jack Henry & Associates, Inc. (NasdaqGS:JKHY)	10/01/2009
On2 Technologies Inc.	Alphabet Inc. (NasdaqGS:GOOG.L)	02/19/2010
SPSS Inc.	International Business Machines Corporation (NYSE:IBM)	10/02/2009
Wind River Systems, Inc.	Intel Corporation (NasdaqGS:INTC)	07/15/2009
Nikon Metrology NV	Nikon Corporation (TSE:7731)	09/22/2009
Data Domain, Inc.	Dell EMC	07/22/2009
Catapult Communications Corporation	Ixia	06/22/2009
D&E Communications, LLC	Windstream Holdings, Inc.	11/10/2009
Borland Software Corporation	Micro Focus International plc (LSE:MCRO)	07/27/2009
LogicVision, Inc.	Mentor Graphics Corporation	08/18/2009
Vignette Corporation	Open Text Corporation (NasdaqGS:OTEX)	07/21/2009
Tundra Semiconductor Corporation	Renesas Electronics America Inc.	06/29/2009
Oracle America, Inc.	Oracle Corporation (NYSE:ORCL)	01/26/2010
Zi Corporation	Nuance Communications, Inc. (NasdaqGS:NUAN)	04/09/2009
CSR Technology Holdings Inc.	CSR Limited	06/26/2009
Broca Limited	Broca plc	04/08/2009
Oclaro (North America), Inc.	Oclaro, Inc.	04/27/2009
Harmonic Video Networks Ltd.	Harmonic Inc. (NasdaqGS:HLIT)	03/12/2009
Chalk Media Corp.	BlackBerry Limited (TSX:BB)	01/30/2009
People Telecommunications Pty Ltd.	M2 Group Ltd	04/14/2009

Certicom Corp.	BlackBerry Limited (TSX:BB)	03/23/2009
Wavecom SA	Sierra Wireless, Inc. (TSX:SW)	04/29/2009
Centennial Communications Corp.	AT&T Inc. (NYSE:T)	11/06/2009
Embarq Corporation	Lumen Technologies, Inc. (NYSE:LUMN)	07/01/2009
AXON Group Limited	HCL Technologies Limited (NSEI:HCLTECH)	12/15/2008
Secure Computing Corporation	McAfee LLC	11/18/2008
Park City Group, Inc.	Park City Group, Inc. (NasdaqCM:PCYG)	01/13/2009
Eagle Test Systems, Inc.	Teradyne, Inc. (NasdaqGS:TER)	11/14/2008
TNS Group Holdings Limited	WPP plc (LSE:WPP)	11/12/2008
SIMTEK Corp.	Cypress Semiconductor Corporation	09/17/2008
Datasul S/A	TOTVS S.A. (BOVESPA:TOTS3)	09/24/2008
Foundry Networks, LLC	Brocade Communications Systems LLC	12/18/2008
Photon Dynamics, Inc.	Orbotech Ltd.	10/02/2008
Hostopia.com Inc.	Deluxe Corporation (NYSE:DLX)	07/30/2008
Insightful Corp.	TIBCO Software Inc.	09/03/2008
Cash Systems Inc.	Everi Holdings Inc. (NYSE:EVRI)	08/08/2008
Kintera, Inc.	Blackbaud, Inc. (NasdaqGS:BLKB)	07/07/2008
Tower US Holdings Inc.	Tower Semiconductor Ltd. (NasdaqGS:TSEM)	09/19/2008
Optium Corporation	Finisar Corporation	08/29/2008
Mediasurface Limited	Alterian plc	07/05/2008
Packeteer, Inc.	Blue Coat Systems Inc.	06/06/2008
Diodes Zetex Semiconductors Limited	Diodes Incorporated (NasdaqGS:DIOD)	06/09/2008
LenovoEMC Ltd	Dell EMC	06/09/2008
TriQuint WJ, Inc.	Qorvo US, Inc.	05/22/2008
Optio Software, Inc.	Bottomline Technologies (de), Inc. (NasdaqGS:EPAY)	04/21/2008
E-TEN Information Systems Co., Ltd.	Acer Incorporated (TSEC:2353)	09/30/2008
Microsoft Development Center Norway AS	Microsoft Corporation (NasdaqGS:MSFT)	04/24/2008
Nextest Systems Corporation	Teradyne, Inc. (NasdaqGS:TER)	01/23/2008
Rovi Guides, Inc.	TiVo Corporation	05/02/2008

2. Deals categorized as “Failure”:

Target/Issuer	Buyers/Investors	M&A Closed Date
Datawatch Corporation	Altair Engineering Inc. (NasdaqGS:ALTR)	12/12/2018
JetPay Corporation	NCR Corporation (NYSE:NCR)	12/06/2018
Fairfax Media Limited	Nine Entertainment Co. Holdings Limited (ASX:NEC)	12/07/2018
Atos Syntel Inc.	Atos SE (ENXTPA:ATO)	10/09/2018
Xplore Technologies Corp.	Zebra Technologies Corporation (NasdaqGS:ZBRA)	08/14/2018
Echelon Corporation	Adesto Technologies Corporation	09/14/2018
Radisy Corporation	Reliance Industries Limited (NSEI:RELIANCE)	12/11/2018
Magic Technology Co., Ltd.	Chilisin Electronics Corp. (TSEC:2456)	11/19/2018

Artium Group Limited	Pareteum Corporation (NasdaqCM:TEUM)	10/01/2018
Xcerra Corporation	Cohu, Inc. (NasdaqGS:COHU)	10/01/2018
MTI Computers and Software Services (1982) Ltd.	M.T.I Wireless Edge Ltd. (AIM:MWE)	08/20/2018
Newfoundland Capital Corporation Limited	Stingray Group Inc. (TSX:RAY.A)	10/26/2018
ELXSI Corporation	SPX Corporation (NYSE:SPXC)	06/07/2018
CoAdna Holdings, Inc.	II-VI Incorporated (NasdaqGS:IIVI)	09/01/2018
MuleSoft, Inc.	salesforce.com, inc. (NYSE:CRM)	05/01/2018
Oclaro, Inc.	Lumentum Holdings Inc. (NasdaqGS:LITE)	12/10/2018
Microsemi Corporation	Microchip Technology Incorporated (NasdaqGS:MCHP)	05/29/2018
Stadium Group plc	TT Electronics plc (LSE:TTG)	04/18/2018
CSRA Inc.	General Dynamics Corporation (NYSE:GD)	04/02/2018
UBM plc	Informa plc (LSE:INF)	06/15/2018
DST Systems, Inc.	SS&C Technologies Holdings, Inc. (NasdaqGS:SSNC)	04/16/2018
Com Hem Holding AB (publ)	Tele2 AB (publ) (OM:TEL2 B)	11/05/2018
Pure Technologies Ltd.	Xylem Inc. (NYSE:XYL)	01/31/2018
Regal Entertainment Group	Cineworld Group plc (LSE:CINE)	02/28/2018
Cavium, Inc.	Marvell Technology Group Ltd. (NasdaqGS:MRVL)	07/06/2018
BroadSoft, Inc.	Cisco Systems, Inc. (NasdaqGS:CSCO)	02/01/2018
Silver Spring Networks, Inc.	Itron, Inc. (NasdaqGS:ITRI)	01/05/2018
IXYS, LLC	Littelfuse, Inc. (NasdaqGS:LFUS)	01/17/2018
Numerex Corp.	Sierra Wireless, Inc. (TSX:SW)	12/07/2017
Guidance Software, Inc.	Open Text Corporation (NasdaqGS:OTEX)	09/13/2017
Hawaiian Telcom Holdco, Inc.	Cincinnati Bell Inc. (NYSE:CBB)	07/02/2018
MRV Communications, Inc.	ADVA Optical Networking SE (XTRA:ADV)	08/11/2017
Covisint Corporation	Open Text Corporation (NasdaqGS:OTEX)	07/26/2017
ViXS Systems Inc.	Pixelworks, Inc. (NasdaqGM:PXLW)	08/02/2017
Intrado Corporation	Apollo Global Management, Inc. (NYSE:APO)	10/10/2017
POW! Entertainment, Inc.	Camsing International Holding Limited (SEHK:2662)	10/23/2017
International Road Dynamics Inc.	Quarterhill Inc. (TSX:QTRH)	06/01/2017
Exar Corporation	MaxLinear, Inc. (NYSE:MXL)	05/12/2017
Nimble Storage, Inc.	Hewlett Packard Enterprise Company (NYSE:HPE)	04/13/2017
Ultratech, Inc.	Veeco Instruments Inc. (NasdaqGS:VECO)	05/26/2017
Sapura plc	Hytera Communications Corporation Limited (SZSE:002583)	05/24/2017
IntraLinks Holdings, Inc.	Synchronoss Technologies, Inc. (NasdaqGS:SNCR)	01/19/2017
Perk Inc.	RhythmOne plc	01/19/2017
Fairpoint Communications, Inc.	Consolidated Communications Holdings, Inc. (NasdaqGS:CNLS)	07/03/2017
Tecnocom Telecomunicaciones y Energía, S.A.	Indra Sistemas, S.A. (BME:IDR)	04/07/2017
Applied Micro Circuits Corporation	MACOM Technology Solutions Holdings, Inc. (NasdaqGS:MTSI)	01/26/2017
Datalink Corporation	Insight Enterprises, Inc. (NasdaqGS:NSIT)	01/06/2017
EarthLink Holdings Corp.	Windstream Holdings, Inc.	02/27/2017
Level 3 Parent, LLC	Lumen Technologies, Inc. (NYSE:LUMN)	11/01/2017
Warner Media, LLC	AT&T Inc. (NYSE:T)	06/14/2018
BigAir Group Limited	Superloop Limited (ASX:SLC)	12/09/2016

Fleetmatics Group PLC	Verizon Communications Inc. (NYSE:VZ)	11/07/2016
Linear Technology Corporation	Analog Devices, Inc. (NasdaqGS:ADI)	03/10/2017
Alvarion Ltd. (OTCPK:ALVR.Q)	SuperCom Ltd. (NasdaqCM:SPCB)	05/18/2016
inContact, Inc.	NICE Ltd. (TASE:NICE)	11/14/2016
PureDepth, Inc.	Aptiv PLC (NYSE:APTV)	03/23/2016
Rofin-Sinar Technologies Inc.	Coherent, Inc. (NasdaqGS:COHR)	11/07/2016
Carmike Cinemas, Inc.	AMC Entertainment Holdings, Inc. (NYSE:AMC)	12/21/2016
Checkpoint Systems Inc.	CCL Industries Inc. (TSX:CCL.B)	05/13/2016
Multi-Fineline Electronix, Inc.	Suzhou Dongshan Precision Manufacturing Co., Ltd. (SZSE:002384)	07/27/2016
Micronas Semiconductor Holding AG	TDK Corporation (TSE:6762)	03/01/2016
Heartland Payment Systems, Inc.	Global Payments Inc. (NYSE:GPN)	04/22/2016
TeleCommunication Systems Inc.	Comtech Telecommunications Corp. (NasdaqGS:CMTL)	02/23/2016
Cable & Wireless Communications Limited	Liberty Global plc (NasdaqGS:LBTY.A)	05/16/2016
King Digital Entertainment plc	Activision Blizzard, Inc. (NasdaqGS:ATVI)	02/23/2016
Constant Contact, Inc.	Endurance International Group Holdings, Inc. (NasdaqGS:EIGI)	02/09/2016
CTI Group (Holdings) Inc.	Enghouse Systems Limited (TSX:ENGH)	12/07/2015
Journal Media Group, Inc.	Gannett Media Corp.	04/08/2016
Rentrak Corporation	comScore, Inc. (NasdaqGS:SCOR)	01/29/2016
Media General, Inc.	Nexstar Media Group, Inc. (NasdaqGS:NXST)	01/17/2017
Infovide-Matrix S.A.	Asseco Poland S.A. (WSE:ACP)	11/12/2015
Envivio, Inc.	Telefonaktiebolaget LM Ericsson (publ) (OM:ERIC B)	10/27/2015
Dot Hill Systems Corp.	Seagate Technology plc (NasdaqGS:STX)	10/06/2015
NTELOS Holdings Corp.	Shenandoah Telecommunications Company (NasdaqGS:SHEN)	05/06/2016
Enables IT Group plc	1Spatial Plc (AIM:SPA)	07/23/2015
Altera Corp.	Intel Corporation (NasdaqGS:INTC)	12/28/2015
Meru Networks, Inc.	Fortinet, Inc. (NasdaqGS:FTNT)	07/07/2015
Telecity Group plc	Equinix, Inc. (REIT) (NasdaqGS:EQIX)	01/15/2016
Cyan, Inc.	Ciena Corporation (NYSE:CIEN)	08/03/2015
Audience, Inc.	Knowles Corporation (NYSE:KN)	06/30/2015
ARRIS Global Ltd.	ARRIS International Limited	01/04/2016
Alcatel-Lucent	Nokia Corporation (HLSE:NOKIA)	02/03/2016
Orad Hi Tec Systems Ltd.	Avid Technology, Inc. (NasdaqGS:AVID)	06/23/2015
Transmode AB (publ)	Infinera Corporation (NasdaqGS:INFN)	08/12/2015
Accumuli Limited	NCC Group plc (LSE:NCC)	04/30/2015
iiNet Limited	TPG Corporation Limited	09/07/2015
Domino Printing Sciences plc	Brother Industries, Ltd. (TSE:6448)	06/11/2015
Aruba Networks, Inc.	HP Inc. (NYSE:HPQ)	05/18/2015
Freescale Semiconductor, Ltd.	NXP Semiconductors N.V. (NasdaqGS:NXPI)	12/07/2015
Axis AB (publ)	Canon Inc. (TSE:7751)	05/05/2015
SS&C Advent	SS&C Technologies Holdings, Inc. (NasdaqGS:SSNC)	07/08/2015
Silicon Image, Inc.	Lattice Semiconductor Corporation (NasdaqGS:LSCC)	03/09/2015
Spansion Inc.	Cypress Semiconductor Corporation	03/12/2015
Cimatron Ltd.	3D Systems Corporation (NYSE:DDD)	02/09/2015

Actuate Corporation	Open Text Corporation (NasdaqGS:OTEX)	01/15/2015
Elecsys Corporation	Lindsay Corporation (NYSE:LNN)	01/22/2015
World Energy Solutions, Inc.	Enel X North America, Inc.	01/02/2015
Sapient Corp.	Publicis Groupe S.A. (ENXTPA:PUB)	02/05/2015
Amcom Telecommunications Limited	Vocus Group Limited (ASX:VOC)	07/08/2015
BTU International Inc.	Amtech Systems, Inc. (NasdaqGS:ASYS)	01/30/2015
Move, Inc.	News Corporation (NasdaqGS:NWSA)	11/13/2014
Orange Spain, Limited	Orange S.A. (ENXTPA:ORA)	06/24/2015
Conversant LLC	Alliance Data Systems Corporation (NYSE:ADS)	12/10/2014
Journal Communications, Inc.	The E.W. Scripps Company (NasdaqGS:SSP)	04/01/2015
Trulia, Inc.	Zillow Group, Inc. (NasdaqGS:ZG)	02/17/2015
Capella Microsystems (Taiwan), Inc.	Vishay Intertechnology, Inc. (NYSE:VSH)	09/01/2014
Enventis Corporation	Consolidated Communications Holdings, Inc. (NasdaqGS:CNSL)	10/08/2014
MICROS Systems, Inc.	Oracle Corporation (NYSE:ORCL)	09/05/2014
Measurement Specialties Inc.	TE Connectivity Ltd. (NYSE:TEL)	10/09/2014
TW Telecom Inc.	Level 3 Parent, LLC	10/31/2014
Hittite Microwave Corporation	Analog Devices, Inc. (NasdaqGS:ADI)	07/21/2014
Business Connexion Group Limited	Telkom SA SOC Limited (JSE:TKG)	08/24/2015
Aeroflex Holding Corp.	Cobham Limited	09/12/2014
DIRECTV, LLC	AT&T Inc. (NYSE:T)	07/24/2015
Digital Cinema Destinations Corp.	Carmike Cinemas, Inc.	08/15/2014
Overland Storage Inc.	Sphere 3D Corp. (NasdaqCM:ANY)	12/01/2014
PNI Digital Media ULC	Staples, Inc.	07/11/2014
Integrated Memory Logic Limited	Exar Corporation	05/29/2014
Zygo Corporation	AMETEK, Inc. (NYSE:AME)	06/20/2014
Groupe Steria SCA	Sopra Steria Group SA (ENXTPA:SOP)	09/12/2014
Intellivisions Software Limited	Aurionpro Solutions Limited (BSE:532668)	06/23/2015
LIN Media LLC	Media General, Inc.	12/19/2014
Supertex Inc.	Microchip Technology Incorporated (NasdaqGS:MCHP)	04/01/2014
ATMI Inc.	Entegris, Inc. (NasdaqGS:ENTG)	04/30/2014
Dynamics Research Corporation	Engility Holdings, Inc.	01/28/2014
Performance Technologies Inc.	Ribbon Communications Inc. (NasdaqGS:RBBN)	02/19/2014
Harris Insights & Analytics	Nielsen Holdings plc (NYSE:NLSN)	01/31/2014
Aastra Technologies Ltd.	Mitel Networks Corporation	01/31/2014
Cameleon Software SA	PROS Holdings, Inc. (NYSE:PRO)	01/21/2014
Symmetricom Inc.	Microsemi Corporation	11/26/2013
e-pay Asia Limited	GHL Systems Berhad (KLSE:GHLSYS)	02/21/2014
Official Payments Holdings, Inc.	ACI Worldwide, Inc. (NasdaqGS:ACIW)	11/05/2013
Volterra Semiconductor Corporation	Maxim Integrated Products, Inc. (NasdaqGS:MXIM)	10/01/2013
Sourcefire, Inc.	Cisco Systems, Inc. (NasdaqGS:CSCO)	10/07/2013
Leap Wireless International Inc.	AT&T Inc. (NYSE:T)	03/13/2014
Belo Corp.	TEGNA Inc. (NYSE:TGNA)	12/23/2013
Epic Data International Inc.	Sylogist Ltd. (TSXV:SYZ)	07/01/2013

Fisher Communications, Inc.	Sinclair Broadcast Group, Inc. (NasdaqGS:SBGI)	08/08/2013
Sky High PLC	Tracsis plc (AIM:TRCS)	05/01/2013
Virgin Media Inc.	Liberty Global plc (NasdaqGS:LBTY.A)	06/07/2013
Online Resources Corp.	ACI Worldwide, Inc. (NasdaqGS:ACIW)	03/08/2013
Video Futur Entertainment Group S.A.	Netgem SA (ENXTPA:NTG)	08/01/2013
Nielsen Audio, Inc.	Nielsen Holdings plc (NYSE:NLSN)	09/30/2013
Intermec, Inc.	Honeywell International Inc. (NYSE:HON)	09/17/2013
Endace Limited	Emulex Corporation	03/28/2013
Retalix Ltd.	NCR Corporation (NYSE:NCR)	02/06/2013
MIPS Tech, Inc.	Imagination Technologies Group plc	02/07/2013
OPNET Technologies, Inc.	Riverbed Technology, Inc.	12/17/2012
Cymer, Inc.	ASML Holding N.V. (ENXTAM:ASML)	05/30/2013
Ditech Networks, Inc.	Nuance Communications, Inc. (NasdaqGS:NUAN)	12/04/2012
Kenexa Corp.	International Business Machines Corporation (NYSE:IBM)	12/03/2012
Nextwave Wireless Inc.	AT&T Inc. (NYSE:T)	01/24/2013
AuthenTec, Inc.	Apple Inc. (NasdaqGS:AAPL)	10/04/2012
Elster Group SE	Melrose Industries PLC (LSE:MRO)	08/28/2012
Psion Holdings Limited	Motorola Solutions, Inc. (NYSE:MSI)	10/01/2012
Teledyne LeCroy, Inc.	Teledyne Technologies Incorporated (NYSE:TDY)	08/03/2012
Xedar Corporation	IHS Markit Ltd. (NYSE:INFO)	05/11/2012
SRS Labs, Inc.	DTS, Inc.	07/20/2012
X-Rite, Incorporated	Danaher Corporation (NYSE:DHR)	05/14/2012
Opnext, Inc.	Oclaro, Inc.	07/23/2012
Hitachi eBworx Sdn Bhd	Hitachi, Ltd. (TSE:6501)	05/22/2012
Banks.com, Inc	Remark Holdings, Inc. (NasdaqCM:MARK)	06/28/2012
Convio, Inc.	Blackbaud, Inc. (NasdaqGS:BLKB)	05/02/2012
Synchronica Limited	Myriad Group AG	04/30/2012
Novellus Systems, Inc.	Lam Research Corporation (NasdaqGS:LRCX)	06/04/2012
DemandTec, Inc.	International Business Machines Corporation (NYSE:IBM)	02/14/2012
PPT Vision Inc.	Datalogic S.p.A. (BIT:DAL)	12/21/2011
Magma Design Automation LLC	Synopsys, Inc. (NasdaqGS:SNPS)	02/22/2012
TesCom Software Systems Testing Ltd.	One Software Technologies Ltd (TASE:ONE)	02/15/2012
Alterian plc	SDL plc (LSE:SDL)	01/27/2012
Rightnow Technologies, Inc.	Oracle Corporation (NYSE:ORCL)	01/25/2012
JM Technology Inc.	Mamezou Holdings Co.,Ltd.	11/21/2011
NetLogic I LLC	Broadcom Corporation	02/17/2012
iLinc Communications, Inc.	BroadSoft, Inc.	09/30/2011
Autonomy Corp. plc	HP Inc. (NYSE:HPQ)	10/13/2011
Chip One Stop Inc.	Arrow Electronics, Inc. (NYSE:ARW)	09/20/2011
Techmosa International Inc.	WT Microelectronics Co., Ltd. (TSEC:3036)	02/03/2012
PAETEC Holding, LLC	Windstream Holdings, Inc.	11/30/2011
Paradigm Holdings Inc.	CACI International Inc (NYSE:CACI)	09/01/2011
Zarlink Semiconductor Inc.	Microsemi Corporation	10/12/2011

IntraPower Pty Limited	TPG Corporation Limited	08/29/2011
Radiant Systems, Inc.	NCR Corporation (NYSE:NCR)	08/22/2011
Ophir Optronics Ltd.	Newport Corp.	10/04/2011
Bridgewater Systems Corporation	Amdocs Limited (NasdaqGS:DOX)	08/17/2011
MediaMind Technologies Inc.	Digital Generation, Inc.	07/22/2011
EMS Technologies, Inc.	Honeywell International Inc. (NYSE:HON)	08/19/2011
ModeLabs Group SA	BigBen Interactive (ENXTPA:BIG)	08/30/2011
Tele Norte Leste Participacoes S.A.	Oi S.A. (BOVESPA:OIBR4)	02/27/2012
1&1 Versatel GmbH	KKR & Co. Inc. (NYSE:KKR)	08/02/2011
Integral Systems, Inc.	Kratos Defense & Security Solutions, Inc. (NasdaqGS:KTOS)	07/27/2011
Entraction Holding AB	International Game Technology	06/23/2011
Level 3 GC Limited	Level 3 Parent, LLC	10/04/2011
Burst Media LLC	RhythmOne plc	05/09/2011
MKS Inc.	PTC Inc. (NasdaqGS:PTC)	05/31/2011
National Semiconductor Corporation	Texas Instruments Incorporated (NasdaqGS:TXN)	09/23/2011
Spectrum Control, Inc.	API Technologies Corp.	06/01/2011
Radial, Inc.	eBay Inc. (NasdaqGS:EBAY)	06/17/2011
EnergyConnect Group, Inc.	Johnson Controls International plc (NYSE:JCI)	07/01/2011
Endwave Corporation	GigPeak, Inc.	06/17/2011
Navisite, LLC	Spectrum Management Holding Company, LLC	04/21/2011
Terremark Worldwide, Inc.	Verizon Communications Inc. (NYSE:VZ)	04/07/2011
Microfluidics International Corporation	IDEX Corporation (NYSE:IEX)	03/10/2011
Qualcomm Atheros, Inc.	QUALCOMM Incorporated (NasdaqGS:QCOM)	05/24/2011
Sonic Solutions LLC	TiVo Corporation	02/11/2011
InfoLogix, Inc.	Stanley Black & Decker, Inc. (NYSE:SWK)	01/18/2011
Isilon Systems, Inc.	Dell EMC	12/17/2010
Optelecom-NKF Inc.	TKH Group N.V. (ENXTAM:TWEKA)	01/28/2011
ICS Group Holdings Inc.	HC2 Holdings, Inc. (NYSE:HCHC)	02/28/2011
SpiriTel Limited	Daisy Holdings Limited	12/17/2010
Art Technology Group, Inc.	Oracle Corporation (NYSE:ORCL)	01/05/2011
ITC DeltaCom, Inc.	EarthLink Holdings Corp.	12/08/2010
Hypercom Corporation	VeriFone Systems, Inc.	08/04/2011
Nu Horizons Electronics Corp.	Arrow Electronics, Inc. (NYSE:ARW)	01/03/2011
Occam Networks, Inc.	Calix, Inc. (NYSE:CALX)	02/22/2011
ArcSight, Inc.	HP Inc. (NYSE:HPQ)	10/20/2010
3M Cogent, Inc.	3M Company (NYSE:MMM)	12/01/2010
3Par Inc.	HP Inc. (NYSE:HPQ)	09/24/2010
McAfee LLC	Intel Corporation (NasdaqGS:INTC)	02/28/2011
FLIR Detection, Inc.	FLIR Systems, Inc. (NasdaqGS:FLIR)	10/01/2010
Global IP Solutions, Inc.	Alphabet Inc. (NasdaqGS:GOOG.L)	06/28/2010
Wola Info S. A.	Devoteam SA (ENXTPA:DVT)	10/08/2010
Raymarine plc	FLIR Systems, Inc. (NasdaqGS:FLIR)	05/14/2010
Palm, Inc.	HP Inc. (NYSE:HPQ)	07/01/2010

Qwest Communications International Inc.	Lumen Technologies, Inc. (NYSE:LUMN)	04/01/2011
Euphonix, Inc.	Avid Technology, Inc. (NasdaqGS:AVID)	04/21/2010
Techwell LLC	Intersil Corporation	04/26/2010
Yosun Industrial Corp.	WPG Holdings Limited (TSEC:3702)	11/04/2010
Chordiant Software, Inc.	Pegasystems Inc. (NasdaqGS:PEGA)	04/20/2010
Nstein Technologies Inc.	Open Text Corporation (NasdaqGS:OTEX)	04/01/2010
COMSYS IT Partners, Inc.	ManpowerGroup Inc. (NYSE:MAN)	04/02/2010
Sirit, Inc.	Federal Signal Corporation (NYSE:FSS)	03/05/2010
MAMA and Company Limited	HMV Group plc	03/12/2010
California Micro Devices Corporation	ON Semiconductor Corporation (NasdaqGS:ON)	01/26/2010
Zemblaz NV	The Descartes Systems Group Inc (TSX:DSG)	04/12/2010
3S Industries AG	Meyer Burger Technology AG (SWX:MBTN)	01/14/2010
Semitool, Inc.	Applied Materials, Inc. (NasdaqGS:AMAT)	12/17/2009
Océ Holding B.V.	Canon Inc. (TSE:7751)	03/19/2010
Chi Mei Optoelectronics Corp.	Innolux Corporation (TSEC:3481)	03/18/2010
Sorun Corporation	TIS Inc. (TSE:3626)	12/15/2009
PIPE Networks Pty Limited	TPG Corporation Limited	03/31/2010
i2 Technologies, Inc.	JDA Software Group, Inc.	01/28/2010
Programmed Electrical Technologies Limited	Programmed Maintenance Services Limited	01/20/2010
Compulink Systems Ltd.	Glodyne Technoserve Limited	12/13/2010
ProLink Holdings Corp.	GPS Industries, LLC	10/16/2009
Starent Networks LLC	Cisco Systems, Inc. (NasdaqGS:CSCO)	12/18/2009
LG Powercom Corporation	LG Uplus Corp. (KOSE:A032640)	01/01/2010
TPO Displays Corp.	Innolux Corporation (TSEC:3481)	03/18/2010
Identive Group AG	Identiv, Inc. (NasdaqCM:INVE)	12/29/2009
Global Village Telecom (Holding) S.A.	Vivendi SA (ENXTPA:VIV)	04/27/2010
Grey Island Systems International Inc.	Webtech Wireless Inc.	10/26/2009
Solar Integrated Technologies, Inc.	Energy Conversion Devices, Inc.	08/19/2009
Datacom Wireless Corporation	BSM Technologies Inc.	09/28/2009
AXS-One Inc.	Daegis Inc.	06/30/2009
Metavante Technologies, Inc.	Fidelity National Information Services, Inc. (NYSE:FIS)	10/01/2009
hi/fn, inc.	Exar Corporation	04/02/2009
Ticketmaster Entertainment LLC	Live Nation Entertainment, Inc. (NYSE:LYV)	01/25/2010
Autonomy Interwoven Inc.	Autonomy Corp. plc	03/16/2009
Digital Fusion, Inc.	Kratos Defense & Security Solutions, Inc. (NasdaqGS:KTOS)	12/24/2008
Napster Inc.	Best Buy Co., Inc. (NYSE:BBY)	10/25/2008
Greenfield Online, Inc.	Microsoft Corporation (NasdaqGS:MSFT)	10/08/2008
Detica Group plc	BAE Systems plc (LSE:BA.)	09/25/2008
ILOG S.A.	International Business Machines Corporation (NYSE:IBM)	11/24/2008
Catalyst Semiconductor, Inc.	ON Semiconductor Corporation (NasdaqGS:ON)	10/10/2008
Concentrix CVG, LLC	Convergys Corporation	08/29/2008
Centillium Communications, Inc.	TranSwitch Corporation (OTCPK:TXCC.Q)	10/24/2008
IONA Technologies Limited	Progress Software Corporation (NasdaqGS:PRGS)	09/12/2008

CNET Media Group	ViacomCBS Inc. (NasdaqGS:VIAC)	06/25/2008
Radyne Corp.	Comtech Telecommunications Corp. (NasdaqGS:CMTL)	08/01/2008
AxisMobile PLC	Synchronica Limited	09/10/2008
Enliven Marketing Technologies Corporation	Digital Generation, Inc.	10/02/2008
Moldflow Corporation	Autodesk, Inc. (NasdaqGS:ADSK)	06/25/2008
TouchStone Capital Group, Inc.	Phoenix Technologies Ltd.	07/01/2008
Ansoft, LLC	ANSYS, Inc. (NasdaqGS:ANSS)	07/31/2008
L-1 Secure Credentialing, Inc.	MorphoTrust USA, LLC.	08/13/2008
Synplicity, Inc.	Synopsys, Inc. (NasdaqGS:SNPS)	05/15/2008
Horizon Technology Group Limited	Avnet, Inc. (NasdaqGS:AVT)	06/27/2008
SYS Technologies, Inc.	Kratos Defense & Security Solutions, Inc. (NasdaqGS:KTOS)	06/28/2008
ICOS Vision Systems Corporation NV	KLA Corporation (NasdaqGS:KLAC)	05/19/2008
The Qt Company AS	Nokia Corporation (HLSE:NOKIA)	06/17/2008
Audible, Inc.	Amazon.com, Inc. (NasdaqGS:AMZN)	03/18/2008
Superscape Group Limited	Glu Mobile Inc. (NasdaqGS:GLUU)	03/21/2008
CODA Ltd.	Unit4 N.V.	03/05/2008
Bioscrypt, Inc.	MorphoTrust USA, LLC.	03/05/2008
Electronic Clearing House, Inc.	Intuit Inc. (NasdaqGS:INTU)	02/29/2008
The MTL Instruments Group Limited	Cooper Industries plc	02/11/2008
AMIS Holdings, Inc.	ON Semiconductor Corporation (NasdaqGS:ON)	03/17/2008
Genesis Microchip Inc.	STMicroelectronics N.V. (ENXTPA:STM)	01/24/2008
Lam Research Holding GmbH	Lam Research Corporation (NasdaqGS:LRCX)	03/11/2008
Activision, Inc.	Activision Blizzard, Inc. (NasdaqGS:ATVI)	07/09/2008
Business Objects S.A.	SAP SE (XTRA:SAP)	01/29/2008
Sokkia Topcon Co., Ltd.	Topcon Corporation (TSE:7732)	01/29/2008
Nanyang Press Holdings BHD	Media Chinese International Limited (SEHK:685)	04/23/2008

3. Deals categorized with strategic intent as “Cost Synergies”:

Target/Issuer	Buyers/Investors	Deal Rationale
MTI Computers and Software Services (1982) Ltd.	M.T.I Wireless Edge Ltd. (AIM:MWE)	Cost-Synergies
ELXSI Corporation	SPX Corporation (NYSE:SPXC)	Cost Synergies
CoAdna Holdings, Inc.	II-VI Incorporated (NasdaqGS:IIVI)	Cost-Synergies, Vertical Integration
Silver Spring Networks, Inc.	Itron, Inc. (NasdaqGS:ITRI)	Building Adjacencies, Technical Capabilities, Integration
Global Sources Ltd.	The Blackstone Group Inc. (NYSE:BX)	Private Equity
Fairpoint Communications, Inc.	Consolidated Communications Holdings, Inc. (NasdaqGS:CNSL)	Market expansion, Cost Synergies
Tecnocom Telecomunicaciones y Energía, S.A.	Indra Sistemas, S.A. (BME:IDR)	Cost Synergies
Applied Micro Circuits Corporation	MACOM Technology Solutions Holdings, Inc. (NasdaqGS:MTSI)	Technical Capabilities, Cost Synergies
EarthLink Holdings Corp.	Windstream Holdings, Inc.	Cost Reductions, Increase scope. Market Expansion
Level 3 Parent, LLC	Lumen Technologies, Inc. (NYSE:LUMN)	Cost Synergies

Warner Media, LLC	AT&T Inc. (NYSE:T)	Cost Synergies
International Datacasting Corporation	Novra Technologies Inc. (TSXV:NVI)	Cost Synergies
Cascade Microtech Inc.	FormFactor, Inc. (NasdaqGS:FORM)	Scale, Market Expansion, Cost-Synergies
TeleCommunication Systems Inc.	Comtech Telecommunications Corp. (NasdaqGS:CMTL)	Technical Capabilities, New Market, Cost Synergies
Rentrak Corporation	comScore, Inc. (NasdaqGS:SCOR)	Consolidation, Technical Capabilities
Webtech Wireless Inc.	BSM Technologies Inc.	Consolidation, Cost Savings
Audience, Inc.	Knowles Corporation (NYSE:KN)	Cost Synergies
Alcatel-Lucent	Nokia Corporation (HLSE:NOKIA)	Cost Synergies, Scale and Scope increase
Orad Hi Tec Systems Ltd.	Avid Technology, Inc. (NasdaqGS:AVID)	Cost Synergies
Freescale Semiconductor, Ltd.	NXP Semiconductors N.V. (NasdaqGS:NXPI)	Cost Synergies
Advanced Photonix Inc.	Luna Innovations Incorporated (NasdaqCM:LUNA)	Cost Synergies
Silicon Image, Inc.	Lattice Semiconductor Corporation (NasdaqGS:LSCC)	Economies of Scale, Cost Synergies
Spansion Inc.	Cypress Semiconductor Corporation	Economies of scale, Cost synergies
World Energy Solutions, Inc.	Enel X North America, Inc.	Cost Synergies
Viasystems Group, Inc.	TTM Technologies, Inc. (NasdaqGS:TTMI)	Cost synergies, Technical Capabilities
Journal Communications, Inc.	The E.W. Scripps Company (NasdaqGS:SSP)	Cost Synergies
Trulia, Inc.	Zillow Group, Inc. (NasdaqGS:ZG)	Cost Synergies
Eventis Corporation	Consolidated Communications Holdings, Inc. (NasdaqGS:CNSL)	Cost Synergies
Measurement Specialties Inc.	TE Connectivity Ltd. (NYSE:TEL)	Cost Synergies, Technical Capabilities
Bull Société Anonyme	Atos SE (ENXTPA:ATO)	Cost Synergies, Technical Capabilities, Market Expansion
DIRECTV, LLC	AT&T Inc. (NYSE:T)	Cost Synergies
Groupe Steria SCA	Sopra Steria Group SA (ENXTPA:SOP)	Cost Synergies
LIN Media LLC	Media General, Inc.	Cost Synergies
ATMI Inc.	Entegris, Inc. (NasdaqGS:ENTG)	Cost Synergies
Mindspeed Technologies Inc.	MACOM Technology Solutions Holdings, Inc. (NasdaqGS:MTSI)	Cost Synergies
Symphony International Solutions Limited	Adslot Limited (ASX:ADS)	Cost Synergies
Fisher Communications, Inc.	Sinclair Broadcast Group, Inc. (NasdaqGS:SBGI)	Cost Synergies
Virgin Media Inc.	Liberty Global plc (NasdaqGS:LBTY.A)	Cost Synergies
Nielsen Audio, Inc.	Nielsen Holdings plc (NYSE:NLSN)	Cost Synergies
Lox Technology Inc.	FLIR Systems, Inc. (NasdaqGS:FLIR)	New Markets, Cost Synergies, Technical Capabilities
Ymobile Corporation	SoftBank Group Corp. (TSE:9984)	Cost Synergies
Wellypower Optronics Corporation	Lextar Electronics Corporation (TSEC:3698)	Cost Synergies
Comverse Technology Inc.	Verint Systems Inc. (NasdaqGS:VRNT)	Cost Synergies
Chingis Technology Corporation	Integrated Silicon Solution Inc.	Technical Capabilities, Cost Synergies
Elster Group SE	Melrose Industries PLC (LSE:MRO)	Consolidation
Tudou Holdings Limited	Youku Tudou Inc.	Cost Synergies
GlobeOp Financial Services S.A	SS&C Technologies Holdings, Inc. (NasdaqGS:SSNC)	Cost Synergies
Vertro, Inc.	Inuvo, Inc. (AMEX:INUV)	Cost Synergies
AECO Technology Co., Ltd.	WPG Holdings Limited (TSEC:3702)	Cost Synergies
Paracon Holdings Ltd.	Adcorp Holdings Limited (JSE:ADR)	Cost Synergies
Techmosa International Inc.	WT Microelectronics Co., Ltd. (TSEC:3036)	Cost Synergies
IntraPower Pty Limited	TPG Corporation Limited	Cost Synergies

Ophir Optronics Ltd.	Newport Corp.	Consolidation
Tele Norte Leste Participacoes S.A.	Oi S.A. (BOVESPA:OIBR4)	Cost Synergies
AQ Interactive Inc.	Marvelous Inc. (TSE:7844)	Cost Synergies
MKS Inc.	PTC Inc. (NasdaqGS:PTC)	Cost Synergies
Zoran Corporation	CSR Limited	Technical Capabilities, Cost Synergies
ICS Group Holdings Inc.	HC2 Holdings, Inc. (NYSE:HCHC)	Cost Synergies
Actel Corporation	Microsemi Corporation	Cost Synergies
ITC DeltaCom, Inc.	EarthLink Holdings Corp.	Technical Capabilities, Cost synergies
Keithley Instruments, Inc.	Danaher Corporation (NYSE:DHR)	Consolidation
Spescom Limited	Jasco Electronics Holdings Limited (JSE:JSC)	Cost Synergies
Qwest Communications International Inc.	Lumen Technologies, Inc. (NYSE:LUMN)	Cost Synergies
Symyx Technologies Inc.	Accelrys Inc.	Cost Synergies
Yosun Industrial Corp.	WPG Holdings Limited (TSEC:3702)	Cost Synergies, Consolidation
COMSYS IT Partners, Inc.	ManpowerGroup Inc. (NYSE:MAN)	Consolidation
MAMA and Company Limited	HMV Group plc	Market Expansion, Cost Synergies
Sorun Corporation	TIS Inc. (TSE:3626)	Consolidation
PIPE Networks Pty Limited	TPG Corporation Limited	Consolidation
i2 Technologies, Inc.	JDA Software Group, Inc.	Consolidation
ProLink Holdings Corp.	GPS Industries, LLC	Consolidation
LG Powercom Corporation	LG Uplus Corp. (KOSE:A032640)	Consolidation
Viasystems Corporation	Viasystems Group, Inc.	Consolidation
TPO Displays Corp.	Innolux Corporation (TSEC:3481)	Consolidation
Goldleaf Financial Solutions, Inc.	Jack Henry & Associates, Inc. (NasdaqGS:JKHY)	Consolidation, Expansion, Cost synergies
Grey Island Systems International Inc.	Webtech Wireless Inc.	Consolidation
Datacom Wireless Corporation	BSM Technologies Inc.	Consolidation
Borland Software Corporation	Micro Focus International plc (LSE:MCRO)	Consolidation, New Market
Tundra Semiconductor Corporation	Renesas Electronics America Inc.	Consolidation, Technical Capabilities
AXS-One Inc.	Daegis Inc.	Consolidation, Technical Capabilities
Metavante Technologies, Inc.	Fidelity National Information Services, Inc. (NYSE:FIS)	Consolidation
CSR Technology Holdings Inc.	CSR Limited	Consolidation
Ticketmaster Entertainment LLC	Live Nation Entertainment, Inc. (NYSE:LYV)	Consolidation
Embarq Corporation	Lumen Technologies, Inc. (NYSE:LUMN)	Cost Synergies
TNS Group Holdings Limited	WPP plc (LSE:WPP)	Cost Synergies
Concentrix CVG, LLC	Convergys Corporation	Cost Synergies
Centillium Communications, Inc.	TranSwitch Corporation (OTCPK:TXCC.Q)	Cost Synergies
Radyne Corp.	Comtech Telecommunications Corp. (NasdaqGS:CMTL)	Cost Synergies
Enliven Marketing Technologies Corporation	Digital Generation, Inc.	Cost Synergies
TriQuint WJ, Inc.	Qorvo US, Inc.	Cost Synergies
AMIS Holdings, Inc.	ON Semiconductor Corporation (NasdaqGS:ON)	New Capabilities. Cost saving.
Nextest Systems Corporation	Teradyne, Inc. (NasdaqGS:TER)	Consolidation. New Capabilities. Growth
Rovi Guides, Inc.	TiVo Corporation	Cost Synergies
Activision, Inc.	Activision Blizzard, Inc. (NasdaqGS:ATVI)	Cost Savings
Sokkia Topcon Co., Ltd.	Topcon Corporation (TSE:7732)	Consolidation.

Nanyang Press Holdings BHD	Media Chinese International Limited (SEHK:685)	Consolidation. New Market
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4. Deals categorized with strategic intent as “Cross Selling”:

Target/Issuer	Buyers/Investors	Deal Rationale
Xcerra Corporation	Cohu, Inc. (NasdaqGS:COHU)	Integration/Cross-sell/Technical Capabilities
CSRA Inc.	General Dynamics Corporation (NYSE:GD)	Customer Acquisition, Technical Capabilities
Com Hem Holding AB (publ)	Tele2 AB (publ) (OM:TEL2 B)	Integration/Technical Capabilities
BroadSoft, Inc.	Cisco Systems, Inc. (NasdaqGS:CSCO)	Cross-Selling, Scope, Integration, Technical Capabilities
Exar Corporation	MaxLinear, Inc. (NYSE:MXL)	Cross-selling, New Markets, Technical Capabilities
Perk Inc.	RhythmOne plc	Cross-sell, Cost Synergies, Complementary products
ASG Group Limited	Nomura Research Institute, Ltd. (TSE:4307)	Cross-Selling
Intersil Corporation	Renesas Electronics Corporation (TSE:6723)	Technical Capabilities, Complementary Products and Services
Fleetmatics Group PLC	Verizon Communications Inc. (NYSE:VZ)	Customer Acquisition/Cross-Selling, Technical Capabilities
Premier Farnell Limited	Avnet, Inc. (NasdaqGS:AVT)	Cross-selling
Hermes Microvision, Inc.	ASML Holding N.V. (ENXTAM:ASML)	Complementary Products, Technical Capabilities, Integration
QLogic Corp.	Cavium, Inc.	Cross-Selling, Extend Scale, Extend Market
LinkedIn Corporation	Microsoft Corporation (NasdaqGS:MSFT)	Cross-Selling
inContact, Inc.	NICE Ltd. (TASE:NICE)	Integration, Technical Capabilities, Cross-selling, Market Expansion
Zhone Technologies Inc.	DZS Inc. (NasdaqCM:DZSI)	Cross Selling
Rofin-Sinar Technologies Inc.	Coherent, Inc. (NasdaqGS:COHR)	Increase Scale, Cross-selling, Technical Capabilities, Complementary Products
Newport Corp.	MKS Instruments, Inc. (NasdaqGS:MKSI)	Expand into adjacent markets, Cross-selling
Heartland Payment Systems, Inc.	Global Payments Inc. (NYSE:GPN)	Cross-sell, Market Expansion, Technical Capabilities
LoJack Corporation	CalAmp Corp. (NasdaqGS:CAMP)	Cross-selling
Fairchild Semiconductor International Inc.	ON Semiconductor Corporation (NasdaqGS:ON)	Complementary Products, Cross-selling
COM DEV International Ltd.	Honeywell International Inc. (NYSE:HON)	Technical Capabilities, Market expansion
King Digital Entertainment plc	Activision Blizzard, Inc. (NasdaqGS:ATVI)	Cross-selling
Constant Contact, Inc.	Endurance International Group Holdings, Inc. (NasdaqGS:EIGI)	Cross-selling
CTI Group (Holdings) Inc.	Enghouse Systems Limited (TSX:ENGH)	Complementary Products, Technical Capabilities
Densitron Technologies plc	Quixant Plc (AIM:QXT)	Cross-selling
Dot Hill Systems Corp.	Seagate Technology plc (NasdaqGS:STX)	Cross-selling, market expansion, technical capabilities
NTELOS Holdings Corp.	Shenandoah Telecommunications Company (NasdaqGS:SHEN)	Cross-Selling,
Micrel Inc.	Microchip Technology Incorporated (NasdaqGS:MCHP)	Cross-Selling
Telecitey Group plc	Equinix, Inc. (REIT) (NasdaqGS:EQIX)	Cross-Selling, Market Expansion, New Markets
iiNet Limited	TPG Corporation Limited	Cross-selling, Market Expansion, New Markets,
Domino Printing Sciences plc	Brother Industries, Ltd. (TSE:6448)	Cross-Selling
Aruba Networks, Inc.	HP Inc. (NYSE:HPQ)	Cross-Selling, Technical Capabilities
Entropic Communications, LLC	MaxLinear, Inc. (NYSE:MXL)	Cross-selling
SS&C Advent	SS&C Technologies Holdings, Inc. (NasdaqGS:SSNC)	Cross-selling, Cost Synergies
Cimatron Ltd.	3D Systems Corporation (NYSE:DDD)	Cross-Selling Technical Capabilities
Amcom Telecommunications Limited	Vocus Group Limited (ASX:VOC)	Cross-Selling
Conversant LLC	Alliance Data Systems Corporation (NYSE:ADS)	Cross-Selling, Technical Capabilities
MICROS Systems, Inc.	Oracle Corporation (NYSE:ORCL)	Cross-Selling
TW Telecom Inc.	Level 3 Parent, LLC	Cross-Selling, Cost Synergies
Connecta AB	Acando AB (publ.)	Cross-Selling
Overland Storage Inc.	Sphere 3D Corp. (NasdaqCM:ANY)	Market expansion, cross-selling, technical Capabilities
Supertex Inc.	Microchip Technology Incorporated (NasdaqGS:MCHP)	Cross-Selling, Cost Synergies, Technical Capabilities
Dynamics Research Corporation	Engility Holdings, Inc.	Market Expansion, Cross-selling
Harris Insights & Analytics	Nielsen Holdings plc (NYSE:NLSN)	Cross-Selling
Aastra Technologies Ltd.	Mitel Networks Corporation	Cross-Selling, Technical Capabilities

Cameleon Software SA	PROS Holdings, Inc. (NYSE:PRO)	Cross-Selling
e-pay Asia Limited	GHL Systems Berhad (KLSE:GHLSYS)	Cross-Selling
Leap Wireless International Inc.	AT&T Inc. (NYSE:T)	Cross-Selling, Market Expansion
Sky High PLC	Tracsis plc (AIM:TRCS)	Cross-Selling
BCD Semiconductor Manufacturing Limited	Diodes Incorporated (NasdaqGS:DIOD)	Cross-selling, Market Expansion
LML Payment Systems Inc.	Digital River Inc.	Cross-Selling, Market Expansion
Kenexa Corp.	International Business Machines Corporation (NYSE:IBM)	Technical Capabilities, Cross-Selling
Psion Holdings Limited	Motorola Solutions, Inc. (NYSE:MSI)	Cross-selling , Market Expansion
Open EC Technologies Inc.	QHR Corporation	Cross-Selling, Market Expansion, Technical Capabilities
X-Rite, Incorporated	Danaher Corporation (NYSE:DHR)	Cross-Selling
Opnext, Inc.	Oclaro, Inc.	Cross-Selling
Taleo Corp.	Oracle Corporation (NYSE:ORCL)	Integration
Synchronica Limited	Myriad Group AG	Market Expansion, Cross-Selling
DemandTec, Inc.	International Business Machines Corporation (NYSE:IBM)	Cross-Selling, Market Expansion, Technical Capabilities
Rightnow Technologies, Inc.	Oracle Corporation (NYSE:ORCL)	Integration/Cross-selling
Bridgewater Systems Corporation	Amdocs Limited (NasdaqGS:DOX)	Technical Capabilities, Cross-selling
Integral Systems, Inc.	Kratos Defense & Security Solutions, Inc. (NasdaqGS:KTOS)	Technical Capabilities, Cross-Selling
Entraction Holding AB	International Game Technology	Cross-Selling, Market Expansion
LoopNet, Inc.	CoStar Group, Inc. (NasdaqGS:CSGP)	Cross-Selling
Verigy, Ltd.	Advantest Corporation (TSE:6857)	Technical Capabilities, Cross-Selling
Isilon Systems, Inc.	Dell EMC	Cross-Selling
Optelecom-NKF Inc.	TKH Group N.V. (ENXTAM:TWEKA)	Cross-Selling
SpiriTel Limited	Daisy Holdings Limited	Cross-Selling
Art Technology Group, Inc.	Oracle Corporation (NYSE:ORCL)	Integration
Intec Telecom Systems Limited	CSG Systems International, Inc. (NasdaqGS:CSGS)	Cross-Selling
Occam Networks, Inc.	Calix, Inc. (NYSE:CALX)	Cross-Selling
Salary.com, Inc.	Kenexa Corp.	Cross-Selling
CyberSource Corporation	Visa Inc. (NYSE:V)	Cross-Selling, Technical Capabilities
Bell Microproducts Inc.	Avnet, Inc. (NasdaqGS:AVT)	Cross-Selling
Techwell LLC	Intersil Corporation	New Market, Cross Sell
Chordiant Software, Inc.	Pegasystems Inc. (NasdaqGS:PEGA)	Cross Selling
Zemblaz NV	The Descartes Systems Group Inc (TSX:DSG)	Cross-Selling
Xenos Group Inc.	Actuate Corporation	Cross Selling
Océ Holding B.V.	Canon Inc. (TSE:7751)	Cross-Selling
Programmed Electrical Technologies Limited	Programmed Maintenance Services Limited	Cross selling, New Market, Expansion
Oracle America, Inc.	Oracle Corporation (NYSE:ORCL)	Technical Capabilities. Cross Selling.
Centennial Communications Corp.	AT&T Inc. (NYSE:T)	Cross-Selling, Market Expansion
AXON Group Limited	HCL Technologies Limited (NSEI:HCLTECH)	Cross-Selling
Napster Inc.	Best Buy Co., Inc. (NYSE:BBY)	Cross-Selling
Eagle Test Systems, Inc.	Teradyne, Inc. (NasdaqGS:TER)	Cross-Selling
Foundry Networks, LLC	Brocade Communications Systems LLC	Cross-Selling, Market Expansion
Hostopia.com Inc.	Deluxe Corporation (NYSE:DLX)	Cross-Selling
Tower US Holdings Inc.	Tower Semiconductor Ltd. (NasdaqGS:TSEM)	Cross-Selling
Optium Corporation	Finisar Corporation	Cross-Selling, Cost Synergies
AxisMobile PLC	Synchronica Limited	Cross-Selling, Cost Synergies
LenovoEMC Ltd	Dell EMC	Cross-Selling
Optio Software, Inc.	Bottomline Technologies (de), Inc. (NasdaqGS:EPAY)	Complementary Products. New Products
SYS Technologies, Inc.	Kratos Defense & Security Solutions, Inc. (NasdaqGS:KTOS)	Cross-Selling
Microsoft Development Center Norway AS	Microsoft Corporation (NasdaqGS:MSFT)	New Capabilities. Talent acquisition. Integration.
Bioscrypt, Inc.	MorphoTrust USA, LLC.	Cross-Selling, Cost Synergies
The MTL Instruments Group Limited	Cooper Industries plc	Cross-Selling

5. Deals categorized with strategic intent as “Scale Up”:

Target/Issuer	Buyers/Investors	Deal Rationale
Fairfax Media Limited	Nine Entertainment Co. Holdings Limited (ASX:NEC)	Scale Up
Atos Syntel Inc.	Atos SE (ENXTPA:ATO)	New Market, Scale-up
CA, Inc.	Broadcom Inc. (NasdaqGS:AVGO)	Customer Acquisition, Technical Capabilities, Ma
Xplore Technologies Corp.	Zebra Technologies Corporation (NasdaqGS:ZBRA)	Scale Up
Artium Group Limited	Pareteum Corporation (NasdaqCM:TEUM)	Scale Up
Microsemi Corporation	Microchip Technology Incorporated (NasdaqGS:MCHP)	Operational and Customer Scale
Avigilon Corporation	Motorola Solutions, Inc. (NYSE:MSI)	New Product Market, Technical Capabilities
UBM plc	Informa plc (LSE:INF)	Scale Up
Regal Entertainment Group	Cineworld Group plc (LSE:CINE)	Scale Up
Cavium, Inc.	Marvell Technology Group Ltd. (NasdaqGS:MRVL)	Product Integration, Market Expansion, Scale
Numerex Corp.	Sierra Wireless, Inc. (TSX:SW)	Customer Acquisition, Technical Capabilities
Hawaiian Telcom Holdco, Inc.	Cincinnati Bell Inc. (NYSE:CBB)	Building Scale, New Market
Covisint Corporation	Open Text Corporation (NasdaqGS:OTEX)	New Market/Market Access, Technical Capabiliti
POW! Entertainment, Inc.	Camsing International Holding Limited (SEHK:2662)	Scale Up
MOCON, Inc.	AMETEK, Inc. (NYSE:AME)	Scale Up
Mobileye N.V.	Intel Corporation (NasdaqGS:INTC)	New Market, Technical Capabilities
Nimble Storage, Inc.	Hewlett Packard Enterprise Company (NYSE:HPE)	Market Expansion, Technical Capabilities, Accele Nimble
Ultratech, Inc.	Veeco Instruments Inc. (NasdaqGS:VECO)	Complementary Technologies, Increases Scale, A
Sapura plc	Hytera Communications Corporation Limited (SZSE:002583)	Market Expansion
IntraLinks Holdings, Inc.	Synchronoss Technologies, Inc. (NasdaqGS:SNCR)	Technical Capabilities, Expand Scale ans Scope, M
BigAir Group Limited	Superloop Limited (ASX:SLC)	Market Expansion, Technical Capabilities
Linear Technology Corporation	Analog Devices, Inc. (NasdaqGS:ADI)	Technical Capabilities, Market Expansion
Tesla Energy Operations, Inc.	Tesla, Inc. (NasdaqGS:TSLA)	Scale Up
Alvarion Ltd. (OTCPK:ALVR.Q)	SuperCom Ltd. (NasdaqCM:SPCB)	New markets, Technical Capabilities, Compleme
United Online, Inc.	B. Riley Financial, Inc. (NasdaqGM:RILY)	Employee's Technical Capabilities, Market Acces
Carmike Cinemas, Inc.	AMC Entertainment Holdings, Inc. (NYSE:AMC)	Market Expansion
Checkpoint Systems Inc.	CCL Industries Inc. (TSX:CCL.B)	Technical Capabilities, Increase Scale
Multi-Fineline Electronix, Inc.	Suzhou Dongshan Precision Manufacturing Co., Ltd. (SZSE:002384)	Accelerate Market Access, New market access fo
LanTroVision (S) Ltd	MIRAIT Holdings Corporation (TSE:1417)	Scale Up
Micronas Semiconductor Holding AG	TDK Corporation (TSE:6762)	Market Expansion, Acquire Human talent
Atmel Corporation	Microchip Technology Incorporated (NasdaqGS:MCHP)	Consolidation, Increase scale
Cable & Wireless Communications Limited	Liberty Global plc (NasdaqGS:LBTY.A)	Increase Scale, Enter new market,
Journal Media Group, Inc.	Gannett Media Corp.	Scale Up
Media General, Inc.	Nexstar Media Group, Inc. (NasdaqGS:NXST)	Market Expansion
Infovide-Matrix S.A.	Asseco Poland S.A. (WSE:ACP)	Scale Up
Pericom Semiconductor Corp.	Diodes Incorporated (NasdaqGS:DIOD)	Market Expansion,
Enables IT Group plc	1Spatial Plc (AIM:SPA)	Technical Capabilities, Market expansion/access
ARRIS Global Ltd.	ARRIS International Limited	Scale Up
Transmode AB (publ)	Infinera Corporation (NasdaqGS:INFN)	New Market
Accumuli Limited	NCC Group plc (LSE:NCC)	New Services and Capabilities, Market Expansion
Axis AB (publ)	Canon Inc. (TSE:7751)	Scale Up

BTU International Inc.	Amtech Systems, Inc. (NasdaqGS:ASYS)	Expand to adjacent markets, Technical Capabilities
Move, Inc.	News Corporation (NasdaqGS:NWSA)	Accelerate Market access, Market Expansion
Orange Spain, Limited	Orange S.A. (ENXTPA:ORA)	Scale Up Adj
Digital Cinema Destinations Corp.	Carmike Cinemas, Inc.	Scale Up
Integrated Memory Logic Limited	Exar Corporation	Market Expansion, Technical Capabilities
Performance Technologies Inc.	Ribbon Communications Inc. (NasdaqGS:RBBN)	Market Expansion, Technical Capabilities
Official Payments Holdings, Inc.	ACI Worldwide, Inc. (NasdaqGS:ACIW)	Market Expansion, Technical Capabilities
Belo Corp.	TEGNA Inc. (NYSE:TGNA)	Scale Up
Epic Data International Inc.	Sylogist Ltd. (TSXV:SYZ)	Market Expansion
Power-One Inc.	ABB Ltd (SWX:ABBN)	Scale Up
Video Futur Entertainment Group S.A.	Netgem SA (ENXTPA:NTG)	Market Expansion
Peer 1 Network Enterprises, Inc.	Cogeco Communications Inc. (TSX:CCA)	Market Expansion, Technical Capabilities
Endace Limited	Emulex Corporation	Market Expansion, New Market
Seesmart Technologies, Inc.	Revolution Lighting Technologies, Inc.	Scale Up
DelSolar Co., Ltd.	United Renewable Energy Co., Ltd. (TSEC:3576)	Scale Up
Twenty20 Media Vision Limited	Porta Communications Plc	Scale Up
Brightpoint Inc.	Ingram Micro Inc.	Market Expansion, Cross-selling, Technical Capabilities
HITT NV	Saab AB (publ) (OM:SAAB B)	Market Expansion
Standard Microsystems Corporation	Microchip Technology Incorporated (NasdaqGS:MCHP)	Market Expansion, Technical Capabilities
SRS Labs, Inc.	DTS, Inc.	Market Expansion
Orange Egypt for Telecommunications S.A.E.	Orange S.A. (ENXTPA:ORA)	Scale Up
Hitachi eBworx Sdn Bhd	Hitachi, Ltd. (TSE:6501)	Market Expansion
Banks.com, Inc	Remark Holdings, Inc. (NasdaqCM:MARK)	Market Expansion/ Scale
SureWest Communications	Consolidated Communications Holdings, Inc. (NasdaqGS:CNSL)	Market Expansion/ Scale
Convio, Inc.	Blackbaud, Inc. (NasdaqGS:BLKB)	Market Expansion, Technical Capabilities
March Networks Corporation	Shenzhen Infinova Limited (SZSE:002528)	Market Expansion, Technical Capabilities
Bitstream Inc.	Monotype Imaging Holdings Inc.	Market Expansion
TesCom Software Systems Testing Ltd.	One Software Technologies Ltd (TASE:ONE)	Scale Up
BigBand Networks, Inc.	ARRIS International Limited	Technical Capabilities, Market Expansion
JM Technology Inc.	Mamezou Holdings Co.,Ltd.	Market Expansion
Chip One Stop Inc.	Arrow Electronics, Inc. (NYSE:ARW)	Market Expansion, Technical Capabilities
PAETEC Holding, LLC	Windstream Holdings, Inc.	Market Expansion, Technical Capabilities
S1 Corporation	ACI Worldwide, Inc. (NasdaqGS:ACIW)	Market Expansion
Radiant Systems, Inc.	NCR Corporation (NYSE:NCR)	Technical Capabilities, Market Expansion
MediaMind Technologies Inc.	Digital Generation, Inc.	Market Expansion
Advanced Analogic Technologies Incorporated	Skyworks Solutions, Inc. (NasdaqGS:SWKS)	Market Expansion, Cross-Selling
ModeLabs Group SA	BigBen Interactive (ENXTPA:BIG)	Market Expansion
1&1 Versatel GmbH	KKR & Co. Inc. (NYSE:KKR)	Market Expansion
Amaya (Alberta) Inc.	The Stars Group Inc.	Scale Up
Level 3 GC Limited	Level 3 Parent, LLC	Scale Up
Burst Media LLC	RhythmOne plc	Scale Up
National Semiconductor Corporation	Texas Instruments Incorporated (NasdaqGS:TXN)	Market Expansion

Ralink Technology, Corp.	MediaTek Inc. (TSEC:2454)	Market Expansion, Technical Capabilities
Qualcomm Atheros, Inc.	QUALCOMM Incorporated (NasdaqGS:QCOM)	New Markets, Technical Capabilities
InfoLogix, Inc.	Stanley Black & Decker, Inc. (NYSE:SWK)	Market Expansion, Technical Capabilities
Hypercom Corporation	VeriFone Systems, Inc.	Market Expansion
Nu Horizons Electronics Corp.	Arrow Electronics, Inc. (NYSE:ARW)	Market Expansion
O.I. Corporation	ITT Inc. (NYSE:ITT)	Scale Up
Mitchell Communication Group Limited	Dentsu International Limited	Market Expansion
Dimension Data Holdings Limited	Nippon Telegraph and Telephone Corporation (TSE:9432)	Technical Capabilities, Market Expansion
Deltek Danmark A/S	Deltek, Inc.	Scale Up
UNIT4 Teta SA	Unit4 N.V.	Scale Up
Wola Info S. A.	Devoteam SA (ENXTPA:DVT)	Market Expansion
Raymarine plc	FLIR Systems, Inc. (NasdaqGS:FLIR)	Market Expansion
Matrikon Inc.	Honeywell International Inc. (NYSE:HON)	Market Expansion, Technical Capabilities
Nstein Technologies Inc.	Open Text Corporation (NasdaqGS:OTEX)	Expansion, New Market
Merrimac Industries, Inc.	Crane Co. (NYSE:CR)	New Market, Technical Capabilities
STARLIMS Technologies Ltd.	Abbott Laboratories (NYSE:ABT)	Technical Capabilities, Market Expansion
3S Industries AG	Meyer Burger Technology AG (SWX:MBTN)	Market Expansion
Windstream Iowa Communications, LLC	Windstream Holdings, Inc.	New Markets
Semitool, Inc.	Applied Materials, Inc. (NasdaqGS:AMAT)	New Markets, New Capabilities
Chi Mei Optoelectronics Corp.	Innolux Corporation (TSEC:3481)	Expansion, New market
Essentially Group Limited	Chime Communications Limited	Expansion, New Market
Identive Group AG	Identiv, Inc. (NasdaqCM:INVE)	New Market, Expansion
Global Village Telecom (Holding) S.A.	Vivendi SA (ENXTPA:VIV)	New Market, Expansion
Marvel Entertainment, LLC	The Walt Disney Company (NYSE:DIS)	New Market, New Capabilities
Solar Integrated Technologies, Inc.	Energy Conversion Devices, Inc.	Consolidation. Expansion
Catapult Communications Corporation	Ixia	New Market. Technical Capabilities, Product Inte
D&E Communications, LLC	Windstream Holdings, Inc.	New Market, Expansion
Zi Corporation	Nuance Communications, Inc. (NasdaqGS:NUAN)	New Market, Technical Capabilities
Autonomy Interwoven Inc.	Autonomy Corp. plc	New Market, Technical Capabilities
Harmonic Video Networks Ltd.	Harmonic Inc. (NasdaqGS:HLIT)	New Markets, Technical Capabilities
People Telecommunications Pty Ltd.	M2 Group Ltd	Market Expansion, Technical Capabilities
Wavecom SA	Sierra Wireless, Inc. (TSX:SW)	Market Expansion
Greenfield Online, Inc.	Microsoft Corporation (NasdaqGS:MSFT)	Market Expansion
Datasul S/A	TOTVS S.A. (BOVESPA:TOTS3)	Market Expansion
Cash Systems Inc.	Everi Holdings Inc. (NYSE:EVRI)	Scale Up
Mediasurface Limited	Alterian plc	Market Expansion
CNET Media Group	ViacomCBS Inc. (NasdaqGS:VIAC)	Market Expansion
Packeteer, Inc.	Blue Coat Systems Inc.	Market Expansion
TouchStone Capital Group, Inc.	Phoenix Technologies Ltd.	Market Expansion
L-1 Secure Credentialing, Inc.	MorphoTrust USA, LLC.	Market Expansion
Synplicity, Inc.	Synopsys, Inc. (NasdaqGS:SNPS)	Market Expansion
Horizon Technology Group Limited	Avnet, Inc. (NasdaqGS:AVT)	Market Expansion
E-TEN Information Systems Co., Ltd.	Acer Incorporated (TSEC:2353)	Market Expansion

ICOS Vision Systems Corporation NV	KLA Corporation (NasdaqGS:KLAC)	Market Expansion
Superscape Group Limited	Glu Mobile Inc. (NasdaqGS:GLUU)	Expansion, New Market. New Capabilities.
CODA Ltd.	Unit4 N.V.	New Markets , New Capabilities. Product Integra
Electronic Clearing House, Inc.	Intuit Inc. (NasdaqGS:INTU)	New Market. New Growth. New Capabilities.
Genesis Microchip Inc.	STMicroelectronics N.V. (ENXTPA:STM)	New Capabilities. Complimentary products.
Lam Research Holding GmbH	Lam Research Corporation (NasdaqGS:LRCX)	New Capabilities. Integration
Business Objects S.A.	SAP SE (XTRA:SAP)	Growth. Expansion. Complimentary Products

6. Deals categorized with strategic intent as “Technical Capabilities”:

Target/Issuer	Buyers/Investors	Deal Rationale
Datawatch Corporation	Altair Engineering Inc. (NasdaqGS:ALTR)	Technical capabilities
JetPay Corporation	NCR Corporation (NYSE:NCR)	Integration/Technical Capabilities
Echelon Corporation	Adesto Technologies Corporation	Technical Capabilities
Radisys Corporation	Reliance Industries Limited (NSEI:RELIANCE)	Technical Capabilities, Integration
Magic Technology Co., Ltd.	Chilisin Electronics Corp. (TSEC:2456)	Technical Capabilities
Newfoundland Capital Corporation Limited	Stingray Group Inc. (TSX:RAY.A)	Technical Capabilities
MuleSoft, Inc.	salesforce.com, inc. (NYSE:CRM)	Technical Capabilities
Oclaro, Inc.	Lumentum Holdings Inc. (NasdaqGS:LITE)	Technical Capabilities
Sky Limited	Comcast Corporation (NasdaqGS:CMCS.A)	Technical Capabilities
Stadium Group plc	TT Electronics plc (LSE:TTG)	Technical Capabilities, Integration
DST Systems, Inc.	SS&C Technologies Holdings, Inc. (NasdaqGS:SSNC)	Technical Capabilities
Pure Technologies Ltd.	Xylem Inc. (NYSE:XYL)	Technical Capabilities
IXYS, LLC	Littelfuse, Inc. (NasdaqGS:LFUS)	Technical Capabilities
Guidance Software, Inc.	Open Text Corporation (NasdaqGS:OTEX)	Technical Capabilities
Sevcon, Inc.	BorgWarner Inc. (NYSE:BWA)	Technical Capabilities
MRV Communications, Inc.	ADVA Optical Networking SE (XTRA:ADV)	Technical Capabilities
CardConnect Corp.	First Data Corporation	Technical Capabilities
ViXS Systems Inc.	Pixelworks, Inc. (NasdaqGM:PXLW)	Technical Capabilities
Intrado Corporation	Apollo Global Management, Inc. (NYSE:APO)	Technical Capabilities
International Road Dynamics Inc.	Quarterhill Inc. (TSX:QTRH)	Technical Capabilities
NetDimensions (Holdings) Limited	Learning Technologies Group plc (AIM:LTG)	Complete solutions, Technical Capabilities
Ixia	Keysight Technologies, Inc. (NYSE:KEYS)	Acquires Talent, Technical Capabilities
Omtool, Ltd.	Upland Software, Inc. (NasdaqGM:UPLD)	Technical Capabilities
TubeMogul, Inc.	Adobe Inc. (NasdaqGS:ADBE)	Technical Capabilities
Datalink Corporation	Insight Enterprises, Inc. (NasdaqGS:NSIT)	Technical Capabilities
Demandware, LLC	salesforce.com, inc. (NYSE:CRM)	Technical Capabilities
FEI Company	Thermo Fisher Scientific Inc. (NYSE:TMO)	Technical Capabilities
PureDepth, Inc.	Aptiv PLC (NYSE:APTIV)	Technical Capabilities
OPOWER, Inc.	Oracle Corporation (NYSE:ORCL)	New Technology

Qualmark Corporation	Espec Corp. (TSE:6859)	Technical Capabilities
Microsemi Storage Solutions, Inc.	Microsemi Corporation	Technical Capabilities
InfoNow Corporation (OTCPK:INOW)	Model N, Inc. (NYSE:MODN)	Technical Capabilities
Daegis Inc.	Open Text Corporation (NasdaqGS:OTEX)	Technical Capabilities
EZchip Semiconductor Ltd.	Mellanox Technologies, Ltd.	Technical Capabilities
Envivio, Inc.	Telefonaktiebolaget LM Ericsson (publ) (OM:ERIC B)	Technical Capabilities, Cross-selling
Yodlee, Inc.	Envestnet, Inc. (NYSE:ENV)	Technical Capabilities
Altera Corp.	Intel Corporation (NasdaqGS:INTC)	Technical Capabilities
Meru Networks, Inc.	Fortinet, Inc. (NasdaqGS:FTNT)	Technical Capabilities
Rally Software Development Corp.	CA, Inc.	Technical Capabilities
Cyan, Inc.	Ciena Corporation (NYSE:CIEN)	Technical Capabilities
Actuate Corporation	Open Text Corporation (NasdaqGS:OTEX)	Technical Capabilities
Elecsys Corporation	Lindsay Corporation (NYSE:LNN)	Technical Capabilities
Sapient Corp.	Publicis Groupe S.A. (ENXTPA:PUB)	Technical Capabilities
Capella Microsystems (Taiwan), Inc.	Vishay Intertechnology, Inc. (NYSE:VSH)	Technical Capabilities, Accelerate Market Access
Hittite Microwave Corporation	Analog Devices, Inc. (NasdaqGS:ADI)	Technical Capabilities
Business Connexion Group Limited	Telkom SA SOC Limited (JSE:TKG)	Technical Capabilities
Aeroflex Holding Corp.	Cobham Limited	Technical Capabilities
PNI Digital Media ULC	Staples, Inc.	Technical Capabilities
Zygo Corporation	AMETEK, Inc. (NYSE:AME)	Technical Capabilities
Intellvisions Software Limited	Aurionpro Solutions Limited (BSE:532668)	Technical Capabilities
Accelrys Inc.	Dassault Systèmes SE (ENXTPA:DSY)	Technical Capabilities, Accelerate Market Access
Symmetricom Inc.	Microsemi Corporation	Technical Capabilities
Volterra Semiconductor Corporation	Maxim Integrated Products, Inc. (NasdaqGS:MXIM)	Technical Capabilities
Sourcefire, Inc.	Cisco Systems, Inc. (NasdaqGS:CSCO)	Technical Capabilities
Active Risk Group Plc	Sword Group S.E. (ENXTPA:SWP)	Technical Capabilities
ExactTarget, LLC	salesforce.com, inc. (NYSE:CRM)	Technical Capabilities
i-design group limited	Cardtronics plc (NasdaqGS:CATM)	Technical Capabilities
Online Resources Corp.	ACI Worldwide, Inc. (NasdaqGS:ACIW)	Technical Capabilities
Intermec, Inc.	Honeywell International Inc. (NYSE:HON)	Technical Capabilities
Retalix Ltd.	NCR Corporation (NYSE:NCR)	Technical Capabilities
Tikit Group plc	BT Group plc (LSE:BT.A)	Technical Capabilities
MIPS Tech, Inc.	Imagination Technologies Group plc	Technical Capabilities
OPNET Technologies, Inc.	Riverbed Technology, Inc.	Technical Capabilities
Cymer, Inc.	ASML Holding N.V. (ENXTAM:ASML)	Technical Capabilities
LBi International NV	Publicis Groupe S.A. (ENXTPA:PUB)	Technical Capabilities
Ditech Networks, Inc.	Nuance Communications, Inc. (NasdaqGS:NUAN)	Technical Capabilities
Nextwave Wireless Inc.	AT&T Inc. (NYSE:T)	Technical Capabilities
AuthenTec, Inc.	Apple Inc. (NasdaqGS:AAPL)	Technical Capabilities
Network Equipment Technologies Inc.	Ribbon Communications Inc. (NasdaqGS:RBBN)	Technical Capabilities
Princeton Security Technologies, Inc.	Thermo Fisher Scientific Inc. (NYSE:TMO)	Technical Capabilities
Ramtron International Corp.	Cypress Semiconductor Corporation	Technical Capabilities
Teledyne LeCroy, Inc.	Teledyne Technologies Incorporated (NYSE:TDY)	Technical Capabilities

Xedar Corporation	IHS Markit Ltd. (NYSE:INFO)	Technical Capabilities
EasyLink Services International Corporation	Open Text Corporation (NasdaqGS:OTEX)	Technical Capabilities
Novellus Systems, Inc.	Lam Research Corporation (NasdaqGS:LRCX)	Technical Capabilities
PPT Vision Inc.	Datalogic S.p.A. (BIT:DAL)	Technical Capabilities
Magma Design Automation LLC	Synopsys, Inc. (NasdaqGS:SNPS)	Technical Capabilities
interclick, inc.	Altaba Inc.	Technical Capabilities
Alterian plc	SDL plc (LSE:SDL)	Technical Capabilities
Visonic Group	Tyco International plc	Technical Capabilities
NetLogic I LLC	Broadcom Corporation	Technical Capabilities
iLinc Communications, Inc.	BroadSoft, Inc.	Technical Capabilities
Autonomy Corp. plc	HP Inc. (NYSE:HPQ)	Technical Capabilities/ Product Extension
Motorola Mobility Holdings, Inc.	Alphabet Inc. (NasdaqGS:GOOG.L)	Technical Capabilities
Paradigm Holdings Inc.	CACI International Inc (NYSE:CACI)	Technical Capabilities
Zarlink Semiconductor Inc.	Microsemi Corporation	Technical Capabilities
EMS Technologies, Inc.	Honeywell International Inc. (NYSE:HON)	Technical Capabilities
Varian Semiconductor Equipment Associates Inc.	Applied Materials, Inc. (NasdaqGS:AMAT)	Technical Capabilities
Spectrum Control, Inc.	API Technologies Corp.	Technical Capabilities
Radial, Inc.	eBay Inc. (NasdaqGS:EBAY)	Technical Capabilities
EnergyConnect Group, Inc.	Johnson Controls International plc (NYSE:JCI)	Technical Capabilities
Endwave Corporation	GigPeak, Inc.	Technical Capabilities, Cost Synergies
Navisite, LLC	Spectrum Management Holding Company, LLC	Technical Capabilities
Terremark Worldwide, Inc.	Verizon Communications Inc. (NYSE:VZ)	Technical Capabilities
Microfluidics International Corporation	IDEX Corporation (NYSE:IEX)	Technical Capabilities
Teledyne DALSA Inc.	Teledyne Technologies Incorporated (NYSE:TDY)	Technical Capabilities
Sonic Solutions LLC	TiVo Corporation	Technical Capabilities
Focus Solutions Group plc	Standard Life Aberdeen plc (LSE:SLA)	Technical Capabilities
Netezza Corporation	International Business Machines Corporation (NYSE:IBM)	Technical Capabilities
ArcSight, Inc.	HP Inc. (NYSE:HPQ)	Technical Capabilities
3M Cogent, Inc.	3M Company (NYSE:MMM)	Technical Capabilities
3Par Inc.	HP Inc. (NYSE:HPQ)	Technical Capabilities
McAfee LLC	Intel Corporation (NasdaqGS:INTC)	Technical Capabilities
FLIR Detection, Inc.	FLIR Systems, Inc. (NasdaqGS:FLIR)	Technical Capabilities
Unica Corporation	International Business Machines Corporation (NYSE:IBM)	Technical Capabilities
Proginet Corporation	TIBCO Software Inc.	Technical Capabilities
Intelek Limited	Teledyne Technologies Incorporated (NYSE:TDY)	Technical Capabilities
Virage Logic Corporation	Synopsys, Inc. (NasdaqGS:SNPS)	Technical Capabilities
Global IP Solutions, Inc.	Alphabet Inc. (NasdaqGS:GOOG.L)	Technical Capabilities
Palm, Inc.	HP Inc. (NYSE:HPQ)	Technical Capabilities
Euphonix, Inc.	Avid Technology, Inc. (NasdaqGS:AVID)	Technical Capabilities/ Product Expansion
Silicon Storage Technology, Inc.	Microchip Technology Incorporated (NasdaqGS:MCHP)	Technical Capabilities
Sirit, Inc.	Federal Signal Corporation (NYSE:FSS)	New Market, Technical Capabilities
California Micro Devices Corporation	ON Semiconductor Corporation (NasdaqGS:ON)	Technical Capabilities
Zilog, Inc.	IXYS, LLC	Technical Capabilities

Compulink Systems Ltd.	Glodyne Technoserve Limited	Technical Capabilities, New Market
Starent Networks LLC	Cisco Systems, Inc. (NasdaqGS:CSCO)	Technical Capabilities
Mentor Graphics Development Services (Israel) Limited	Mentor Graphics Corporation	Technical Capabilities
Avocent Corporation	Emerson Electric Co. (NYSE:EMR)	Technical Capabilities
On2 Technologies Inc.	Alphabet Inc. (NasdaqGS:GOOG.L)	Technical Capabilities
SPSS Inc.	International Business Machines Corporation (NYSE:IBM)	Technical Capabilities
Wind River Systems, Inc.	Intel Corporation (NasdaqGS:INTC)	Technical Capabilities
Nikon Metrology NV	Nikon Corporation (TSE:7731)	Technical Capabilities, Product Integration, Diversification
Data Domain, Inc.	Dell EMC	Technical Capabilities, Product Integration
LogicVision, Inc.	Mentor Graphics Corporation	Technical Capabilities, Product Integration
Vignette Corporation	Open Text Corporation (NasdaqGS:OTEX)	Technical Capabilities, Product Integration
hi/fn, inc.	Exar Corporation	Technical Capabilities
Broca Limited	Broca plc	Technical Capabilities, New Market
Oclaro (North America), Inc.	Oclaro, Inc.	Technical Capabilities
Chalk Media Corp.	BlackBerry Limited (TSX:BB)	Technical Capabilities
Certicom Corp.	BlackBerry Limited (TSX:BB)	Technical Capabilities
Digital Fusion, Inc.	Kratos Defense & Security Solutions, Inc. (NasdaqGS:KTOS)	Technical Capabilities
Secure Computing Corporation	McAfee LLC	Technical Capabilities
Park City Group, Inc.	Park City Group, Inc. (NasdaqCM:PCYG)	Technology Capabilities
SIMTEK Corp.	Cypress Semiconductor Corporation	Technical Capabilities
Detica Group plc	BAE Systems plc (LSE:BA.)	Technical Capabilities
ILOG S.A.	International Business Machines Corporation (NYSE:IBM)	Technical Capabilities
Catalyst Semiconductor, Inc.	ON Semiconductor Corporation (NasdaqGS:ON)	Technical Capabilities
Photon Dynamics, Inc.	Orbotech Ltd.	Technical Capabilities
IONA Technologies Limited	Progress Software Corporation (NasdaqGS:PRGS)	Technical Capabilities
Insightful Corp.	TIBCO Software Inc.	Technical Capabilities
Kintera, Inc.	Blackbaud, Inc. (NasdaqGS:BLKB)	Technical Capabilities
Moldflow Corporation	Autodesk, Inc. (NasdaqGS:ADSK)	Technical Capabilities
Diodes Zetex Semiconductors Limited	Diodes Incorporated (NasdaqGS:DIOD)	Technical Capabilities
Ansoft, LLC	ANSYS, Inc. (NasdaqGS:ANSS)	Technical Capabilities
The Qt Company AS	Nokia Corporation (HLSE:NOKIA)	Technical Capabilities
Audible, Inc.	Amazon.com, Inc. (NasdaqGS:AMZN)	Integration/Technical Capabilities

7. Deals that did not have any data about deal-rationale

Target/Issuer	Buyers/Investors	M&A Closed Date
Music of Your Life, Inc.	The Marquie Group, Inc.	08/16/2018
Convergys Corporation	Concentrix Solutions Corporation	10/05/2018
Bothhand Enterprise Inc	Kaimei Electronic Corp.	11/29/2018
CJ E&M Corporation	CJ ENM CO., Ltd. (KOSDAQ:A035760)	07/01/2018
TI Gotham Inc.	Meredith Corporation (NYSE:MDP)	01/30/2018

Gintech Energy Corporation	United Renewable Energy Co., Ltd. (TSEC:3576)	10/01/2018
Solartech Energy Corp.	United Renewable Energy Co., Ltd. (TSEC:3576)	10/01/2018
Ishii Tool & Engineering Corporation	Future Innovation Group, Inc. (TSE:4392)	06/27/2018
Sibannac, Inc.	Sibannac, Inc. (OTCPK:SNNC)	06/29/2017
Windstream BV Holdings, LLC	Windstream Holdings, Inc.	07/28/2017
Sporever SA	Reworld Media Société Anonyme (ENXTPA:ALREW)	05/29/2017
Macrologic SA	Asseco Business Solutions S.A. (WSE:ABS)	06/16/2017
GigPeak, Inc.	Renesas Electronics America Inc.	04/03/2017
Teledyne e2v Limited	Teledyne Technologies Incorporated (NYSE:TDY)	03/28/2017
Intea Holdings, Inc.	Hikari Tsushin, Inc. (TSE:9435)	02/24/2017
Network Value Components Ltd.	NS Solutions Corporation (TSE:2327)	12/28/2016
DTS, Inc.	Xperi Holding Corporation (NasdaqGS:XPER)	12/01/2016
S4E S.A. (WSE:S4E)	Vicis New Investments S.A.	11/15/2016
SVF HoldCo (UK) Limited	SoftBank Group Corp. (TSE:9984)	09/05/2016
TYO Inc.	AOI TYO Holdings Inc. (TSE:3975)	01/04/2017
ReachLocal, Inc.	Gannett Media Corp.	08/08/2016
Bell MTS Inc.	BCE Inc. (TSX:BCE)	03/17/2017
TiVo Solutions Inc.	TiVo Corporation	09/07/2016
Textura Corporation	Oracle Corporation (NYSE:ORCL)	06/09/2016
ChipMOS TECHNOLOGIES (Bermuda) LTD.	ChipMOS TECHNOLOGIES INC. (TSEC:8150)	10/31/2016
Feeling Technology Corp.	Advanced Analog Technology, Inc. (GTSM:3438)	09/26/2016
Mitsumi Electric Co., Ltd.	MinebeaMitsumi Inc. (TSE:6479)	01/24/2017
Broadcom Corporation	Broadcom Inc. (NasdaqGS:AVGO)	02/01/2016
Scanfil Sweden AB	Scanfil Oyj (HLSE:SCANFL)	06/25/2015
Oath Inc.	Verizon Communications Inc. (NYSE:VZ)	06/23/2015
Maxnerva Technology Services Limited (SEHK:1037)	Hon Hai Precision Industry Co., Ltd. (TSEC:2317)	04/29/2015
Microsemi Communications, Inc.	Microsemi Corporation	04/27/2015
Finzsoft Solutions Limited	Silverlake Axis Ltd (SGX:5CP)	03/30/2015
PILKOR Electronics Co.,Ltd.	COWELL FASHION Co.,Ltd (KOSDAQ:A033290)	04/01/2015
Draftteam Fantasy Sports Inc.	DraftTeam Daily Fantasy Sports Corp.	03/09/2015
WebCrew Inc.	NFC Holdings, Inc. (JASDAQ:7169)	12/18/2014
Infineon Technologies Americas Corp.	Infineon Technologies AG (XTRA:IFX)	01/13/2015
Synergy Marketing, Inc.	Z Holdings Corporation (TSE:4689)	09/24/2014
Tavistock Investments PLC	Tavistock Investments Plc (AIM:TAVI)	05/30/2014
Kadokawa Future Publishing	DWANGO Co., Ltd.	10/01/2014
ASJ Holdings Limited	Ralec Electronic Corporation	07/07/2014
Cirrus Logic International (UK) Ltd.	Cirrus Logic, Inc. (NasdaqGS:CRUS)	08/21/2014
Dassault Systemes 3DExcite GmbH	Dassault Systèmes SE (ENXTPA:DSY)	01/13/2014
Marine Drive Mobile Corp.	Gamzio Mobile, Inc.	10/23/2013
1st Holdings, Inc.	ORIX Corporation (TSE:8591)	05/22/2013
NANO Media, Inc.	Oak Capital Corporation (TSE:3113)	05/21/2013
Advanced Inflight Alliance AG	Global Eagle Acquisition Corp.	01/31/2013
SPIRE, Inc.	UNITED, Inc. (TSE:2497)	12/30/2012
Castleton Technology Holdings Limited	Castleton Technology plc	11/09/2012
Dentsu International Limited	Dentsu Group Inc. (TSE:4324)	03/26/2013
Mercury Commercial Electronics, Inc.	Mercury Systems, Inc. (NasdaqGS:MRCY)	08/08/2012
Accuris Co., Ltd.	Livefinancial Co.,Ltd. (KOSDAQ:A036170)	10/31/2012
Viasystems North America, Inc.	Viasystems Group, Inc.	05/31/2012
Image Entertainment, Inc.	RLJ Acquisition, Inc.	10/03/2012
Hipso Multimedia, Inc.	Buildablock Corp. (OTCPK:BABL)	03/07/2012
Celsys, Inc.	HI Corporation	03/28/2012
Xiring SA	Ingenico Group - GCS (ENXTPA:ING)	12/05/2011
Showa Information Systems Co., Ltd.	Canon Marketing Japan Inc. (TSE:8060)	12/20/2011

Ace & Partners Corp	Ace Technologies Corp. (KOSDAQ:A088800)	12/30/2011
1Spatial Holdings plc	1Spatial Plc (AIM:SPA)	11/25/2011
Kolon I'Networks Corp.	Kolon Global Corporation (KOSE:A003070)	12/29/2011
013 Netvision Ltd	Cellcom Israel Ltd. (TASE:CEL)	08/31/2011
Web Money Corp.	KDDI Corporation (TSE:9433)	07/11/2011
5to1 Holding Corp.	Altaba Inc.	05/27/2011
Cyxtera Data Centers, Inc.	Lumen Technologies, Inc. (NYSE:LUMN)	07/15/2011
Z3 Enterprises Inc.	Cool Technologies, Inc. (OTCPK:WARM)	03/29/2011
Chelsea Minerals Corp	Sennen Potash Corporation (TSXV:SN)	05/13/2011
Mellanox Technologies TLV Ltd.	Mellanox Technologies, Ltd.	02/07/2011
Clever Communications Australia Limited	BigAir Group Limited	02/04/2011
M-net Media Corp	CJ E&M Corporation	03/01/2011
NewGrid Inc.	Smec Co.,Ltd (KOSDAQ:A099440)	02/01/2011
IPS Ltd.	Wonik Holdings Co., Ltd (KOSDAQ:A030530)	12/29/2010
Semco Instruments, Inc.	TransDigm Group Incorporated (NYSE:TDG)	09/03/2010
Coe Group Limited	Thruvision Group plc (AIM:THRU)	08/20/2010
CommScope Connectivity LLC	TE Connectivity Ltd. (NYSE:TEL)	12/08/2010
Rostelecom International Limited	Volgatelecom	06/03/2010
Trimble N.V.	Trimble Inc. (NasdaqGS:TRMB)	07/23/2010
Burntsand Inc.	Open Text Corporation (NasdaqGS:OTEX)	05/27/2010
XploITe plc	1Spatial Plc (AIM:SPA)	04/27/2010
Carso Global Telecom, S.A.B. de C.V.	América Móvil, S.A.B. de C.V. (BMV:AMX L)	06/16/2010
Viasystems Toronto, Inc.	Viasystems North America, Inc.	12/31/2009
Solectron EMS India Limited	Centum Electronics Limited (BSE:517544)	07/16/2010
Bangladesh Online Ltd.	Bangladesh Export Import Company Limited (DSE:BEXIMCO)	08/23/2009
Media EXchange, Inc.	FreeBit Co., Ltd. (TSE:3843)	03/12/2009
Japan Asia Group Limited	Japan Asia Group Limited (TSE:3751)	02/20/2009
UXC Professional Solutions Pty Ltd	DXC United Pty Limited	12/29/2008
Strand Interconnect AB	Addnode Group AB (publ) (OM:ANOD B)	12/21/2008
Nanotex Corporation	Unipulse Corporation	12/02/2008
Canon Electronics Technology Inc.	Canon Electronics Inc. (TSE:7739)	11/17/2008
Polaris Software Lab Inc.	Polaris Consulting & Services Limited	10/30/2008
Point-I Co Ltd	IokCompany Co., Ltd. (KOSDAQ:A078860)	04/01/2009
SpiderNet Services Public Limited	Primetel Plc	11/27/2008
AmaTech AG	SMARTRAC N.V.	05/19/2008
Koma Stadium Co., Ltd.	Toho Co., Ltd. (TSE:9602)	08/25/2008
Credence Systems Corporation	Xcerra Corporation	08/29/2008
Logica Holdings, Inc.	Dolphin Entertainment, Inc. (NasdaqCM:DLPN)	06/23/2008
JumpTV Inc.	NeuLion, Inc.	10/20/2008
IBS OPENSsystems Limited	Capita plc (LSE:CPI)	06/30/2008
Exense Consulting AS	Inmeta ASA	08/18/2008
China Netcom Group Corporation (Hong Kong) Limited	China Unicom (Hong Kong) Limited (SEHK:762)	10/15/2008
Diversified Opportunities, Inc.	Q Technology Group Limited (ASX:QTG)	06/04/2008
Perspecta Enterprise Solutions LLC	HP Inc. (NYSE:HPQ)	08/26/2008
Hyderabad Flextech Ltd.	Keerthi Industries Limited (BSE:518011)	03/31/2010
Blue Chip Computerware, Inc.	The Anviron Holding Company	04/14/2008
Oberthur Technologies AB	IDEMIA France SAS	04/18/2008
Global BPO Services Corp.	Stream Global Services, Inc.	07/31/2008
Vega Consulting Services Limited	Leonardo S.p.a. (BIT:LDO)	01/30/2008
Orient Information Technology Ltd.	Commex Technology Limited (BSE:532342)	12/05/2008
Tomtom Global Content B.V.	TomTom N.V. (ENXTAM:TOM2)	06/27/2008