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Yeon, Soojung

Conference Paper How to be acquired by Google?: Analysis of target firms acquired by Google Inc.

22nd Biennial Conference of the International Telecommunications Society (ITS): "Beyond the Boundaries: Challenges for Business, Policy and Society", Seoul, Korea, 24th-27th June, 2018

Provided in Cooperation with:

International Telecommunications Society (ITS)

Suggested Citation: Yeon, Soojung (2018) : How to be acquired by Google?: Analysis of target firms acquired by Google Inc., 22nd Biennial Conference of the International Telecommunications Society (ITS): "Beyond the Boundaries: Challenges for Business, Policy and Society", Seoul, Korea, 24th-27th June, 2018, International Telecommunications Society (ITS), Calgary

This Version is available at: https://hdl.handle.net/10419/190396

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How to be acquired by Google?: Analysis of target firms acquired by Google Inc.

Soojung Yeon Ph.D. Candidate, Korea University

Abstract

Many technological and digital entrepreneurship called 'start-ups' are being established and gone out of business in the market. There are various routes for start-up success and being acquired by other company is a major option for them as an exit strategy. The purpose of this study is to find out the characteristics of firms which succeed in exit by acquisition. To do so, this study selected Google and analyzed 178 completed acquisitions of Google via two-step cluster analysis using variables drawn from a literature review. The two-step cluster analysis resulted in five clusters among Google's acquisitions. The different characteristics among each cluster are explained and the implication of the study is presented.

Keywords: Acquisition, Exit strategy, Startup, Google, Two-step cluster analysis

1. Introduction

Entrepreneurship is regarded as one of big driving forces of the world these days. Especially, technological and digital entrepreneurship is more of an interest with the rapid development of ICT ecosystem. Often, technological and digital entrepreneurship is called as 'startups' meaning small and medium-sized enterprises focusing on high-tech products and services. Many of today's major ICT firms such as Google, Apple, and Facebook started from a small entrepreneurial firm. Dreaming to become one of them, numbers of startups are being established. According to OECD (2017), the number of new companies created within a year is rising and now has recovered the amount above pre-crisis highs. It is mainly because digital tools are affordable, and platforms are opened to individuals who wish to create micro-enterprise by themselves. However, not all startups succeed in their business and considerably high rate of the startups terminate their business (OECD, 2017). What are the differences between successful and unsuccessful startups? What are the key factors of startup success? This study starts from asking about the core difference between successful and unsuccessful entrepreneurs.

One form on startup success is being acquired by a bigger incumbent. Some researchers have regarded the acquisition as a failure because the entrepreneur is no longer able to manage the business, but recent studies are increasingly considering it as a form of success of entrepreneurship. On the other hand, an acquisition is also an important strategic option for market leading global ICT firms. These firms consider M&A as the main strategy to complement or strengthen current business area and to develop a new market in the future.

Thus, this study focuses on the acquisition of startups which is a successful exit strategy of entrepreneurship. Unlike other exit strategies of a startup, acquisition is unique and can be only accomplished under the condition that both target and acquirer have agreed in the acquisition deal. Many entrepreneurs wish and aim to be acquired but not all achieve the goal. What makes an entrepreneurial firm the target of dominant ICT firms? What should entrepreneur do to be acquired by prominent incumbent, such as Google? This study aims to answer this question by analyzing Google's past acquisitions.

This study consists of following components. First, we will study the conceptual background of entrepreneurship and its exit strategies. Second, theoretical review of acquisition motivations and brief introduction to Google will be given. Third, the methodology will be explained, and the basic analysis of target firms acquired by Google will be presented. Fourth, the result of the analysis of the relationship between Google's target firms and Google will be explained. Lastly, conclusion and implications of the study will be given.

2. Literature Review

2.1. Seller's side: entrepreneurship and exit by acquisition

2.1.1. Entrepreneurship and exit strategies

In the entrepreneurship literature, it had been regarded that establishing a sustainable firm is a success of an entrepreneur and discontinuance of business is a failure. However, recent studies realized that such dichotomous notion of academic field has a big gap between real-world entrepreneurship. Wennberg and DeTienne (2014) pointed out that when entrepreneurs discuss about exit, which is ceasing to continue the business, they tend to describe it "as a dynamic, fluid and critical component of the entrepreneurial process." Entrepreneurs examine various exit routes, develop exit strategies in the early stage of business and seeking to achieve their exit in successful way.

Terms such as 'a portfolio entrepreneur' or 'a serial entrepreneur' are not rare because there are many entrepreneurs who are not hesitant nor reluctant to plan and execute the exit. Thus, this study follows non-dichotomous definition of exit which is 'the process by which the founders of privately held firms leave the firm they helped to create; thereby removing themselves, in varying degree, from the primary ownership and decision-making structure of the firm' (DeTienne, 2010).

On the other hand, DeTienne, McKelvie, and Chandler (2015) pointed out that exit strategy should be discerned from actual exit of a firm. According to their definition, the exit strategy is "the mode through which the entrepreneur intends to exit the firm." It implies that the entrepreneur predicts and prepares for the time when the firm's business should be

discontinued. The exit strategy set forth by an entrepreneur may or may not be realized in planned way and the actual 'exit' occurred could be different from what he expected and hoped to happen (DeTienne et al., 2015).

There are various types of entrepreneurship exit such as liquidation, discontinuance, family succession, employee buyout, IPO, and acquisition by another company (DeTienne et al., 2015; Wennberg, Wiklund, DeTienne, & Cardon, 2010). Among those, this study focuses on acquisition by another company because it is one of major exit strategies pursued by ICT entrepreneurs. Entrepreneurs can sell their company to either competitors or private equity firms. With the expectation to be sold to a bigger company, they develop technology assets that could raise interest of the potential acquirer (Giones, Brem, & Clark, 2017).

Unlike other exit forms (or exit strategies), acquisition is unique and can be only accomplished under the condition that both target and acquirer have agreed in the acquisition deal. This is possible because acquisitions are at some point a function of the 'market for ideas' (Gans & Stern, 2003). Gans & Stern (2003) suggested that startups should evaluate their innovation and decide whether to compete or cooperate. They can choose to compete by commercializing their idea or choose to trade their idea to an incumbent competitor which might result in being acquired by the incumbent. This decision is also up to the incumbent because they are to evaluate and predict whether the innovation from the entrepreneur would be an addition to their business. In this sense, entrepreneurs may expect acquisition as an exit strategy from the starting phase or at one point of their business. However, many entrepreneurs fail to find a good acquirer to realize their exit strategy. Then, what implies a startup an attractive target to the incumbents?

2.1.2. Studies regarding exit by acquisition

Not many studies have specifically dealt with entrepreneurial exit by acquisition but there are some implications worth to discuss regarding this study. Through a literature review four factors are discussed below. (1) firm age (2) entrepreneurial experience and (3) venture capital relatedness, are perceived to be related especially regarding exit by acquisition.

2.1.2.1. Firm age

Cefis & Marsili (2011) pointed out that if entrepreneurial firms are young, they typically lack legitimacy and resources. Younger startups have more possibility to lack ability to protect their own innovation and prevent it from being imitated. To avoid this problem, young firms tend to seek acquisition more than the firms that are aged. Their empirical analysis of data regarding entrepreneurs in Netherlands has confirmed that firms younger that 5 years of establishment are more likely to be acquired by other organization (Cefis & Marsili, 2011).

In contrast, Guo, Lou, & Pérez-Castrillo (2015) argued that startups which remain longer in the acquisition market will be more likely to be acquired because they provide more information to potential acquirers.

2.1.2.2. Entrepreneurial experience

In comparison to novice entrepreneurs who start their own business for the first time, entrepreneurs with prior start-up experience tend to have more knowledge and higher performance goal. This is due to the experiential nature of business management and those experiences let entrepreneurs learn lessons from action (Politis, 2005). They are also more capable of acquiring required resources, skills, abilities and even external financing (Hayward, Forster, Sarasvathy, & Fredrickson, 2010). This leads them to have more growth potential and show more confidence in the success potential of their own business (Hayward et al., 2010; Westhead, Ucbasaran, & Wright, 2003).

Wennberg et al. (2010) analyzed empirical data ranging new knowledge-intensive startups in Sweden and found out that entrepreneurial experience has positive effect on harvest sale which is represented by acquisition. Also, DeTienne and Cardon (2012) hypothesized that entrepreneurs with more entrepreneurial experience will have a higher performance and exit goal such as IPO, acquisition and liquidation. Their survey analysis results showed that experienced entrepreneurs are more likely to seek higher-impact and higher-return exits (DeTienne & Cardon, 2012).

2.1.2.3. Venture capital funding

Entrepreneurial businesses accompany considerable amount of uncertainty. Since startups begin with rough ideas with comparably less experience and little resources, failure rate is high. Because of this uncertainty, startups experience difficulties attaining enough resources to achieve stability of business. To overcome this 'liability of newness (Singh, Tucker, & House, 1986)', entrepreneurs tend to rely on venture capital for funds, human networks, and managerial advice. Venture capitals aim to find and invest in extraordinary startups to make high return on high uncertainty (Chang, 2004). As an essential part of entrepreneurship venturing, venture capital influences when and where new firms are founded as a part of entrepreneurship ecosystem (Zacharakis, Shepherd, & Coombs, 2003).

Ozmel, Robinson, and Stuart (2013) predicted that increase of venture capital funding will increase the probability of startup exit either in form of an initial public offering or an acquisition. Their empirical findings suggested that venture capital activities are associated with possibility of being acquired noting that many cases were small acquisitions by larger acquirers. Moreover, Guo, Lou, & Pérez-Castrillo (2015) distinguished corporate venture capital from independent venture capital and found the different influence it has to entrepreneurial exit. They found that startups financed by corporate venture capital from the same industry are more likely to be acquired.

2.2. Buyer's side: Acquirer's motivation and Google's acquisition

2.2.1. Motivation of acquisition

Acquisition is also a common strategic action among large technological companies nowadays. By acquiring firms like startups, the acquirer could extend the scope of the firm by getting target firm's resources and knowledges into the same umbrella. This is required since the firms need to diversify technology to maintain its competency. However, achieving and keeping pace in technological diversification through internal R&D requires time and cost, and is risky because not all R&D efforts conclude in successful results. If chosen strategically and managed effectively, acquisition is a relatively low-risk and costsaving way to technological diversification (Granstrand, Bohlin, Oskarsson, & Sjöberg, 1992; Mayer & Kenney, 2004; Wagner, 2011).

The motivation of acquirers toward acquisition could be explained in two folds. Wagner (2011) takes March (1991)'s perspective on knowledge creation and applied it to explain two different acquisition motivations. First, acquisition is a way of external technology sourcing for exploitation to acquirers. The acquisition is regarded exploitative if it is related to existing knowledge stock of the acquirer. The goal of the acquisition may include enhancement of technical capability, expansion of product scope, discovery of new market, enhancement of market power, and renewal of existing strategy (Almor, Tarba, & Margalit, 2014; Graebner, Eisenhardt, & Roundy, 2010).

Second, acquisition is another strategy for pursuing innovation as a mode of exploration. An acquisition can be considered exploratory when it is not related to the acquirer's existing stock of knowledge. Acquisition of firms that possess resources and knowledge on unexplored area could act as a connection to ongoing innovation. Since overall innovation pace in high-tech industry is so fast, it is difficult for a firm to catch up every innovation steps through internal R&D. Acquisition allows acquirers to immediately access the knowledge or new area and bring possibility of synergistic gain in innovation (Al-laham, Schweizer, & Amburgey, 2010; Cefis, 2010; Graebner & Eisenhardt, 2004; Hagedoorn & Sadowski, 1999; Wagner, 2011).

Different from target studies, previous literature on acquirers show that technological factor of the target and the fit to the acquirer itself are considered as important determinants of acquisition decision. For example, previous researches argue that target firm similarity to acquiring firm has a positive effect in acquisition decision and post-acquisition performance (Al-laham et al., 2010; Yang, Nam, & Kim, 2018; Yu, Umashankar, & Rao, 2016).

2.2.2. Google's acquisition

This study focuses on acquisitions done by Google, the search engine giant and Internet conglomerate. Acquisition has been one of Google's main strategy since its first acquisition of Deja in 2001. Even though the amount and numbers of acquisition had increases and

decreases, Google has been continuously acquiring businesses and startups during nearly two decades making cumulative acquisitions of over 240 companies which is 14 companies every year on average (See Table 1). As a comparison, Facebook has attempted to acquire average 5.9 companies every year and Apple acquired 4.6 on average. Comparing the number of target firms to other competitors, it can be said that acquisition is an important part of Google's overall business strategy. Facebook and Apple's acquisition number is not small, but Google's acquisition amount is above level.

Table 1. Acquisitions, net of cash acquired, and purchases of intangible assets2008-2017 (in millions \$)¹

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
(3,320)	(108)	(1,067)	(1,900)	(10,568)	(1,448)	(4,888)	(236)	(986)	(287)*
*UTC accessive not reflected									

*HTC acquisition not reflected

Google's former executive chairman Eric Schmidt said that Google regards acquisition as "filling out the gaps in broader strategy" (Tsotsis, 2011). Also, acquisition is a part of research and development and a tool of competition to Google. In expansion of Google's ecosystem and businesses, acquisition remains an important part of Google's strategy to enhance offerings and services.

In 2015, Google announced that it will restructure the company with new conglomerate Alphabet on the top of corporate structure on October 2, 2015. This change into a multinational conglomerate, Alphabet Inc. is partially related to Google's acquisition activity. As acquisition history accumulated, the firms Google acquired diversified into various technological fields seemingly not related to Google's core business, internet search engine and online advertisement. Google was spending much cash for acquisition of multiple businesses and those acquisitions were not directly related to Google's main business, also the acquisitions did not create enough cash flow. Due to these reasons, concerns arose among shareholders of Google. Google addressed this concern by making

¹ Figures from Google Inc. and Alphabet Inc. Annual Report 2008 - 2017.

Google a subsidiary of newly created Alphabet and putting future-oriented firms such as X, CapitalG and GV under the umbrella of Alphabet. By doing so, it could safely guard its main business and also aim for future innovation by acquisition activities and internal R&D. In this regard, Google is a very attractive company for entrepreneurs and researchers to study. It can be useful information for both parties to see what characteristics the target firms have. A lot of previous studies have dealt with acquisition, but it often focuses on the financial performance that occurs after the takeover. It is mainly because researches give more focus on the acquirer and its financial results. However, it should be also important to see which prior factors influence the acquisition decision. By studying the characteristics of the target firms acquired by Google, we would be able to indirectly deduce the unique characteristics that influence the decision to buy. Thus, the research question of this study is as follow.

RQ 1: How are target firms acquired by Google grouped into subgroups?

RQ 2: What are the major characteristics of target firms in each subgroup in terms of firm age, founders entrepreneurial experience, venture capital financing experience and relatedness to Google's business?

3. Research method

This study analyzes the target firms acquired by Google from 2001 to 2017 and pinpoint several factors that explain their success of being acquired. Google is chosen as it is particular in the acquisition of promising start-ups.

To do so, we obtained the list of firms that Google acquired from 2001 to 2017 using Bloomberg terminal only including completed deals. Then, we retrieved information of the target firms from the Crunchbase database, news articles, and company websites. Attributes searched for each deal are target firm name, target value, payment method, TV/EBITDA, target founding date, target business location, target business sector, target specific technology, product, service, number of employees, funding rounds before the acquisition, funding value and funding type. Among these, three variables were selected for the analysis according to the literature review, 1) Firm age 2) Entrepreneurial experience 3) Venture capital financing (see Table 2).

Then I compared the target firm's specialty to Google's products and services at the time of announcement using two different criteria. First, all acquisitions were categorized into two different categories according to the deal's nature. If the target's specialty is related to Google's current (at the moment) product or service, it is denoted 'exploitative' and if the target has what Google did not have at the time, it is denoted 'exploratory'. Also, this study classified targets into three categories following Yang et al. (2018). In their study analyzing Google's acquisitions and its impact on shareholders' value, Yang et al. (2018) categorized the targets according to whether it is related to Google's 1) main business or 2) other business. Then, they categorized main business related targets into 1) platform and 2) non-platform category (see Table 2).

Variable	Description		
Firm Size	Number of Employees		
Firm Age	Years passed after foundation		
Entrepreneurial Experience	Years passed after founders' first founding experience		
Venture Capital Financing	Numbers of rounds on venture capital funding		
Relatedness	Target relatedness to acquirer's current business		
	1) Exploitative		
	2) Exploratory		
Main business	Target relatedness to acquirer's main business		
	1) Platform		
	2) Non-platform		
	3) Others		

Table 2. Target characteristic variables

Using these variables, 2-step cluster analysis was conducted using PASW Statistics 18.0 to see if there are clusters among target firms. Cluster analysis is an efficient method in

classifying large data sets, creating groups and automatically suggesting number of clusters. Among various clustering methods, 2-step cluster analysis was chosen because it can be used to analyze both continuous and categorical variables. Also, 2-step cluster analysis helps to identify the variables making difference in clusters in a single run.

4. Results and Discussion

The 2-step cluster analysis uses auto-clustering algorithm using the Bayes information criterion (BIC) value and distance increase between the two closest clusters. After analyzing 180 targets acquired by Google, the algorithm, which uses the minimized BIC value and the value change between adjacent numbers of clusters as criteria, indicated that a five-cluster solution is the best model (Table 3). The quality of clustering result related to validity and consistency within clusters of data is evaluated using silhouette coefficient. Silhouette coefficient ranges from -1 to +1 and the higher value indicates that each case matches well to its own cluster and matches poor to other cluster. The analysis of Google's target firms showed silhouette coefficient of 0.6 indicating fairly good quality of the automatic clustering.

Number of	BIC	BIC change ^a	Ratio of BIC	Ratio of
clusters			changes ^b	distance
				measures ^c
1	904.117			
2	733.067	-171.049	1	1.471
3	631.641	-101.426	.593	1.393
4	571.967	-59.674	.349	1.369
5	540.929	-31.038	.181	2.417
6	555.337	14.408	084	1.071
7	571.877	16.539	097	1.253
8	594.470	22.593	132	1.118
9	619.590	25.120	147	1.182
10	648.006	28.416	166	1.223

Table 3. Results of auto clustering

^a The changes are from the previous number of clusters in the table.

^b The ratio of changes are relative to the change for the two cluster solution.

^c The ratio of distance measures are based on the current number of clusters against the previous number of clusters.

The table 4 shows the distribution of the cases in the cluster including the number of cases in each cluster. 3 cases were excluded because they lack sufficient data to be grouped into clusters. Remaining 175 cases were grouped into 5 clusters with the biggest cluster making 38.9% of entire target firms and smallest cluster showing 9.1% of share.

Cluster	Number of	% of combined	% of total
	observations	cluster	
1	16	9.1%	9.0%
2	68	38.9%	38.2%
3	29	16.6%	16.3%
4	21	12.0%	11.8%
5	41	23.4%	23.0%
Combines clusters	175	100%	98.3%
Excluded cases	3		1.7%
Total	178		100%

Table 4. Cluster distribution

Table 5 delineates the statistics for each cluster and variable. It also presents the importance ranking of variables which determines characteristics of each clusters.

 Table 5. Relative Ranking of variables for each cluster

Ranking	Variables	Mean/Median Value
1	Firm age	17.81*
2	Entrepreneurial experience	18.06*
3	Venture capital financing	2.0
4	Main business	Other (62.5%)**
5	Relatedness	Exploitative (81.2%)**
Cluster 2 (38.9%)		
Donking	Variables	Moon/Modion Voluo

Ranking	Variables	Mean/Median Value
1	Main business	Other (100.0%)**

2	Firm age	3.56*
3	Relatedness	Exploitative (100.0%)**
4	Entrepreneurial experience	5.41*
5	Venture capital financing	1.37

Cluster 3 (16.6%)		
Ranking	Variables	Mean/Median Value
1	Relatedness	Exploratory (100.0%)**
2	Firm age	3.62*
3	Main business	Other (86.2%)**
4	Venture capital financing	0.97
5	Entrepreneurial experience	6.17*

Cluster 4 (12.0%)		
Ranking	Variables	Mean/Median Value
1	Main business	Non-platform (100.0%)**
2	Relatedness	Exploitative (100.0%)**
3	Entrepreneurial experience	5.19*
4	Firm age	4.05*
5	Venture capital financing	1.33

Cluster 5 (23.4%)		
Ranking	Variables	Mean/Median Value
1	Main business	Platform (100.0%)**
2	Relatedness	Exploitative (100.0%)**
3	Firm age	3.93*
4	Entrepreneurial experience	5.10*
5	Venture capital financing	1.37

* ANOVA test showed significant difference between means value of each variable across each cluster at p < .000.

** Chi-square test showed significant difference among variable across each cluster. (Main business: $\chi^2 = 298.538$, df = 8, p < .000; Relatedness: $\chi^2 = 158.687$, df = 4, p < .000)

The brief profile and interpretation of five resulted clusters are presented below.

- Cluster 1 was the smallest cluster consisting 9.1% of total combined cluster. The most important variable to characterize this cluster was the firm age. Targets in this cluster were 17.81 years old in average. Also, the founders were well experienced in terms of business experience, which was 18.06 years in average. This implies that the targets in this clusters are far from being a startup and more of matured companies.
- 2) Cluster 2 comprised 38.9% of the total targets making it the biggest cluster and was characterized by youngest firms in 'other' business category with exploitative nature. All (100%) target firms in this cluster were in 'other' business category and all were exploitative in relatedness to Google's service. Many firms relatively in young (mean value = 3.56) were acquired and absorbed into Google's organization to strengthen various products and services attached around the Google's platform business. Being the biggest cluster, it shows how Google is juggling numerous balls to provide various services to consumers so that they can continue using Google products and stay on Google's ecosystem.
- 3) Cluster 3, with 16.6% of the targets, characterized by exploratory natured business in 'other' category, low with venture capital funding experience. All targets in this cluster were in exploratory category because their specialties were not directly related to Google's main or peripheral business. These startups were young (mean value=3.62) but the entrepreneurs were not poorly experienced. Showing average entrepreneurial experience of 6.17 which is double of acquired firm's average age, it could be assumed that these entrepreneurs have had experience in exiting the previous firm and succeeded again in exit by acquisition. These targets could show what future field Google is interested in experiments. As discussed above, Google's structure was

reorganized to separate Google's core business and other experimental business making Alphabet a new parent company. This reorganization shows Google's willingness to continue developing new technology and experimenting unusual ideas. This cluster is in line with Google's recent reorganization and show acquisition is an important part in R&D of Google.

- 4) Cluster 4 consisted of 12.0% of the total cluster with targets in non-platform business with exploitative nature. 100.0% of the targets in this cluster were related to non-platform business mainly with advertisement relationship. Also, the acquisition timing of these firms was at the point where they were starting to mature in their business regarding that the firm age was 4.05 in average. Having said that advertisement is Google's main revenue source, the result implies that Google acquires growing advertisement firms which could be potential competitors. By this acquisition, Google can eliminate competition and strengthen its business at the same time.
- 5) Cluster 5 comprised 23.4% of the total targets focusing on platform related and exploitative business which had short entrepreneurial experience. All firms consisting this cluster were related to platform business. No firms from other categories were included in this cluster. The age of targets in cluster 5 were relatively young (mean value=3.93), meaning that Google acquired these firms when the firms were in early stage. Also, the founders in this cluster had shortest entrepreneurial experience. It implies that when new startup emerges in the market with excellent technology or potential regarding platform business, it could catch Google's attention. It also shows that Google has a great focus in platform business and are willing to continuously maintain and enhance the platform as its core business.

5. Conclusion and limitations

What we expected from this study is to sort out major characteristics that explain why certain firms are selected as the acquisition target by global ICT giants. It aimed to give

implications for entrepreneurs who are seeking strategic paths of their start-ups. The cluster analysis resulted in five clusters and major characteristics of each cluster is presented.

The primary implication of this study is that most important factor in entrepreneurship and acquisition is the technological fit of target and acquirer. A lot of previous studies on entrepreneurial exit focused on the innate characteristics of target firms such as firm age, firm size and human resources factors. This study also considered several variables such as firm age, entrepreneurial experience, venture capital funding drew from literature review, but the analysis showed that business relatedness is relatively more important variable in describing common feature of target groups acquired by Google. It highlights simple fact that the acquisition starts from the acquirer's motivation and the acquisition must bring positive effect to acquirer's current business. It is especially true in ICT industry because development pace of technology is so fast and the acquisition provides very convenient way to achieve such development in one shot.

For prospect entrepreneurs who are planning a startup, they should be considering what technology and what core strengths they possess when setting up an exit strategy. For example, if an entrepreneur aims to join Google by founding a startup, it is better to focus on platform rather than online advertisement.

This study is not without limitations. Since this study focused on startups, collecting the data for analysis were not easy. Unlike firms that went public, startup information such as finance and human resource information are not widely available.

Also, entrepreneurship literatures consider various factors including technological, business, organizational, and personal factor. Comparing to other business studies, entrepreneurship study is more influenced by personal factor because many times the entrepreneur takes various roles and have great impact in decision-making (Strese, Gebhard, Feierabend, & Brettel, 2018). However, this study could not take personal factor into account since it used secondary acquisition data from database which does not contain each founder's personal motivation or background.

In the future research, I would like to give more focus on entrepreneurs' personal factors and the acquisition result. Moreover, the scope of acquirer could be stretched unto other ICT firms such as Apple, Facebook and Amazon. Widening the geographical scope such as comparison of US and Korea might give more implication on this issue.

Acknowledgement

This work was supported by the National Research Foundation (NRF) of South Korea grant funded by the Korean government [NRF-2016S1A3A2924760].

References

- Al-laham, A., Schweizer, L., & Amburgey, T. L. (2010). Dating before marriage ? Analyzing the influence of pre-acquisition experience and target familiarity on acquisition success in the "'M & A as R & D "' type of acquisition. https://doi.org/10.1016/j.scaman.2009.11.005
- Almor, T., Tarba, S. Y., & Margalit, A. (2014). Maturing, Technology-Based, Born-Global Companies: Surviving Through Mergers and Acquisitions. *Management International Review*, 54(4), 421–444. https://doi.org/10.1007/s11575-014-0212-9
- Cefis, E. (2010). The impact of M&A on technology sourcing strategies. *Economics of Innovation and New Technology*, *19*(1), 27–51. https://doi.org/10.1080/10438590903016385
- Cefis, E., & Marsili, O. (2011). Born to flip. Exit decisions of entrepreneurial firms in hightech and low-tech industries. *Journal of Evolutionary Economics*, 21(3), 473–498. https://doi.org/10.1007/s00191-010-0210-4
- Chang, S. J. (2004). Venture capital financing, strategic alliances, and the initial public offerings of Internet startups. *Journal of Business Venturing*, 19(5), 721–741. https://doi.org/https://doi.org/10.1016/j.jbusvent.2003.03.002
- DeTienne, D. R. (2010). Entrepreneurial exit as a critical component of the entrepreneurial process: Theoretical development. *Journal of Business Venturing*, 25(2), 203–215. https://doi.org/10.1016/j.jbusvent.2008.05.004
- DeTienne, D. R., & Cardon, M. S. (2012). Impact of founder experience on exit intentions. Small Business Economics, 38(4), 351–374. https://doi.org/10.1007/s11187-010-9284-5
- DeTienne, D. R., McKelvie, A., & Chandler, G. N. (2015). Making sense of entrepreneurial exit strategies: A typology and test. *Journal of Business Venturing*, *30*(2), 255–272.

https://doi.org/10.1016/j.jbusvent.2014.07.007

- Gans, J. S., & Stern, S. (2003). The product market and the market for "ideas": commercialization strategies for technology entrepreneurs. *Research Policy*, 32(2), 333–350.
- Giones, F., Brem, A., & Clark, J. H. (2017). Digital Technology Entrepreneurship : A Definition and Research Agenda, 7(5), 44–51.
- Graebner, M. E., & Eisenhardt, K. M. (2004). The Seller 's Side of the Story : Acquisition as Courtship and Governance as Syndicate in Entrepreneurial Firms Author (s):
 Melissa E . Graebner and Kathleen M . Eisenhardt Source : Administrative Science Quarterly, Vol . 49, No . 3 (Sep ., 2004), *Administrative Science Quarterly*, 49(3), 366–403.
- Graebner, M. E., Eisenhardt, K. M., & Roundy, P. T. (2010). Success and Failure in Technology Acquisitions: Lessons for Buyers and Sellers. *Academy of Management Perspectives*, 24(3), 73–92. https://doi.org/10.5465/AMP.2010.52842952
- Granstrand, O., Bohlin, E., Oskarsson, C., & Sjöberg, N. (1992). External technology acquisition in large multi technology corporations. *R&D Management*, 22(2), 111– 134.
- Guo, B., Lou, Y., & Pérez-Castrillo, D. (2015). Investment, Duration, and Exit Strategies for Corporate and Independent Venture Capital-Backed Start-Ups. *Journal of Economics & Management Strategy*, 24(2), 415–455.
- Hagedoorn, J., & Sadowski, B. (1999). The Transition from Strategic Technology Alliances to Mergers and Acquisitions: An Exploratory Study. *Journal of Management Studies*, *36*(1), 87–107. https://doi.org/10.1111/1467-6486.00127
- Hayward, M. L. A., Forster, W. R., Sarasvathy, S. D., & Fredrickson, B. L. (2010). Beyond hubris: How highly confident entrepreneurs rebound to venture again. *Journal of Business Venturing*, 25(6), 569–578.

- Mayer, D., & Kenney, M. (2004). Economic action does not take place in a vacuum: Understanding Cisco's acquisition and development strategy. *Industry and Innovation*, 11(4), 299–325. https://doi.org/10.1080/1366271042000289333
- OECD. (2017). *Entrepreneurship at a Glance 2017*. Paris: OECD Publishing. https://doi.org/http://dx.doi.org/10.1787/entrepreneur_aag-2017-en
- Ozmel, U., Robinson, D. T., & Stuart, T. E. (2013). Strategic alliances, venture capital, and exit decisions in early stage high-tech firms. *Journal of Financial Economics*, 107(3), 655–670. https://doi.org/10.1016/j.jfineco.2012.09.009
- Politis, D. (2005). The Process of Entrepreneurial Learning: A Conceptual Framework. *Entrepreneurship Theory and Practice*, 29(4), 399–424. https://doi.org/10.1111/j.1540-6520.2005.00091.x
- Singh, J. V, Tucker, D. J., & House, R. J. (1986). Organizational legitimacy and the liability of newness. *Administrative Science Quarterly*, 171–193.
- Strese, S., Gebhard, P., Feierabend, D., & Brettel, M. (2018). Entrepreneurs' perceived exit performance: Conceptualization and scale development. *Journal of Business Venturing*, 33(3), 351–370. https://doi.org/10.1016/j.jbusvent.2018.01.005
- Tsotsis, A. (2011). Eric Schmidt On Google's Acquisition Strategy. Retrieved November 26, 2015, from http://techcrunch.com/2011/07/13/eric-schmidt-on-googles-acquisition-strategy/
- Wagner, M. (2011). To explore or to exploit? An empirical investigation of acquisitions by large incumbents. *Research Policy*, 40(9), 1217–1225. https://doi.org/10.1016/j.respol.2011.07.006
- Wennberg, K., & DeTienne, D. R. (2014). What do we really mean when we talk about "exit"? A critical review of research on entrepreneurial exit. *International Small Business Journal*, 32(1), 4–16. https://doi.org/10.1177/0266242613517126

Wennberg, K., Wiklund, J., DeTienne, D. R., & Cardon, M. S. (2010). Reconceptualizing

entrepreneurial exit: Divergent exit routes and their drivers. *Journal of Business Venturing*, 25(4), 361–375. https://doi.org/10.1016/j.jbusvent.2009.01.001

- Westhead, P., Ucbasaran, D., & Wright, M. (2003). Differences between private firms owned by novice, serial and portfolio entrepreneurs: Implications for policy makers and practitioners. *Regional Studies*, 37(2), 187–200.
- Yang, S. H., Nam, C., & Kim, S. (2018). The effects of M&As within the mobile ecosystem on the rival's shareholder value: The case of Google and Apple. *Telecommunications Policy*, 42(1), 15–23. https://doi.org/10.1016/j.telpol.2017.07.004
- Yu, Y., Umashankar, N., & Rao, V. R. (2016). Choosing the right target: Relative preferences for resource similarity and complementarity in acquisition choice. *Strategic Management Journal*, 37(8), 1808–1825. https://doi.org/10.1002/smj.2416
- Zacharakis, A. L., Shepherd, D. A., & Coombs, J. E. (2003). The development of venturecapital-backed internet companies. *Journal of Business Venturing*, 18(2), 217–231. https://doi.org/10.1016/S0883-9026(02)00084-8