Communication Strategies of Entrepreneurial Organizations in Mobile Apps Industry:
Hidden Communication Prior to Product Launch

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ABSTRACT

This research advances scholarly understanding of the strategic decisions regarding external communication during the critical period of product launch. Drawing on research about dynamic capabilities and external organizational communication, this study examines ways in which entrepreneurial organizations use silence as an effective communication strategy to reduce external uncertainty and to nurture growth during critical periods of development. Data were collected tracking the external communication of 54 entrepreneurial organizations that focus on mobile news application development. Results show a significant relationship between the attention organizations attract after product launch and an organization's performance. The greater the magnitude of change from pre-launch to post-launch, from less frequent external communication to more frequent external communication, the more likely there is to be an increase in the product performance. The findings emphasize a more nuanced understanding of external communication as a strategic tool in entrepreneurial organizations.

KEYWORDS

Attention, Communication Strategy, Entrepreneurial Organization, Product Launch, Strategic Silence

Entrepreneurial Organizations and the Use of Strategic Silence

In recent years organization scholars have emphasized the ways in which organizations secure resources and establish their external reputation (Loonam, Eaves, Kumar, & Parry, 2018). For instance, in an effort to build a favorable reputation, organizations strategize to implement press releases, websites, various advertisements and marketing campaigns (Castelló, Etter, & Årup Nielsen, 2016). Yet the external communication strategy of organizations is far from a straightforward process, especially for new entrants such as entrepreneurial organizations. While external communication focuses on what to communicate to stakeholders (Li, Sikora, Shaw, & Tan, 2006), external communication strategy may also involve a decision to restrict external communication or not communicate at all (Sellers, 2009). Relatively little is known about drivers that lead organizations to strategically reduce external communication outside of periods of crisis (Coombs, 2015; Reilly & Larya, 2018). More specifically,

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there is limited information about whether the degree of external communication is associated with certain organizational stages – particularly during early entrepreneurial periods.

Thus, the central goal of this article is to develop the concept of strategic silence as a component of external communication strategy in entrepreneurial organizations. This article situates strategic silence in the dynamic capabilities framework to answer the questions about why entrepreneurial organizations are adopting strategic silence and when it will lead to favorable performance outcomes. Entrepreneurial organizations often engage in periods of silence; for instance, in "stealth mode" entrepreneurs restrict external information from stakeholders to avoid garnering unwanted attention (stealth mode is an industry term used to refer to a period when an early-stage organization has formed but has not publicly discussed its core products). Indeed, an increasing number of entrepreneurial organizations use "Stealth Mode Startup Company" as their company name on various job platforms such as Glassdoor and Indeed.com to hide their identity while still attracting job applicants. Organizations at this stage face conflicting strategic goals, attempting to gain access to resources while also limiting external attention.

Herein, this study focuses on strategic silence in order to better understand the impact of the absence of communication on product success as an entrepreneurial organization emerges from its formative period of development. Data were collected from 54 mobile news app organizations, examining their communication patterns before and after product launch and their relationship to market attention and product performance. This study has scholarly and practical implications regarding variance in communication strategies for entrepreneurial organizations and other new market entrants. Findings promote understanding of silence in early organizational formation.

Strategic Silence as a Critical Communication Strategy

The continued development of new information communication technologies and the prevalent use of social media make organizations more transparent (Christensen, 2002) and to some extent grants organizations less control over information disclosure. In an environment marked by increasing scrutiny from media, business analysts, and other external stakeholders such as customers, organizations are vulnerable when communicating externally (Desai, 2017), and thus may turn to a strategy of communicative silence. In conceptualizing strategic silence, prior scholarship generally focuses on external pressures that lead to different types of message content in entrepreneurial organizations (Chang, 2014).

Strategic silence operates at the organizational level, where organizations act as one coherent entity to restrict communicate externally with stakeholders. Organizational silence has been defined as "a lack of communication from an organization or its failure to provide clear and adequate responses to questions and concerns raised" (Woon & Pang, 2017, p. 335). But strategic silence is more specifically about an organization's intentional actions to minimize external communication as a strategic communication effort. Strategic silence, when organizations deliberately restrict information disclosure (Le, Teo, Pang, Li, & Goh, 2019), is distinguished from natural silence, when organizations have to remain quiet because of unfavorable situations (Penuel, Statler, & Hagen, 2013).

Strategic silence is a type of strategic ambiguity with the goal of "creating a 'space' in which multiple interpretations by stakeholders are enabled" (Davenport & Leitch, 2005, p. 1604). Conceptualized as a purposeful use of ambiguity to accomplish goals (Eisenberg, 1984), strategic ambiguity has been used to manage competing interests, promote consensus on abstract ideas, and allow diverse interpretations to coexist. Recent studies show that strategic silence is driven by a variety of causes. For instance, some intentionally withhold corporate sustainability certification status to avoid being perceived as hypocritical when their behaviors directly contradict the claims implied by the certification (Carlos & Lewis, 2018). Concealment reduces the chances that stakeholders will be able to access critical information (Scott, 2015).

Resource Orchestration and Strategic Silence

Organizations engage in structuring the portfolio of resources, bundling resources to build capabilities, and leveraging capabilities in the marketplace to achieve resource management (Sirmon, Hitt, & Ireland, 2007). This process of resource orchestration occurs as an organization engages its dynamic capabilities to strategically deploy available resources. In the start-up stage, an entrepreneurial organization focuses on identifying and building resources to increase legitimacy and achieve viability (Miller & Friesen, 1984). Organizations at this stage focus on resource-structuring behaviors that secure legitimacy, including hiring employees (Rutherford, Buller, & McMullen, 2003), obtaining financing (Jawahar & McLaughlin, 2001), and partnering with alliances to access critical resources (Zahra, Filatotchev, & Wright, 2009).

External strategic communication – or the lack of communication – is one such dynamic capability central to resource management. Dynamic capabilities are "the firm's ability to integrate and change resource bases to address changing environments" (McKelvie & Davidsson, 2009, p. S65); this includes idea-generation capabilities, new product development capabilities, new process development capabilities, etc. Dynamic capabilities include three key components- sensing opportunities and threats, seizing opportunities identified, and reconfiguring assets to achieve optimal fitness (Teece, 2007). Strategic silence thus can be framed as a dynamic capability by which an organization protects its scarce resources. The success of an organization's first product marks a milestone in the growth of a new venture (Zhao, Libaers, & Song, 2015). Strong dynamic capabilities can help enable product success, especially when the goal is to pioneer a market or a new product category (Teece, 2012).

In employing dynamic capabilities, organizations use a variety of communication strategies to interact with external stakeholders to foster organizational development (Chang, 2014). Entrepreneurial organizations have distinctive communication patterns because of their informal procedures and rules, as well as their narrow and specific degrees of specialization (Smeltzer & Fann, 1989). The lack of sophisticated procedures and rules in entrepreneurial organizations exposes those organizations to higher levels of uncertainty and ambiguity. At the same time, entrepreneurial organizations must navigate complex communication environments with scare resources. Yet entrepreneurial organizations have the unique potential of creating and maintaining dynamic capabilities (Zahra, Sapienza, & Davidsson, 2006) since small organizational size is associated with flexibility in production and enhanced speed (Chen & Hambrick, 1995). It is critical for entrepreneurial organizations to create flexibility when structuring the resource portfolio to adapt to new situations (Cainarca, Colombo, & Mariotti, 1992).

Organizations may manage their identities and that of their members from various audiences through silence for various reasons (Scott, 2013). These organizations range in their degree of silence – or hiddenness - from transparent to shaded to shadowed to dark (Scott, 2015). The void of communication leaves others to craft perceptions, regardless of whether or not the organization intends for that to occur. Extending the concept to strategic silence, and specifically pre-launch silence, entrepreneurs may strategically use silence for similar purposes. The silence of an organization influences external perception and affects impressions just as any other form of strategic communication; further, as the following discussion outlines, strategic silence can be realized through the way in which an organization manages communicative resources.

Early-Stage Communication

Organizations evolve through a five-stage cycle: birth, growth, maturity, revival and decline stages (Miller & Friesen, 1984). New product development is the foundation stage in the emergence of technology-based entrepreneurial organizations (Yli-Renko & Janakiraman, 2008). Product launch is a climax of new product development, which demands time and financial and managerial investments (Chen, Shen, & Chiu, 2007). The average failure rate of product launch is more than 60% for new products in high-tech industries (Castellion & Markham, 2013).

Pre-launch communication provides an indication of an organization's intentions, motives, and goals to target groups before launching the new product (Heil & Robertson, 1991). It is an ambiguous communication process that is made through a variety of media, such as trade shows, news conferences, company websites, interviews, and speeches (Su & Rao, 2010). While pre-launch communication positively affects performance by developing initial support to promote the market acceptance of innovative products (Lee & O'Connor, 2003), it also comes with risks and deleterious outcomes. Early information disclosure enables competitors to initiate retaliatory responses, such as accelerating the development of comparable products or increasing inventory of competitive products (Schatzel & Calantone, 2006), and can set high expectations that may prove harmful if they are not met (Calantone & Schatzel, 2000). Due to the volatility in the environment, as well as all risks associated with pre-launch communication, strategic silence may help entrepreneurs by protecting valuable product information and allowing an emergent organization a period of incubation.

After officially launching the product, organizations tend to aggressively communicate the positioning of new products to promote product acceptance (Guiltinan, 1999). Post-launch strategic communication helps determine the speed, shape, and reach of the diffusion of new products (Chen, 2011); there is generally a positive relationship between external strategic communication and new product performance (Cooper & Kleinschmidt, 1995). Thus, a change in the amount of external communication between pre-launch and post-launch would enable entrepreneurial organizations to improve the likelihood that their products will achieve better performance upon their launch. This relationship is hypothesized as follows:

H_1: The change in magnitude of communication frequency from product pre-launch to post-launch will be positively associated with the product performance.

Attention, Performance and Strategic Silence

A change in the magnitude of communication signals a strategic choice to communicate more frequently and to guide attention - a scarce resource (Chemmanur & Yan, 2009) - towards an entrepreneurial organization. When approaching attention as a resource, Barber and Odean (2008) argue that strategic options that attract attention are more likely to be employed than alternatives. For example, consumers search for products from organizations that advertise frequently or whose advertisements are more salient (Haan & Gonzalez, 2007). More specifically, in the case of entrepreneurial ventures, scholars note that entrepreneurial ventures need attention from external stakeholders, such as investors and government, to gain legitimacy (Knockaert & Ucbasaran, 2013). With limited relational and reputational capital, attention signals reputation and potential viability, which would open up opportunities for entrepreneurial ventures to connect with advisors, investors, customers and partners. Thus, despite the importance of strategic silence to entrepreneurial organization during early stages, there is generally a positive relationship between performance and attention in the long run:

H_2: Attention received after product launch is positively associated with the product performance.

To protect innovative products and to allow incubation, entrepreneurs may reduce the frequency of communication or disclose less information to the public. For instance, entrepreneurial ventures may engage in silence when developing the products to maximize guerilla effects of subsequent communication efforts (Chen & Hambrick, 1995). The attention that entrepreneurial organizations attract after launch is thus likely to be related to strategic silence during early stages of development. After launch, organizations communicate the product positioning to external audiences to gain market acceptance and to maximize the chances of profitability (Chen, 2011). This relationship is hypothesized as follows:

H_3: The greater the magnitude of the increase in communication frequency from product pre-launch to post-launch, the greater the amount of attention an entrepreneurial organization will attract upon product launch.
H_4: Attention will mediate the positive relationship between the change in external communication and product performance.

Organization Age and Strategic Silence

Organizational age is a central variable for entrepreneurial organizations. Rooted in the liability of newness (Stinchcombe & March, 1965), organizations are most fragile during early stages and develop viability over time (Sapienza, Autio, George, & Zahra, 2006). Nascent organizations face a high degree of mortality due to the challenges associated with establishing legitimacy and gaining access to resources (Hannan, 1998). Younger organizations have access to fewer external resources and are mostly still developing internal capabilities (Arend, 2014). Due to their limited access to labor, finance, and material, younger organizations must avoid unintended or negative outcomes and this pressure could make them more risk-averse in the early stage (Laforet, 2013). Younger organizations thus are more likely to spend effort on maintaining intentional silence before product launch. Therefore, it is hypothesized that:

H_5: The positive relationship between the change in external communication and attention upon product launch will be stronger for younger organizations.
H_6: The positive indirect effect of the change in external communication and attention on product performance will be stronger for younger organizations.

METHODS

This study focuses on the mobile news application (app) marketplace. In the mobile app marketplace, organizations have easy access to global markets through single platforms, such as Apple's App Store and Google's Android market, thus providing a ready dataset for examining the communicative approaches of entrepreneurial organizations. Entrepreneurs have had notable success launching news media apps by tapping into the fast-growing mobile application market to supplement traditional news applications and to grow market share.

Data and Measures

Data were collected from App Annie, which provides market data intelligence for the apps and digital goods industry. This study focused on a one-year period from November 2014 through November 2015. The list of the top 100 most downloaded mobile news apps on IOS on the first of each month (11/1/14-11/1/15) was collected. The resulting dataset contains 54 news app organizations that were founded after 2010.

The organizations in this article provide news and other digital media services via mobile applications. By late 2015, news and magazine apps ranked the second among the ten categories, with a huge app usage growth of 135% (Khalaf, 2016). The trend in digital news consumption prompted legacy news media to develop a variety of mobile news platforms, such as pushed message news alerts tailored to mobile apps (Westlund, 2013). Therefore, news app startups face competition from established organizations in attracting public attention.

Data about the frequency of communication were collected from organizations' social media accounts as well as content publication outlets to capture external strategic communication efforts. Apple App Store provides the data about app age. Crunchbase ("CrunchBase. (n.d.).") provided organization age, and Sensor Tower ("Sensor Tower. (n.d.)., ") was used to approximate product performance, attention, and publisher worth. Google News and WestlawNext were used for data about news coverage. Seven variables were collected, including four main constructs and three control variables.

Change in external communication was measured by calculating the average per quarter difference between pre-launch and post-launch external communication frequency. External communication data were collected from various media channels that entrepreneurial organizations use to disclose information about their product and build brand awareness, including social media and content publication outlets. Compared with traditional communication channels, the use of social media facilitates two-way interaction between organizations and their public.

The lead researcher coded 10% of the organizational communication actions and drafted a coding scheme and codebook. In the codebook definitions of the terms, both the steps to obtain the information and examples were included. The lead researcher then conducted a training with a second coder to clarify the coding scheme and to reconcile any discrepancies in data collection. With a mutually agreed upon coding scheme, two coders counted the number of communicative actions that the 54 organizations had on Facebook, Twitter, and LinkedIn, including posts, comments, and retweets relevant to the apps. Only messages directly from the organization were counted as communicative actions. In addition, the number of YouTube posts, press releases, and company blogs mentioning the app were counted to show intentional external communication efforts on the part of organizations. Data were collected for a four-year window centered on the launch of the app (determined as the date the app was announced as available to the public, regardless of beta status). The pre-launch period refers to the period two years prior to the announcement date; post-launch covers the period two years after the announcement date. Data were aggregated on a quarterly basis, and the quarterly average differences between pre-launch and post-launch were used to calculate the change in external communication frequency.

The dependent variable of approximate product performance measures the estimated app worth based on Sensor Tower's proprietary algorithm. Sensor Tower is a website that focuses on mobile app intelligence; the company analyzes the performance iOS and Google Play app stores. The estimated app worth accounts for factors such as the number of users (on a country basis, multiplied by country app market value), estimated revenue as a ranking (normalized by country and category), user reviews on a per country basis, and recent user growth compared to historical growth (Kimura, 2013). This aggregate measure focuses on the performance of the app itself rather than performance of the organization; approximated performance is used based on the availability of data in combination with the design to measure approximate success in garnering attention within the marketplace.

Organization age measures the age of the organization from its founding until December 31, 2015. Founding dates were collected from the company's information page on its website; if a date was not available on the website, the date was taken from Crunchbase.

Attention was measured using Sensor Tower's proprietary visibility score. The visibility score measures an app's overall prominence in keyword searches (the number of competing apps for a particular keyword), chart rankings (current ranking position for a keyword), difficulty (the popularity of apps including reviews and ratings) and traffic (e.g., autosuggestion when typing in the store, frequency of word usage in common crawl data, etc.). Since the visibility score focuses on an app's rankings, it is a specific metric to quantify the progress of App Store Optimization (ASO) and compare apps within the same niche. The visibility score is used to measure the visibility of the apps in the US.

Three variables were included as control variables: app age, publisher worth, and change in news coverage. App age refers to the time since the apps launched, measured up until December 31, 2015. Publisher worth measures the aggregated app values of all the apps developed by the organization. Publisher worth was collected from the app publisher profile on Sensor Tower on December 31, 2015. Two sources were used to collect data on news coverage. Google News is a news aggregator that includes content from more than 25,000 publishers. WestlawNext is an online legal research platform that provides access to more than 40,000 databases. The amount of news coverage was aggregated from these two platforms, including the total number of news mentions about either the app or the company. Change in news coverage measures the difference between pre-launch and post-launch news coverage for newspapers, magazines, journals, etc. We used the quarterly average differences between pre-launch and post-launch to calculate change in news coverage.

ANALYSIS

A paired samples t-test was conducted to examine the mean difference between two time periods: product pre-launch and post-launch of entrepreneurial organizations. This test was used on all of the media channels included in this study: Twitter, Facebook, LinkedIn, YouTube, Press Releases, Blogs, Google News and WestlawNext. Results of the paired-samples t-test demonstrate that the mean external communication frequency differs between pre-launch and post-launch for seven out of eight media channels at $p = .00$. For LinkedIn, the paired t-test results showed that the mean difference was not significant. Thus, LinkedIn data were dropped from the social media channel list and were excluded from the change of external communication variable.

A sequential multiple regression was performed to explore the relationships among the changes of external communication, organization age, and attention. In Step 1, the three control variables were entered to predict dependent variable attention. In Step 2, the two main constructs, change in external communication and organization age, were added to the model. In Step 3, the interaction term between change in external communication and organization age was created and entered in the regression model to predict the moderating model. Variables were centered to avoid potentially problematic high multicollinearity with the interaction term (Aiken, West, & Reno, 1991).

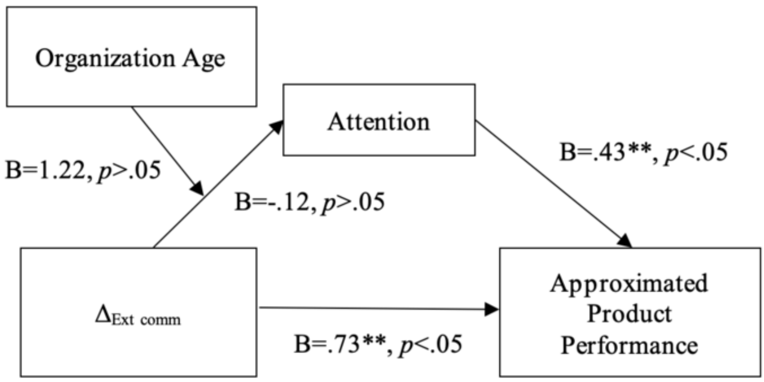
Conditional process modeling was used to examine whether or not the mediating link between change of external communication and product performance is conditioned by a moderating variable organization age. Hayes's (2015) SPSS PROCESS macro helps test the model that includes the direct and indirect effect of change of external communication on product performance. This study used Hayes's Model 7 in testing the moderated mediation. 5,000 re-samples of the data were drawn at a 95% confidence interval to estimate the hypothesized effects.

RESULTS

The conditional process model tested the relationships between product performance, change in external communication, attention and organization age. The results show that the whole set of predictors contributes to a significant degree of variance in product performance of entrepreneurial organizations in the mobile app industry ($R^2=.54$, $F=29.89$, $p<.01$). As shown in Figure 1, change of external communication showed a significant positive direct effect on the dependent variable product performance ($B=.73$, $p<.05$). Entrepreneurial organizations that reduce the frequency of communication during the pre-launch period and then increase it significantly during post-launch tend to have better app performance. In other words, with similar communicative presences on social media and the company website after officially launching the product, the pre-launch silence of these entrepreneurial organizations contributes significantly to their product performance. Thus, H_1 was supported.

In the conditional process model, attention was significantly and positively correlated with product performance ($B=.43$, $p<.05$). The more attention the organization attracts post-launch, the better the performance. Thus, H_2 was supported. However, change of external communication demonstrated a non-significant negative relationship with attention ($B=-.12$, $p>.05$). The sequential multiple regression model, presented in Table 1, shows that change of external communication, organization age, and the three control variables together did not significantly predict attention (Model 3, $R^2=.17$, $F=1.60$, $p>.05$). Change in external communication reported a non-significant negative relationship with attention. H_3 was not supported. The Sobel test demonstrated that the indirect effect of change of external communication on product performance through attention was not significant ($B=-.40$,

Figure 1. Diagram of the conditional process model



p>.05). H_4 was not supported. Change of external communication did not interact with organization age to significantly predict attention (Model 3, B=.38, p>.05). Model 3 has a Δ R^2 of .01 compared to model 2; the positive relationship between change of external communication and attention is not stronger for younger organizations. H_5 was not supported. Also, with organization age as covariate in the proposed moderated mediation model, change of external communication did not significantly predict attention (R^2=.17, F=1.42, p>.05). Organization age does not moderate the indirect relationship between change of external communication and product performance. Therefore, H_6 was not supported.

Table 1. Sequential multiple regression analyses predicting attention (N=54)

Variable	Model 1	Model 2	Model 3
App age	.14	.10	.10
Publisher worth	.03	.03	.02
$\Delta_{\text{News Coverage}}$	.16	.11	.12
Organization age (A)		1.15	-.52
$\Delta_{\text{Ext Comm}}$ (B)		-.20	.15
A x B			.38
Δ R^2	-	.05	.01
R^2	.11	.16	.17

Standardized beta coefficients are reported.

DISCUSSION

The findings from this study show that strategic silence can have an integral role as a strategic tool in the formational stages of entrepreneurial organizations. Findings suggest that a lack of communication provides a strategic veil that allows the organization to develop without public scrutiny, as evidenced by the fact that the degree of change of external communication is significantly associated with product performance. Entrepreneurial organizations that are silent prior to product launch and then actively communicate through both their website and social media channels are more likely to achieve product success.

Further, the findings from this study support the notion that formal pre-launch communication is associated with the risks of disclosing information to competitors, constraining the flexibility of product development, and attracting the scrutiny of regulatory agencies (Schatzel & Calantone, 2006). When there is a need to reduce the volume of external information, selective disclosure becomes a strategic issue for organizations (Austin & Pinkleton, 2015). These findings also echo a prior insight that organizations with low credibility are better served by announcing the launch later or not at all to avoid skepticism and scrutiny from the public (Su & Rao, 2010). By examining the pre-launch communication on various social media platforms, this study demonstrates the significance of external communication in influencing the resources and competitiveness of entrepreneurial organizations.

In the mobile apps industry, entrepreneurs make strategic decisions by considering broader changes to the environment and, in turn, configuring informational resources for effective public interaction. While the acquisition and deployment of key technological skills, financial capital, and social ties set the foundation for an entrepreneurial organization's capabilities or competitive advantages, it is important that entrepreneurs develop dynamic capabilities to create flexibility and allow adaptation. Strategic silence as an external communication approach can be harnessed to protect and extend the core knowledge base.

The finding from H_2 confirms that attention after product launch is positively associated with approximate product performance. The attention that an app gets in the app store conveys its popularity and reputation in the app market and opens up opportunities for entrepreneurs to connect with stakeholders and resources. However, while attention contributes to product performance, the change of external communication had a stronger effect on approximate product performance.

It was hypothesized that the communication strategies of entrepreneurial organizations are contingent upon their age such that the younger the organizations, the more likely they are to adopt intentional silence at the product development stage to protect valuable and imitable information. Our results do not support this argument; there is no significant effect of organization age on their external communication strategies, attention, and product performance. One possible reason is that organizations in this sample are relatively young and there was not sufficient variance to replicate findings from prior research, but this remains an open question.

Theoretical Implications

Strategic silence was framed as a critical communication strategy in the early stage of product development. Further, the framework of dynamic capabilities was used to understand strategic silence as a resource-structuring behavior. Our work adds knowledge to the intersection of communication and entrepreneurship, and to prior research on the impact of external communication, resources, and capabilities on organization emergence in several ways. First, while scholars have pointed out the possible risks and deleterious outcomes of pre-launch communications (Su & Rao, 2010), few attempts have been made to understand how organizations cope with those negative effects of external communication, particularly in an industry still in a formative period and having a high failure rate. Results show that the use of strategic silence as a communication strategy to promote market acceptance of new products and to nurture the growth of entrepreneurial organizations before they officially enter the market can help to improve approximate product performance.

Second, this study emphasizes an organization's intangible resources as a critical advantage in managing external relationships with suppliers, customers, investors, and advisors. Organizational silence is an important external communication strategy to manage outward information. Hence, when entrepreneurial organizations cannot control the conditions necessary for achieving positive outcomes, they can engage strategic silence to gain independence from the environment.

Third, although the emergence of entrepreneurial organizations hinges upon external resources such as economic circumstances, informal connections, and the assistance of various stakeholders, it is ultimately the entrepreneurs who shape a business opportunity (Shaver & Scott, 1991). Strategic silence prior to product launch combined with active engagement in external communication after product launch offers entrepreneurial organizations competitive advantages in protecting valuable information while also nurturing product development. The use of different communication strategies exhibits the dynamic capability of entrepreneurial organizations to manage information disclosure.

Finally, while scholars have approached the topics of strategic ambiguity and external information communication using interpretive methods such as single case study (Dickinson-Delaporte, Beverland, & Lindgreen, 2010) and qualitative content analysis (Álvarez, Merino, & Álvarez, 2015), we offer a quantitative addition to the interpretive studies to help move toward a more holistic view of the relationships among different concepts in entrepreneurial communication practices.

Managerial Implications

The study of communication strategy and its impact on entrepreneurial success is timely, as the mobile apps industry has become increasingly competitive and saturated since 2010 (Rakestraw, Eunni, & Kasuganti, 2013). According to industry data, there are more than 30,000 new apps submitted to the iTunes App store alone each month (Clement) and the number of developers involved with mobile apps development reached 12 million in 2016 (Corporation, 2016). With a clear trajectory for future growth, there is a practical need to better understand the strategies that enable entrepreneurial organizations to attract customers and build their legitimacy.

In practice, this study offers insight as to how organizations navigate the path to resource mobilization that can enable entrepreneurs to enhance the effectiveness of information disclosure. The theories and principles of business strategy endorse using external communication such as employer branding, customer interaction and stakeholder engagement to help establish legitimacy for the new entrants (Moser, Tumasjan, & Welpe, 2015). However, in an increasingly saturated industry entrepreneurs may want to rethink their approach to obtaining resources and attracting customers. While external audiences want information, they generally have a limited capacity for processing information and may not be able to understand unrestricted communication (Christensen, 2002). In fact, an increase in the sheer availability of information about an organization does not necessarily lead to an improved perception of the organization by external stakeholders (Jahansoozi, 2007).

Operating in secrecy can enable entrepreneurs to focus on capability building and product development without focusing on branding and public relations. The findings suggest that an entrepreneur's use of strategic silence becomes increasingly important when the organization is developing disruptive products or services. Customers' knowledge of the product or organization may positively contribute to their purchasing decision (Shepherd & Zacharakis, 2003), but the communication momentum built upon product launch plays a critical role in their product adoption. A strategic veil of silence provides entrepreneurial organizations with the time needed to secure access to resources and to build momentum to enter the public space. Therefore, entrepreneurs should manage the timing of their efforts in shaping stakeholders' knowledge and consider options including strategic silence as part of the communicative portfolio.

This study also provides valuable insights into how entrepreneurs in mobile app industry can leverage data-driven marketing intelligence platform such as Sensor Tower to monitor market trends and assess product performance.

LIMITATIONS AND FUTURE RESEARCH

The first limitation is that attention and approximated product performance in this study were measured based on data from a single source. The approximation of product performance relies on a proprietary measure from Sensor Tower; it is important to note that this measure is used as an approximate and may not capture actual fiscal performance. Sensor Tower has advantages in using ranking algorithms that combine the data from various sources to improve the visibility of mobile apps in the iOS app store and the Google Play store, which are the main platforms app developers currently use to compete and make profits. However, data from Sensor Tower may not encompass all the market information relevant to certain products.

Further, the findings may lack generalizability due to the limited number of cases studied and the fact that it only focused on the mobile news apps industry in the high-tech sector. Different products require different communication strategies and organizational silence may not be effective for all products. In addition, the external communication frequency measured in this study did not capture the nature of the posts or comments that were made on various social media channels or company websites. Knowledge of external communication strategies might be limited without differentiating the nature of communicative messages, the target stakeholders, and the relative value of communication on various channels in this study.

Future research should explore the external communication strategies of entrepreneurial organizations in different contexts to develop a better understanding of the relationship among organizational silence, attention, and product performance. For example, based on contingency theory, high technological and market uncertainties might influence the relationship between communication strategies and product success (Chang, 2014). Entrepreneurial organizations in non-profit or local entertainment industries might have very different social media presence and their organizational success might be contingent on very different stakeholder relationships. Future studies could also use content analysis to differentiate the functional information and the emotional information that organizations provide on various channels in examining which type of information contributes more to increase public acceptance of and interest in new products.

CONCLUSION

In a turbulent business environment with increasing scrutiny of media and strong focus on product innovation, organizations are vulnerable when engaging in external communication. This study offers empirical evidence in exploring the role of strategic silence in external communication. Organizational silence during the early stage of development enables entrepreneurial organizations to reduce transparency of the product and manage competing interests among stakeholders. Staying hidden provides entrepreneurial organizations the time needed to access resources and to build momentum to enter the market. Entrepreneurs are advised to manage informational resources according to different stages of development and to adjust their communication strategies based on the changing business environment.

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REFERENCES

Aiken, L. S., West, S. G., & Reno, R. R. (1991). Multiple regression: Testing and interpreting interactions. *Sage (Atlanta, Ga.)*.

Álvarez, A. M. O., Merino, M. T. G., & Álvarez, M. V. S. (2015). Information: The source of entrepreneurial activity. *Social Sciences Information. Information Sur les Sciences Sociales*, *54*(3), 280–298. doi:10.1177/0539018415580879

Arend, R. J. (2014). Entrepreneurship and dynamic capabilities: How firm age and size affect the 'capability enhancement–SME performance'relationship. *Small Business Economics*, *42*(1), 33–57. doi:10.1007/s11187-012-9461-9

Austin, E. W., & Pinkleton, B. E. (2015). *Strategic public relations management: Planning and managing effective communication campaigns* (Vol. 10). Routledge. doi:10.4324/9781315754833

Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *Review of Financial Studies*, *21*(2), 785–818. doi:10.1093/rfs/hhm079

Cainarca, G. C., Colombo, M. G., & Mariotti, S. (1992). Agreements between firms and the technological life cycle model: Evidence from information technologies. *Research Policy*, *21*(1), 45–62. doi:10.1016/0048-7333(92)90026-Z

Calantone, R. J., & Schatzel, K. E. (2000). Strategic foretelling: Communication-based antecedents of a firm's propensity to preannounce. *Journal of Marketing*, *64*(1), 17–30. doi:10.1509/jmkg.64.1.17.17990

Carlos, W. C., & Lewis, B. W. (2018). Strategic silence: Withholding certification status as a hypocrisy avoidance tactic. *Administrative Science Quarterly*, *63*(1), 130–169. doi:10.1177/0001839217695089

Castellion, G., & Markham, S. K. (2013). Perspective: New Product Failure Rates: Influence of A rgumentum ad P opulum and Self-Interest. *Journal of Product Innovation Management*, *30*(5), 976–979. doi:10.1111/j.1540-5885.2012.01009.x

Castelló, I., Etter, M., & Årup Nielsen, F. (2016). Strategies of legitimacy through social media: The networked strategy. *Journal of Management Studies*, *53*(3), 402–432. doi:10.1111/joms.12145

Chang, C.-L. (2014). Entrepreneurial Orientation, Communication Strategies, and New Product Success: A Theoretic Model. *2014 Global Marketing Conference at Singapore Proceedings*.

Chemmanur, T. J., & Yan, A. (2009). Advertising, attention, and stock returns. *Attention, and Stock Returns*.

Chen, S., Shen, C.-C., & Chiu, W.-Y. (2007). Marketing communication strategies in support of product launch: An empirical study of Taiwanese high-tech firms. *Industrial Marketing Management*, *36*(8), 1046–1056. doi:10.1016/j.indmarman.2006.08.002

Chen & Hambrick. (1995). Speed, stealth, and selective attack: How small firms differ from large firms in competitive behavior. *Academy of Management Journal, 38*(2), 453-482.

Chen. (2011). Integrated Marketing Communications and New Product Performance in International Markets. *Journal of Global Marketing, 24*(5), 397-416.

Christensen. (2002). Corporate communication: The challenge of transparency. *Corporate Communications: An International Journal, 7*(3), 162-168.

Clement, J. (n.d.). *Number of applications submitted to the iTunes App Store 2008-2020.* Statista. Retrieved from https://www.statista.com/statistics/268250/applications-for-release-of-developer-apps/

Coombs, W. T. (2015). The value of communication during a crisis: Insights from strategic communication research. *Business Horizons*, *58*(2), 141–148. doi:10.1016/j.bushor.2014.10.003

Cooper, R. G., & Kleinschmidt, E. J. (1995). Performance typologies of new product projects. *Industrial Marketing Management*, *24*(5), 439–456. doi:10.1016/0019-8501(95)00034-8

Corporation, E. D. (2016). *Mobile developer population reaches reaches 12M worldwide, expected to top 14M by 2020.* Evans Data. Retrieved from https://evansdata.com/press/viewRelease.php?pressID=244

CrunchBase. (n.d.). Retrieved from https://www.crunchbase.com/

Davenport, S., & Leitch, S. (2005). Circuits of power in practice: Strategic ambiguity as delegation of authority. *Organization Studies*, *26*(11), 1603–1623. doi:10.1177/0170840605054627

Desai, V. (2017). Collaborative Stakeholder Engagement: An Integration between Theories of Organizational Legitimacy and Learning. *Academy of Management Journal*, *61*(1), 220–244. doi:10.5465/amj.2016.0315

Dickinson-Delaporte, S., Beverland, M., & Lindgreen, A. (2010). Building corporate reputation with stakeholders: Exploring the role of message ambiguity for social marketers. *European Journal of Marketing*, *44*(11/12), 1856–1874. doi:10.1108/03090561011079918

Eisenberg, E. M. (1984). Ambiguity as strategy in organizational communication. *Communication Monographs*, *51*(3), 227–242. doi:10.1080/03637758409390197

Guiltinan, J. P. (1999). Launch strategy, launch tactics, and demand outcomes. *Journal of Product Innovation Management*, *16*(6), 509–529. doi:10.1111/1540-5885.1660027

Haan, M., & Gonzalez, J.-L. M. (2007). *Advertising for Attention*. Academic Press.

Hannan, M. T. (1998). Rethinking Age Dependence in Organizational Mortality: Logical Fromalizations. *American Journal of Sociology, 104*(1), 126-164.

Heil, O., & Robertson, T. S. (1991). Toward a theory of competitive market signaling: A research agenda. *Strategic Management Journal*, *12*(6), 403–418. doi:10.1002/smj.4250120602

Jahansoozi, J. (2007). Organization–public relationships: An exploration of the Sundre Petroleum operators group. *Public Relations Review*, *33*(4), 398–406. doi:10.1016/j.pubrev.2007.08.006

Jawahar, I., & McLaughlin, G. L. (2001). Toward a descriptive stakeholder theory: An organizational life cycle approach. *Academy of Management Review*, *26*(3), 397–414. doi:10.2307/259184

Khalaf, S. (2016). *Media, productivity & emojis give mobile another stunning growth year*. Retrieved from https://www.flurry.com/post/136677391508/stateofmobile2015

Kimura, H. (2013). *Get the estimated value of any iOS app with app profile pages*. Retrieved from https://sensortower.com/blog/find-out-the-estimated-value-of-any-app-store-app-with-our-new-app-profile-pages

Knockaert, M., & Ucbasaran, D. (2013). The Service Role of Outside Boards in High Tech Start-ups: A Resource Dependency Perspective. *British Journal of Management*, *24*(1), 69–84. doi:10.1111/j.1467-8551.2011.00787.x

Laforet, S. (2013). Organizational innovation outcomes in SMEs: Effects of age, size, and sector. *Journal of World Business*, *48*(4), 490–502. doi:10.1016/j.jwb.2012.09.005

Le, P. D., Teo, H. X., Pang, A., Li, Y., & Goh, C.-Q. (2019). When is silence golden? The use of strategic silence in crisis communication. *Corporate Communications*, *24*(1), 162–178. doi:10.1108/CCIJ-10-2018-0108

Lee, Y., & O'Connor, G. (2003). The impact of communication strategy on launching new products: The moderating role of product innovativeness. *Journal of Product Innovation Management*, *20*(1), 4–21. doi:10.1111/1540-5885.t01-1-201002

Li, J., Sikora, R., Shaw, M. J., & Tan, G. W. (2006). A strategic analysis of inter organizational information sharing. *Decision Support Systems*, *42*(1), 251–266. doi:10.1016/j.dss.2004.12.003

Loonam, J., Eaves, S., Kumar, V., & Parry, G. (2018). Towards digital transformation: Lessons learned from traditional organizations. *Strategic Change*, *27*(2), 101–109. doi:10.1002/jsc.2185

McKelvie, A., & Davidsson, P. (2009). From resource base to dynamic capabilities: An investigation of new firms. *British Journal of Management*, *20*(s1), S63–S80. doi:10.1111/j.1467-8551.2008.00613.x

Miller, D., & Friesen, P. H. (1984). A longitudinal study of the corporate life cycle. *Management Science*, *30*(10), 1161–1183. doi:10.1287/mnsc.30.10.1161

Moser, K., Tumasjan, A., & Welpe, I. M. (2015). Small, but attractive: The effect of employer branding and legitimacy on startup attractiveness. In Academy of Management Proceedings (Vol. 2015, No. 1, p.10528). Briarcliff Manor, NY: Academy of Management.

Penuel, K. B., Statler, M., & Hagen, R. (2013). *Encyclopedia of crisis management*. Sage Publications. doi:10.4135/9781452275956

Rakestraw, T. L., Eunni, R. V., & Kasuganti, R. R. (2013). The mobile apps industry: A case study. *Journal of Business Cases and Applications*, *9*, 1.

Reilly, A. H., & Larya, N. (2018). External communication about sustainability: Corporate social responsibility reports and social media activity. *Environmental Communication*, *12*(5), 621–637. doi:10.1080/17524032.2018.1424009

Rutherford, M. W., Buller, P. F., & McMullen, P. R. (2003). Human resource management problems over the life cycle of small to medium-sized firms. *Human Resource Management, 42*(4), 321-335.

Sapienza, H. J., Autio, E., George, G., & Zahra, S. A. (2006). A capabilities perspective on the effects of early internationalization on firm survival and growth. *Academy of Management Review*, *31*(4), 914–933. doi:10.5465/amr.2006.22527465

Schatzel, K., & Calantone, R. (2006). Creating market anticipation: An exploratory examination of the effect of preannouncement behavior on a new product's launch. *Journal of the Academy of Marketing Science*, *34*(3), 357–366. doi:10.1177/0092070304270737

Scott, C. R. (2013). *Anonymous Agencies, Backstreet Businesses, and Covert Collectives: Rethinking Organizations in the 21st Century*. Stanford University Press.

Scott, C. R. (2015). Bringing Hidden Organizations Out of the Shadows Introduction to the Special Issue. *Management Communication Quarterly*, *29*(4), 503–511. doi:10.1177/0893318915596205

Sellers, P. (2009). *Cycles of spin: Strategic communication in the US Congress*. Cambridge University Press. doi:10.1017/CBO9780511642289

Shaver, K. G., & Scott, L. R. (1991). Person, process, choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice*, *16*(2), 23–45. doi:10.1177/104225879201600204

Shepherd, D. A., & Zacharakis, A. (2003). A new venture's cognitive legitimacy: An assessment by customers. *Journal of Small Business Management*, *41*(2), 148–167. doi:10.1111/1540-627X.00073

Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review*, *32*(1), 273–292. doi:10.5465/amr.2007.23466005

Smeltzer, L. R., & Fann, G. L. (1989). Comparison of managerial communication patterns in small, entrepreneurial organizations and large, mature organizations. *Group & Organization Management*, *14*(2), 198–215. doi:10.1177/105960118901400208

Stinchcombe, A. L., & March, J. (1965). Social structure and organizations. *Advances in Strategic Management*, *17*, 229–259. doi:10.1016/S0742-3322(00)17019-6

Su, M., & Rao, V. R. (2010). New Product Preannouncement as a Signaling Strategy: An Audience-Specific Review and Analysis. *Journal of Product Innovation Management*, *27*(5), 658–672. doi:10.1111/j.1540-5885.2010.00743.x

Teece. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal, 28*(13), 1319-1350.

Teece. (2012). Dynamic capabilities: Routines versus entrepreneurial action. *Journal of Management Studies, 49*(8), 1395-1401.

TowerS. (n.d.). Retrieved from https://sensortower.com/

Westlund, O. (2013). Mobile news: A review and model of journalism in an age of mobile media. *Digital Journalism*, *1*(1), 6–26. doi:10.1080/21670811.2012.740273

Woon, E., & Pang, A. (2017). Explicating the information vacuum: Stages, intensifications, and implications. *Corporate Communications*, *22*(3), 329–353. doi:10.1108/CCIJ-10-2016-0066

Yli-Renko, H., & Janakiraman, R. (2008). How customer portfolio affects new product development in technology-based entrepreneurial firms. *Journal of Marketing*, *72*(5), 131–148. doi:10.1509/jmkg.72.5.131

Zahra, S. A., Filatotchev, I., & Wright, M. (2009). How do threshold firms sustain corporate entrepreneurship? The role of boards and absorptive capacity. *Journal of Business Venturing*, *24*(3), 248–260. doi:10.1016/j.jbusvent.2008.09.001

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management Studies*, *43*(4), 917–955. doi:10.1111/j.1467-6486.2006.00616.x

Zhao, Y. L., Libaers, D., & Song, M. (2015). First Product Success: A Mediated Moderating Model of Resources, Founding Team Startup Experience, and Product-Positioning Strategy. *Journal of Product Innovation Management*, *32*(3), 441–458. doi:10.1111/jpim.12236

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