



PARTNERING PORTFOLIOS, VALUE-CREATION LOGICS, AND GROWTH TRAJECTORIES: A COMPARISON OF YAHOO AND GOOGLE (1995 TO 2007)

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We add to the theory of entrepreneurial firm growth by inductively theorizing the processes through which new high-growth firms utilize their partnering portfolios to pursue distinctive approaches to growth. We extend the strategic perspective on entrepreneurial networks by identifying three mechanisms linking partnering portfolios to differences in firm growth: configuring partnering portfolios to pursue distinctive logics for sourcing external resources, aligning resource-sourcing and resource-linking logics in new product development, and embarking on different growth trajectories, which contribute to different performance patterns. These theoretical insights contribute to current understanding of the external and internal sources of heterogeneity in the performance of entrepreneurial firms. Copyright © 2012 Strategic Management Society.

INTRODUCTION

The idea that new firms depend on partnering with other organizations to access critical resources is well established in entrepreneurship research (Birley, 1985; Hansen, 1995; Hite and Hesterly, 2001; Hoang and Antoncic, 2003; Stuart, Hoang, and Hybels, 1999; Yli-Renko, 2007). As Baum, Calabrese, and

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Silverman (2000: 270) state, partnerships ‘accord advantages to start-ups that are usually associated with the privilege of advanced age,’ including access to know-how and capabilities, stable exchange networks, and legitimacy. It is similarly well recognized that while partnering is highly beneficial, opportunities for partnering ‘are not equally available to all parties’ (Ahuja, 2000: 318). The resource-dependence view has emphasized that opportunities arise from the possession of complementary resources (Pfeffer and Salancik, 1978), while the sociological network view has stressed the role of social networks as sources of opportunities (Ahuja, 2000; Baum *et al.*, 2000; Gulati, 1995). Both

accounts, however, have been criticized as deterministic (Hallen and Eisenhardt, 2012; Ozcan and Eisenhardt, 2009).

A growing body of research has, therefore, turned its attention to the role of agency and strategic action in shaping the development of new firm networks (Hallen, 2008; Ozcan and Eisenhardt, 2009; Vissa, forthcoming; Zott and Huy, 2007). This stream of research highlights the strategies (Hallen and Eisenhardt, 2012; Ozcan and Eisenhardt, 2009; Vissa, forthcoming), symbols (Hallen and Eisenhardt, 2012; Zott and Huy, 2007), and signals (Higgins and Gulati, 2003) that new firms utilize to build their networks. This research shows that the development of networks is a strategic process that new firms can manage proactively.

The goal of our study is to extend this strategic perspective by examining how new firms leverage their strategically built networks to enact distinctive value-creation strategies. Specifically, we seek to understand how new firms use partnering to access novel resources and how they combine these resources into new products to enter new markets. To address these questions, we conducted an inductive theory-building study of the patterns in the configuring of partnering portfolios, resource use, new product development, and growth trajectories of Yahoo and Google in the first 10 years after their founding. Given the complexity of these companies' strategies and our interest in understanding the strategic use of partnering portfolios for product development and growth, we used the methods of comparative case analysis (Eisenhardt, 1989; Yin, 1994) and structured content analysis (Carney, 1972) to specifically trace the partnering relationships the focal firms formed and the new products they launched under changing competitive and industry conditions. We focus on partnering portfolios, as they reflect a firm's 'comprehensive strategy for sourcing external resources' (Hoffmann, 2007: 828); and we focus on new product development as a key vehicle for value creation (McGrath, 2001).

Our design—tracing the evolution of two high-growth firms with similar founding conditions—enables us to compare two different strategic processes through which new firms engage external resources in their value-creation strategies and the pursuit of growth. Our observations suggest a novel theoretical understanding of the dynamic relationship between the configuration of partnering portfolios, strategic logics for value creation, and new

firm growth. Whereas past research has shown that high-performing new firms strategically configure their partnering portfolios to manage uncertainty and resource constraints, we suggest that partnering portfolios are configured to reflect and support distinct value-creation logics, thereby contributing to generating and sustaining different patterns of growth and performance. These ideas extend current thinking within the resource-based view of the firm regarding external and internal sources of heterogeneity in firm performance and entrepreneurship research on the strategic use of entrepreneurial networks.

THEORETICAL BACKGROUND

Our investigation was informed by two streams of research: (1) network research on how entrepreneurial firms use interorganizational relations to gain access to resources (e.g., Hite and Hesterly, 2001; Larson and Starr, 1993); and (2) recent strategy research on the recombination of external and internal resources (Bingham and Eisenhardt, 2008; Capron and Mitchell, 2009; Karim and Mitchell, 2000).

Interorganizational relationships as sources of external resources

Entrepreneurship research has given considerable attention to the role of interorganizational relationships in the development and growth of new firms. This research shows that new firms rely on a variety of resources from their partners for survival and growth (Baum *et al.*, 2000; Birley, 1985; Eisenhardt and Schoonhoven, 1996). These findings in entrepreneurship research are consistent with the broader work on interorganizational relations that has identified resource dependence as a key determinant of interorganizational collaborations (Gulati, 1995; Powell, Koput, and Smith-Doerr, 1996; Stuart, 2000). The resource dependence view analyzes how different strategies and resource constraints motivate firms to collaborate. It does not examine, however, how the resources accessed through partnering are then incorporated into firms' strategies (Dyer, Singh, and Kale, 2008).

A second major line of research on interorganizational relations emphasizes the challenges of forming collaborative relationships under conditions

of uncertainty, when optimal partners cannot be identified easily (Podolny, 1994). This perspective analyzes how uncertainty about partnering is resolved through repeated exchange relations and by partnering with prominent organizations with well-developed networks (Podolny, 1994), as the latter signal quality and partnering ability (Ahuja, 2000; Gulati, 1995). This account, therefore, focuses on the characteristics of networks that emerge as a result, rather than on the individual firms' strategies for managing these networks (Hoffmann, 2007). Together the two approaches produce what Ozcan and Eisenhardt (2009: 248) characterize as 'a deterministic explanation of portfolio formation.'

In contrast to the deterministic perspectives, recent work has focused on how firms strategically shape (Vissa, forthcoming; Zott and Huy, 2007) and purposefully design (Hallen and Eisenhardt, 2012; Ozcan and Eisenhardt, 2009) their networks. An important observation that has emerged from this strategic perspective is that firms that develop high-performing portfolios do so based on distinct visions and strategies, whereas the development of low-performing portfolios fits with the deterministic accounts (Ozcan and Eisenhardt, 2009). For example, Hallen (2008) shows that some founders use their firms' accomplishments to improve their firms' initial network positions; Maurer and Ebers (2006) find that high-performing biotech firms redesign their partnering portfolios to fit their evolution from start-up to growth stages. Collectively, these studies show that high-performing partnering portfolios are shaped by strategic logics. They suggest the importance of further investigating the effects of strategically designed partnering portfolios—and the changes in them over time—on new firm performance.

To explore this relationship, we build on recent strategy research emphasizing that firms need to develop skills in both internal development and external sourcing of resources because internally developed and externally sourced resources have different effects on firm performance (Capron and Mitchell, 2009). Internal development facilitates value capture and capability development (Helfat, 1994), whereas external sourcing facilitates exploration and capability extension (Karim and Mitchell, 2000). Therefore, it is important to understand how firms combine external and internal resources to create and capture value, which is the focus of our study.

METHODS

Research setting

We conducted an inductive, multiple case study (Eisenhardt, 1989) in order to develop new theoretical ideas about the processes through which new firms leverage partnering portfolios to pursue growth. We chose Yahoo and Google as two extreme, revelatory cases (Yin, 1994) that exemplify the phenomenon of interest to a high degree. Both firms were among the fastest-growing new firms in the late 1990s and early 2000s. Both firms had entered and had come to dominate the Internet search market at different times. We studied their partnering and product innovation strategies from start-ups to high-growth firms in the period from 1995 to 2007.

We theoretically sampled the two firms because they exhibited theoretically relevant similarities in terms of the market chosen for entry, founders' human capital, location, and access to venture capital funding. These factors have been shown to affect access to resources and opportunities for partnering and growth (Delmar, Davidsson, and Gartner, 2003; Helfat and Lieberman, 2002; Helfat and Peteraf, 2003; Saxenian, 1990). Table 1 summarizes some of the founding characteristics of the two firms, highlighting similarities and differences.

As shown in Table 1, both companies began as providers of Internet search. Yahoo did so in 1995 with an Internet directory system that enabled users to search for Web sites based on categories similar to those used by the Library of Congress. Google entered the Internet search market in 1998 with a keyword search algorithm that associated keywords—terms used to retrieve documents in an information system—with relevant Web sites within its database. Both companies were founded by PhD students from the Stanford University School of Engineering; both companies grew quickly through word of mouth and earned accolades from the industry media; and both companies received funding from premier Silicon Valley venture capital firms, such as Sequoia Capital and Kleiner Perkins Caulfield & Byers.

While both firms entered the Internet search market, they did so at different times in its emergence. When Google entered the search market in 1998, Yahoo was a three-year-old public firm that had already evolved its strategy into becoming a portal and an interactive services provider (Rindova and Kotha, 2001). Therefore, in order to increase the

Table 1. Focal firm founding conditions

	Yahoo	Google
Founders	David Filo and Jerry Yang, Stanford University PhD candidates in electrical engineering	Larry Page and Sergey Brin, Stanford University PhD candidates in computer science
Year founded	1995	1998
IPO year and amount raised	1996; \$85 million	2004; \$1.66 billion
Early investors	Sequoia Capital, Reuters, Softbank, Ziff-Davis Publishing, and The Capital Group	Sequoia Capital and Kleiner Perkins Caulfield & Byers
First CEO	Tim Koogle, former senior executive at Motorola, Inc.; holds a PhD in electrical engineering from Stanford University	Eric Schmidt, former CEO of Novell Inc.; holds a PhD in electrical engineering and computer science from University of California, Berkeley
Company HQ	Sunnyvale, CA	Mountain View, CA
Industry awards	PC Meter (1996) Top Search Engine Award	PC Magazine's (1998) Top 100 Web sites Search Engine Award
Relevant market context events	Emergence and rapid growth of the Internet; Web browsers diffuse widely; Internet search market grows rapidly	Portal wars; competition among Internet search engines; dot-com boom with high IPO valuations of tech firms; Internet search considered a commodity
Key competitors at entry	Lycos, Excite, WebCrawler, Open Text, InfoSeek, Alta Vista, Magellan	AskJeeves, DirectHit, Goto.com (Overture), Northern Light

comparability of the two cases, we examined their partnering portfolios, resource use strategies, and growth trajectories in their respective first decade of existence: 1995 to 2004 for Yahoo and 1998 to 2007 for Google. The overall period of the study—1995 to 2007—spans two waves of entry in the Internet search market, during which each of the focal firms emerged as a market leader, as will be described. In the period from 1998 to 2005 (for which our observations for the two firms overlap), Yahoo and Google first collaborated and then competed for dominance in the search market.

Data collection

To capture the firms' partnering and product innovation strategies, we used a variety of data sources, including: 830 press releases, 1,389 media articles (e.g., *Fortune*, *The Economist*, *The Wall Street Journal*), five books, 16 cases, 15 SEC filings, historical Web sites of industry 'watch dog' organizations (e.g., *Searchenginewatch.org*), and databases such as SDC Platinum and *Onesource.com*. We also created an archive of the two firms' historical Web sites from 1996 to 2007. We used these diverse data to triangulate the facts of the cases (Yin, 1994) and

to analyze them from different vantage points (Glaser and Strauss, 1967).

Data analysis

Our data analysis used established methodologies for longitudinal and comparative case analysis. It involved iterating between the data and the emerging theoretical insights (Locke, 2001). For the sake of clarity (Suddaby, 2006), we present our analysis in four sequential steps.

Step 1: Developing chronological case histories

In this step, we used media articles, published books and cases, company press releases, and historical Web sites to develop chronological cases for each firm. Each case, comprising more than 50 pages, established a clear timeline of events and documented changes in the firms' contexts and strategies. We analyzed the two firms' actions in their first 10 years on an annual basis, as well as by three historical phases for each. Yahoo's first phase lasted from its founding in 1995 until 1997, which marked the end of the first wave of entry into the search market. Google's first phase began with its founding in 1998, marking the start of the second wave of entry into

search, and ended in 2001. The same period was Yahoo's second phase, characterized by its dominance among Internet portals. In the following three years, from 2002 to 2004 (Google's second phase and Yahoo's third), the two firms competed with each other. In the period from 2005 to 2007, its third phase, Google rose to dominance in search.

Step 2: Analysis of partnering portfolios and resource use

In this step, we coded 830 press releases issued by the two firms to identify all partnering and product announcements (Young, Smith, and Grimm, 1996). We triangulated the information from the press releases with the information in the SDC Platinum Database alliance data, media articles, and industry Web sites. Through this process, we obtained detailed information about 351 partnering relationships with 277 unique partners for Yahoo and 240 partnering relationships with 204 unique partners for Google. For each partnership, we coded the type of resources exchanged and the partner's industry. We used this information to represent the configurations of the two firms' partnering portfolios in terms of size, diversity of resources accessed, and diversity of partners' industries (for further details on these measures please see the Appendix).

In the next round of coding, we identified the specific resources used in the focal firms' product introductions. We tracked whether they used internally developed resources, external resources accessed through the partnering portfolio, or some combination thereof (see the Appendix for details). Through this process, we documented the key resources used for 93 product introductions for Yahoo and 88 product introductions for Google.

Step 3: Analysis of growth patterns

We used the product introductions analyses from the previous step to code the product markets that the focal firms claimed to enter. This round of coding revealed Yahoo's entries into 29 markets and Google's entries into 14. Analyzing the patterns of entry within and across markets for each firm, we were able to trace and compare the firms' growth trajectories.

Step 4: Pattern matching and development of grounded framework

As is common in comparative case analysis, we developed comparative tables and diagrams compar-

ing observations across years within firms and across firms within years (Miles and Huberman, 1994). We compared the strategies of the firms using chronological time (e.g., 1998 to 2001, when both firms faced the effects of the dot-com boom and bust) to account for effects of the larger context and interactions between the firms, as well as over their respective life stages (e.g., Yahoo's and Google's strategies in their first three years) to account for the effects of internal development and age. These comparisons led us to observe two distinct (across firms) and persistent (within firms) patterns of partnering portfolio development, resource use, and growth. The iteration between data and emerging theoretical insights led to the specification of the underlying theoretical mechanisms we will discuss.

PATTERNS OF PARTNERING, RESOURCE USE, AND GROWTH

How did Yahoo and Google configure and leverage partnering portfolios in the pursuit of growth? We observed that they relied on three interrelated processes: configuring of partnering portfolios to reflect distinctive resource-sourcing logics, aligning resource-sourcing and resource-linking logics, and embarking on different growth trajectories. Table 2 provides an overview of these theoretical relationships and the associated empirical observations.

Partnering portfolio configurations and resource-sourcing logics

Early search market and the birth of Yahoo (1995 to 1997)

Yahoo entered the Internet search market as it emerged in 1995. While many other companies entered around the same time, rapid consolidation established an initial cohort of competitors: Yahoo, Excite, Lycos, and InfoSeek. They competed intensely with an expanding array of offerings and quickly morphed into portals (Rindova and Kotha, 2001). In the process, Yahoo quickly developed a large partnering portfolio, adding numerous partners from a diverse set of industries. In its first year alone, it formed partnerships with four firms. For example, a licensing agreement with Open Text provided keyword search technology to supplement its Web directory; and a strategic alliance with Ziff-Davis, a media company, allowed it to access media content and add it to its Web site. These partnerships enabled

Table 2. Summary of key observations and theoretical insights

Constructs	Key observations and illustrative evidence	Theoretical insights
Pursuing distinctive resource-sourcing logics	<ul style="list-style-type: none"> • Focal firms developed partnering portfolios with different configurations —Y: Built large portfolio (e.g., 70 partnerships by Year 3) with diverse partners (from IT, telecom, finance, etc.) and diverse resource types (e.g., interactive technology, content, marketing) —G: Gradually built portfolio (e.g., 29 partnerships by Year 3) with less diverse partners (a majority were IT firms) and specialized resource types (e.g., search result filtering, keyword addressing) • Configurations of partnering portfolios were relatively persistent over time within firms • Configurations ensure access to preferred types of resources 	<p>Prior research has drawn attention to the importance of sourcing external resources, but has not considered that firms have systematic differences in the type of resources pursued—not only in content (e.g., technology vs. marketing), but also in composition (e.g., more or less diverse)</p> <p>Observed persistent configurations over time suggest the novel construct of resource-sourcing logic</p>
Aligning resource-sourcing and resource-linking logics	<ul style="list-style-type: none"> • Focal firms relied on partner resources to a similar extent but differed in how they combined external and internal resources • Focal firms each exhibited one predominant mode of linking external and internal resources —Y: 32 percent of new products were developed using aggregation and only 11 percent using integration —G: 39 percent of new products were developed using integration and only 4 percent using aggregation • The predominant modes for resource linking matched the firms' resource-sourcing logics 	<p>Resource-sourcing logics vary for firms systematically and are a source of interfirm heterogeneity</p> <p>External and internal resources affect value creation and value capture differently, so internal-external resource aligning is a critical strategic process</p>
Embarking on different growth trajectories	<ul style="list-style-type: none"> • Focal firms developed a similar number of new products but differed in the number and type of markets they entered —Y: Entered 29 markets in 10 years; wide range of relatively unrelated markets—e.g., Internet access, mapping, direct marketing, movies —G: Entered 14 markets in 10 years, most related to its core competencies in search (e.g., mobile search, blog search) or incorporating search as a differentiating feature (e.g., Gmail, Google Map) 	<p>Novel insight that resource-linking logic is aligned with resource-sourcing logic providing the firms with an integrated approach to value creation</p> <p>Different combinations of resource sourcing and linking logics supported different strategic logics of value capture</p>
Performance	<ul style="list-style-type: none"> • Both firms exhibited high levels of revenue growth and strong financial performance, but differed in the timing of strong growth —Y: Revenues grew to \$19 million by Year 2, \$203 million by Year 4, and \$1.1 billion in Year 6, before dropping to \$717 million in Year 7 and rising again to \$3.6 billion in Year 10 —G: Revenues grew to \$19 million by Year 3, \$86 million by Year 4, \$1.5 billion in Year 6, \$6.1 billion in Year 8, and \$16.6 billion in Year 10 	<p>High-growth firms can adopt different approaches to growth and embark on different growth trajectories</p>
		<p>Different growth trajectories were associated with different rates of growth at different points of new firms' evolution</p>

Yahoo's 'portal' strategy and steered it toward an advertising-based revenue model. Yahoo's management explained its strategic approach at the time as follows: '*We'll just license whatever is the best technology and build services around it to take advantage of the traffic...*' (Angel, 2002: 49).

Yahoo's partnering activity accelerated and by its third year, it had entered 70 partnerships. These partnerships represented a diverse set of industries (with a Blau (1977) heterogeneity index ranging from 0.62 to 0.73 over the three years) and were used to pursue diverse types of resources (Blau index range: 0.63 to 0.70), including marketing, interactive technologies, and content (for descriptions and examples of these categories please see the Appendix). Overall, in its first phase, Yahoo rapidly developed a large and diverse partnering portfolio and used it to source a variety of resources.

Second wave of search entrants and the birth of Google (1998 to 2001)

Having emerged as the dominant search engine by 1999, Yahoo focused on expanding its portal strategy. It continued to license keyword search technologies from partners, such as AltaVista, Inktomi, and Google. It grew its partnering portfolio to 115 in 1998 and to 172 in 2000. In 2001, following the bursting of the 'dot-com bubble,' it reduced it to a still sizeable 152. As in its first phase, its portfolio remained diverse in terms of both partner industries (Blau index range: 0.63 to 0.73) and resources sourced (Blau index range: 0.52 to 0.67). This diverse portfolio was key to Yahoo's portal strategy. For example, key alliances with audio/video content providers (such as National Public Radio and movie studios and its acquisition of an online streaming company, Broadcast.com) supplied the resources for its online audio and video content and services. Its strategic alliances with various financial institutions (e.g., Bank of America) enabled it to add online banking and financial services to its portal. In addition, marketing alliances with Visa and online merchants, such as Amazon.com, CDNow, and Egghead.com, enabled Yahoo to offer online shopping services. Thus, in this phase, Yahoo sustained the configuration of a partnering portfolio that enabled rapid expansion of products and services and supported its leadership in the portals market.

Meanwhile, a second wave of entry into the Internet search market around 1998 included AskJeeves, DirectHit, Goto.com (Overture), and

Google. Google entered with a patented search algorithm that provided highly relevant search results. As Google cofounder Sergey Brin explained, '*We were motivated to have the best possible search no matter what. At the time, that meant that if you had a banner ad, which was by far the easiest way to generate money off of (sic) search, that would mean that the load and render time of the page would increase significantly. We were interested in avoiding that*' (Battelle, 2005: 92).

Accordingly, it focused on developing its search technology and licensing it to other businesses. This focus led to partnerships with portals (e.g., Yahoo and Netscape) and wireless service providers (e.g., AT&T Wireless and Sprint) to access a broad user base and build the popularity of its search engine. Google also pursued critical specialized resources to improve it. Specialized resources are resources with a narrow range of application that simultaneously enables firms to extract rents from them and limits their applicability in new contexts (Montgomery and Wernerfelt, 1988). For example, in 1999, in partnership with RealNames, an Internet software developer, Google developed a technology that allowed users to simply type in a name instead of a URL to access Web sites. In 2001, it acquired Outride, a spin-off from the Xerox Palo Alto Research Center specializing in highly relevant online information retrieval systems, and used its patents and technological platform to develop personalized search pages (launched in 2005). This logic of resource sourcing led Google to gradually build a focused partnering portfolio. In its first year, Google had only one partnership—a marketing agreement with Ziff-Davis. By the end of its first phase in 2001, Google's portfolio totaled 47 partnerships representing a narrower set of industries (with Blau index scores ranging from 0.00 to 0.62 over the four years) and a narrower range of resources (Blau index range: 0.00 to 0.44) than that of Yahoo in its first phase.

Competition between Yahoo and Google (2002 to 2004)

This phase marked a change in the relationship between Yahoo and Google. Following the dot-com bust, the online advertising market declined and Yahoo experienced high levels of uncertainty about its portal business. Faced with pressure to diversify its revenue base (Angel, 2002), it added paid search listings from Goto.com/Overture in late 2001. Google had adopted this model in 2000 and began

offering its own paid search network in 2002. As a result, in 2002, Yahoo and Google continued to cooperate on keyword search, but competed in paid search. In 2003, Yahoo moved to compete directly with Google in keyword search by acquiring both keyword search technologies (Inktomi in 2002 and AltaVista in 2003) and a paid search network (Overture in 2003). In early 2004, Yahoo dropped Google as its keyword search provider and replaced it with its own technologies.

As before, Yahoo relied on its partnering portfolio to respond to the changing industry conditions. In this phase, it focused on partners that could help generate new revenue sources, such as subscriptions and listings. For example, Yahoo collaborated with music companies (e.g., Sony Music) and Web-based streaming music sites (e.g., Launch Media) to offer a subscription-based online music service. It also worked closely with niche online service providers such as automobile-focused Web sites (e.g., Kelly Blue Book, Edmunds) to offer listings of auto classifieds, and careers and e-recruitment Web sites (e.g., Careerbuilder, Hotjobs) to offer job classifieds. Thus, while Yahoo scaled back the size of its partnering portfolio (from 152 in 2001 to 98 in 2002, 67 in 2003, and 57 in 2004), it retained its resource-sourcing logic of gaining access to diverse types of resources (Blau index scores: 0.68 in 2002, 0.70 in 2003, and an uncharacteristically low 0.36 in 2004) from partners from a diverse set of industries (Blau index range: 0.54 to 0.63).

Google also adjusted its partnering activity to respond to the dot-com bust by growing its partnering portfolio at a more cautious pace, reaching 56 in 2002, 59 in 2003, and 55 in 2004. Its partnering portfolio remained focused on specialized resources, especially those relevant to its new strategic thrust into paid search. In 2003, Google acquired semantic text processing technology through Applied Semantic and an online syndicated advertising network through Sprinks, thereby extending its paid search advertising beyond its own Web site. Sprinks' syndicated network provided Google with a large number of Web sites to sell advertising on, and the semantic text processing enabled it to serve up contextually relevant advertising on those sites. Thus, in this phase, Google retained its core focus on partnering with technology firms (e.g., 68 percent of its partners were IT firms). It also increased slightly the diversity of resources sourced to include marketing and content resources (Blau index range: 0.44 to 0.67).

Google ramps up (2005 to 2007)

By 2004, when our observation period for Yahoo ends, Google overtook Yahoo in search, with 39 percent market share compared to Yahoo's 30.5 percent. It also posted \$6.1 billion in revenues, surpassing Yahoo's \$5.3 billion. Having achieved a leadership position, in this period Google ramped up its portfolio to 63 partners in 2005, 91 in 2006, and 132 in 2007. As its portfolio grew in size, the diversity of resources sourced and partner industries also increased (Blau index ranges: 0.60 to 0.68 and 0.42 to 0.63, respectively). The increase in diversity of partners and resources came, in part, as a result of Google's push into multimedia search. For example, it secured collaborations with traditional media firms, such as CBS, NBA, Fox News, and C-Span, to provide Web search services for their video content. Its 2007 alliance with Salesforce.com, a customer-relationship management (CRM) service vendor, enabled it to extend the reach of its AdWords product to Salesforce.com's CRM platform.

Summary of observations

To summarize, tracing the partnering portfolios of the two firms over the emergence and growth of the search market, we observed that the two firms strategically configured partnering portfolios that differed in size, diversity of industries from which partners were sought, and diversity of resources sourced. Table 3 summarizes our analyses.

Further, the two firms adapted their partnering portfolios to respond to changing industry conditions and competitive needs, e.g., Yahoo scaled back the size of its portfolio in response to declining demand for online advertising and Google ramped up its portfolio size to support expanding applications for search. At the same time, each firm's portfolio exhibited an internally consistent logic of resource sourcing that persisted across phases. Yahoo maintained a broad portfolio that afforded it access to many diverse partners and diverse types of resources. In contrast, Google maintained a focused portfolio that emphasized access to specialized resources needed to extend its core technologies in keyword search, paid search, and multi-application search.

The differences in resource-sourcing logics that shaped the configurations of partnering portfolios appear to be strategic rather than contextually determined. For example, it can be argued that the differences between the portfolios reflect differences in

Table 3. Partnering portfolio configurations

	Yahoo			Google		
	Phase I (1995–97)	Phase II (1998–2001)	Phase III (2002–04)	Phase I (1998–2001)	Phase II (2002–04)	Phase III (2005–07)
Portfolio size	Yahoo grew its portfolio at a rapid rate of 22 relationships per year to boost its portfolio size to 70 by end of its first phase	Yahoo maintained a high rate of portfolio growth (19 relationships per year) up to 2000, more than doubling its portfolio size by the end of Phase II	Yahoo scaled back its portfolio size by 32 partnerships per year on average during this phase	Google developed a small portfolio and grew it at a relatively slow rate of 12 relationships per year (approximately half of Yahoo's rate)	Google's portfolio showed marginal increases, remaining approximately the same size throughout this phase	Google ramped up its portfolio size, adding, on average, 23 relationships per year during this phase
Diversity of partner industry	Yahoo's partners were from highly diverse industries (ranging from MTV and other traditional content providers to telecom operators such as BellSouth)	Yahoo's range of partners expanded to include online firms (e.g., Egghead), IT firms (e.g., Network Solutions), broadcast media (Comedy Central), and IT hardware (Compaq)	Despite a reduction in portfolio size, its partnering portfolio remained highly diverse	Google's partners mainly came from the IT and telecom industries (70% on average in each year) and provided specialized resources related to its Web search service	While Google's partners continued to be mainly IT firms, it did diversify its portfolio to include media firms (e.g., PBS), which made up 10 percent of its portfolio on average	Google's partners in this phase included significantly more media related firms (28%), but IT firms remained the dominant category (59%)
Diversity of resources accessed	Yahoo sourced very diverse resources from its partners and over time shifted its emphasis from marketing resources to interactive technologies to content	Yahoo's continued to source diverse resources such as e-commerce services, online streaming media, online payment technologies, and online search	Yahoo maintained high diversity in type of resources sourced, except in 2004, when it focused primarily on interactive technology resources	Google focused on gaining specialized resources, such as personalized search technologies, as well as access to wireless infrastructure	Google focused on search-related technological resources that supported its strategic thrusts, e.g., paid search and search-powered services	Google increased the diversity of the resources it sourced through its portfolio by including various content resources such as video, print, and audio

resource conditions that the two firms faced at founding. However, a comparison of Google's partnering portfolio in its first three years, which coincided with the *peak* of the dot-com bubble, with Yahoo's partnering portfolio in its first three years, which coincided with the emergence of the search market (see Santos and Eisenhardt (2009) for a discussion of the challenges facing strategists in emerging markets), suggests that despite an abundance of opportunities to partner during the peak of the dot-com bubble, Google built a partnering portfolio in a gradual and focused manner that contrasted with Yahoo's rapid development of a large portfolio. Google's gradual approach to building its partnering portfolio was important to its effectiveness in sourcing specialized resources, as discussed in the next subsection. These observations suggest the following theoretical proposition:

Proposition 1: High-growth new firms configure partnering portfolios that reflect distinctive logics for sourcing external resources. Securing rapid access to a variety of resources is facilitated by a large and diverse partnering portfolio. Securing access to specialized resources is facilitated by a gradual buildup of a focused portfolio.

Resource-linking logics

While the two firms configured their partnering portfolios differently, we observed that they relied equally and heavily on resources accessed through their partnering portfolios for their growth. Of the 93 products introduced by Yahoo and 88 products introduced by Google during the study period, 78 percent and 76 percent, respectively, were developed using external resources acquired through the firms' partnering portfolios. The remainder was generated through *internal development* using the firms' existing resources. In contrast to the similarity of the two firms' reliance on internal development for new products, we observed some sharp differences in their logics for deploying partner resources into new products. Yahoo developed new products by *aggregating* partner resources with its own, while Google did so by *integrating* partner resources with its own, as explained next.

Yahoo's value-creation logic of aggregation

Yahoo developed a large number of its new products by linking partner resources in a pattern we term

'aggregation.' Characteristic of this approach is that the partner resource used in a new product remains relatively independent, as do the internal resources. The value created in the new product derives from the bundling (largely without modification) of external and internal resources to create a new offering. Yahoo used aggregation as its logic for value creation far more than did Google, developing 32 percent of its new products over the 10-year observation period through aggregation, compared to a mere 4 percent for Google.

Yahoo adopted aggregation as its primary approach to using partner resources right from its founding. For example, in its first year it aggregated content from Reuters to add a news ticker to its Web directory. Starting in 1996, Yahoo aggregated applications from several companies, such as Viaweb (e-commerce stores), Geocities (personal Web space), Broadcast.com (online streaming), Inktomi (algorithmic keyword search), and Overture (keyword advertising), by adding these applications directly to its Web platform, often as links on its directory page. Similarly, in 1998, Yahoo aggregated online merchant services from a large number of online vendors to launch the Yahoo! Shopping service. As Elizabeth Collet, VP of Yahoo Shopping, explained, '*You're going to Yahoo because it's a gateway to all the stores. It's an aggregate*' (Angel, 2002: 80). In 2003, it aggregated online games from Vivendi, Microsoft, and Ubisoft to launch its premium online gaming service.

Aggregation enabled Yahoo to quickly enter new markets and shift rapidly from being a media aggregator to a community of users, and later, to a broad network of media, commerce, and communication services (Eisenhardt and Sull, 2001). Aggregation represented its core value-creation logic for linking partner resources with internal resources, accounting for 37 percent of new products introduced from 1995 to 1997, 32 percent of new products introduced from 1998 to 2001, and 27 percent of new products introduced from 2002 to 2004.

Google's value-creation logic of integration

In contrast to Yahoo's development of new products by deploying partner resources without much modification, Google tended to pursue a large degree of control over externally sourced resources (e.g., through acquisitions) and deploy them into new products through a pattern we term 'integration.' Integration involves combining external resources

with internal ones so that the resources are modified to yield value unavailable from their direct use alone. Through this resource-linking pattern, Google simultaneously developed new products and extended its core technological competencies. Google used integration for new product development far more than did Yahoo, relying on it to develop 39 percent of the new products it introduced in its first 10 years, compared to 11 percent for Yahoo.

Second, compared to Yahoo, Google created tighter links between internal and external resources, and it did so at an increasing rate over time. First, we observe that internal development of technological competencies in a given area tended to precede the external sourcing of related specialized resources. For example, Google's entry into mobile and handheld computing began in 2000 when it internally developed a Web-based search technology for mobile platforms. As mobile phone technology made possible the delivery of richer images and graphics, Google integrated its existing Web applications (e.g., Google image search, maps, and news) with interactive technologies from six acquired companies that developed mobile browsers (e.g., Reqwireless, acquired in 2005) and mobile applications (e.g., Zingku, acquired in 2007) to introduce a stream of products in the mobile search domain. It also amplified (through its acquisition and integration of the Android system) its mobile search into an operating system and platform for mobile phones in 2007.

Third, unlike Yahoo's aggregation of unrelated resources to capture new opportunities, Google tended to integrate related resources that progressively extended and leveraged its core competencies (Karim and Mitchell, 2000). For example, Google strengthened its Web search technology by integrating it with other search-related technologies, such as keyword addressing technology (from RealNames), search result filtering (from Surfwatch), and image indexing (sourced from publicly available Web pages). Similarly, in launching its e-mail service, Gmail, Google built on its strength in search capabilities (Gmail uses a search-oriented interface instead of the folders typical in email programs) and then built on these strengths using partner resources, such as spam and malware filtering from Neotronic and Postini (acquired in 2003 and 2007, respectively).

Summary of observations

Our observations of how the focal firms combined external and internal resources suggest two impor-

tant insights. First, different value-creation logics guided their linking of external and internal resources. Yahoo's aggregation approach involved loose linking (Bingham and Eisenhardt, 2008) and value creation by bundling relatively independent resources into a new product or service offering. In contrast, Google's integration approach involved moderately tight linking (Bingham and Eisenhardt, 2008) and value creation through extending and leveraging an expanding suite of technical competencies into new products.

Further, the two firms aligned their resource-sourcing logics (reflected in the configuration of their partnering portfolios) with their resource-linking logics. Yahoo's logic of value creation through aggregation is aligned with securing access to a large and diverse pool of partner resources. This alignment of resource sourcing and resource linking enabled Yahoo to quickly combine external and internal resources to pursue changing opportunities through rapidly assembled product offerings. Yahoo's approach to resource sourcing and linking reflects a strategic logic of opportunity capture, wherein the firm relies on a few strategic processes to place itself in the fastest flow of opportunities (Bingham and Eisenhardt, 2008). Google's logic of value creation through integration is also well aligned with its resource-sourcing logic of using its partnering portfolio to secure access to more specialized and less diverse resources. Such alignment enables value creation by speeding up the extension and elaboration of internal resources and capabilities through the incorporation of relevant specialized partner resources. Google's core value-creation logic is partly consistent with Bingham and Eisenhardt's (2008) conceptualization of a strategic logic of leverage, wherein the firm relies on developing strategically valuable resources for its value-creation strategies. These observations suggest the following theoretical propositions:

Proposition 2: High-growth new firms align their external resource-sourcing logic and internal resource-linking logic for value creation. Value creation through aggregation is facilitated by a large partnering portfolio that provides access to diverse external resources that are loosely linked with internal resources. Value creation through integration is facilitated by a focused portfolio that provides access to specialized external resources that are moderately tightly linked with internal resources.

Proposition 3: Different combinations of external resource sourcing and internal resource linking support different strategic logics. Sourcing of diverse resources and linking them loosely with internal resources supports a strategic logic of opportunity capture. Sourcing of specialized resources and linking them moderately tightly with internal resources supports a strategic logic of resource leverage.

Growth trajectories

Consistent with our theoretical sampling of two high-growth firms, we observed that they introduced a similarly large number of new products in their first 10 years (93 for Yahoo and 88 for Google). However, the differences between the two firms in external sourcing and internal linking of resources we have described led the two firms on two different growth trajectories. Yahoo grew by introducing products in a large and diverse set of often unrelated product markets, enabling it to rapidly capture opportunities in a wide range of markets. In contrast, Google grew by introducing products in a narrower range of related product markets, based on leveraging and expanding its suite of core technical competencies over time. While both growth trajectories led to high growth, they generated different performance patterns—rapid scaling of revenues with greater variability over time for Yahoo, and gradual but accelerating revenue growth over time for Google.

Yahoo's diversified growth

Yahoo started in the search market, yet, in its first year it also entered the content and advertising markets. By the end of the first three years, it had entered six other markets, including e-commerce, personal productivity tools, and travel. It maintained this rapid pace of entry into new product markets in its second phase (1998 to 2001), introducing products in 16 new markets, including games, Internet access, job listings, online storage, and video streaming. The dot-com bust slowed down its pace of growth—adding only four new markets from 2002 to 2004—but did not change its broad scope of opportunity pursuit. There was little by way of a unifying theme across these four new markets—mapping, direct marketing, movies, and multimedia search. Not only were the 29 markets that Yahoo entered highly diverse, but they also involved different business models (paid search advertising, sub-

scription based, listing fees) and targeted a wide range of customer segments (corporate, advertisers, end users).

Furthermore, Yahoo typically introduced only one product in the markets it entered, thereby growing through rapid, relatively stand-alone product introductions in many product markets. Its growth is, thus, based on ‘market probes’ (Brown and Eisenhardt, 1997) that enabled it to rapidly test and capture short-term opportunities in a wide range of markets. Because of their isolated nature, these market entries seldom resulted in sustained development of a position in a given market. Yet, in the aggregate, they generated strong growth with a high degree of diversification.

Yahoo’s diversified growth trajectory enabled it to quickly grow from \$1.4 million in revenues in its first year to \$19.1 million by its second year, \$203.3 million by its fourth year, and \$1.1 billion by its sixth year. Following the dot-com bust, its revenues declined to \$717 million in its seventh year and \$953 million in its eighth year. A change in revenue models in 2003 (to include paid search advertising) led to an increase in revenues to \$1.6 billion and \$3.6 billion in the last two years in our observation period. Overall, Yahoo demonstrated rapid scaling up of revenues but inconsistent performance over time.

Google's focused growth

Google entered the search category with one product—its search algorithm, which remained its sole product offering in its first two years. In the following two years, it entered three additional markets—mobile search, advertising, and browser tools. It continued this pattern of measured growth through its second phase, entering only three new product markets between 2002 and 2004. In its third phase, from 2005 to 2007, Google entered seven new markets, with a majority of the growth occurring in 2006. Furthermore, of the 14 markets it entered during its first 10 years, search, mobile search, blog search, and multimedia search were all directly based on its core competence in search. Other services, such as advertising, personal productivity tools, analytics/optimization, browser tools, mapping, enterprise services, and content, incorporated search as a differentiating feature. Thus, in only three of its 14 markets Google not rely on its competencies in search.

Thus, in contrast to Yahoo, Google embarked on a growth trajectory based on consistent leveraging

of its core competencies in search technologies. Its approach to growth not only leverages existing competencies, but also extends them through sustained new product development. For example, after enhancing its Internet search engine technology in its first two years, Google elaborated it to provide a keyword search advertising service and expanded into the enterprise market with a dedicated enterprise search technology package (referred to as ‘an enterprise search appliance’). By 2004, Google incorporated it into several new products (e.g., Google Maps, Google Books, and Gmail with search). In 2007, Google expanded the keyword search advertising program and distribution network to other platforms such as graphics, radio, video, and print ads. In this process, integrating external resources with internal ones was key to expanding both its suite of competencies, as well as its portfolio of products.

This focused growth trajectory was associated with a gradual and accelerating build up of revenues. Specifically, Google achieved \$19.1 million in revenues in its third year (one year later than did Yahoo), and it grew to \$440 million by its fifth year (also lower than Yahoo’s \$558 million in its fifth year). It continued its steady revenue growth, hitting \$3.2 billion in its seventh year and climbing to \$16.6 billion by its tenth year, the last in our observation period. Looking at revenues for the two companies over chronological time, it is interesting to note that until 2004 (Yahoo’s tenth year and Google’s seventh), Yahoo had higher revenues than Google, but Google took the lead in 2005 and by 2007 had more than twice the revenues as Yahoo (\$16.6 billion vs. \$7 billion).

Summary of observations

Our analysis shows that while both Yahoo and Google grew rapidly, they did so by embarking on very different growth trajectories. Yahoo’s diversified growth was aimed at rapidly capturing value in a broad range of markets through small forays, very often for a limited period of time. This was an effective growth process, as it enabled Yahoo to explore a wide variety of opportunities that emerged in the nascent Internet-based markets of the late 1990s and early 2000s. Yahoo’s brand benefited from its presence in multiple markets, making it ubiquitous. Its growth trajectory, as a whole, positioned Yahoo as a preferred partner within the industry, thereby enhancing its partnering opportunities and sustaining the

access to partner resources that were critical to its aggregation value-creation logic.

Given that the performance outcomes of Yahoo’s growth trajectory are based on a series of temporary advantages, they depend on the availability of opportunities and their scale, Yahoo’s attractiveness as a partner, and its ability to manage a large and diverse product portfolio. While enabling Yahoo to capitalize on diverse opportunities, this growth trajectory became increasingly a source of internal and external tension. A widely circulated internal memo issued by Yahoo’s former senior vice president of communications and communities framed the problem as follows: *‘We want to do everything and be everything—to everyone. We are reactive instead of charting an unwavering course...The result: a thin layer of investment spread across everything we do and, thus, we focus on nothing in particular’* (Garlinghouse, 2006). Thus, while Yahoo grew rapidly, its growth trajectory increasingly strained the organization and jeopardized the sustainability of this strategy. This observation is consistent with research suggesting that firms that pursue the logic of opportunity capture are at risk of internal collapse when their internal structuring lags behind their growth pace (Davis, Eisenhardt, and Bingham, 2009).

In contrast, Google’s focused growth trajectory is based on consistent building and leveraging of core technological competencies. Rather than capturing thin slices of value from a wide range of markets, Google built sustained market presence within a related set of markets. Its growth trajectory rests on its integration resource-linking logic, which enabled it to extend its suite of technological competencies using resources sourced from its partnering portfolio. Because Google’s new product development leveraged and enhanced core competencies, its growth process fuelled its capability development and vice versa, creating a positive feedback loop. Such a positive feedback loop is generally associated with exponential growth, which we see in Google’s market share and revenues in subsequent years. We note, however, that while we observe this pattern, it is possible that Google’s performance pattern may, in part, reflect the firm’s ability to select the right resources to build in markets that have high growth potential.

Taken together, these observations suggest that Yahoo and Google embarked on growth trajectories that were equifinal in affording the focal firms high levels of growth in a rapidly changing environment

in the late 1990s and early 2000s, but distinct in terms of the pattern of performance over time. They suggest the following theoretical propositions:

Proposition 4: The alignment of different resource-sourcing logics and value-creation logics enables high-growth new firms to embark on different growth trajectories. Value creation through resource aggregation sourced from a large and diverse partnering portfolio enables diversified growth through rapid market entry into a large number of markets. Value creation through integration of specialized resources sourced from a focused partnering portfolio enables focused growth in a smaller number of related markets.

Proposition 5: High levels of growth can be achieved through different growth processes. Rapid, highly diversified growth through aggregation of partner resources is associated with rapid scaling up of revenues but with lower consistency in performance, as it is contingent on access to external resources and availability of external opportunities. Gradual, focused growth through integration of partner resources is associated with gradual scaling up of revenues that can accelerate when the integration process enhances the firm's ability to select and develop resources that create value in large markets.

DISCUSSION

We add to the theory of growth and the study of strategic processes of entrepreneurial firms by inductively theorizing the processes through which new high-growth firms utilize their partnering portfolios to pursue distinctive approaches to growth. Prior research has identified partnering portfolios as a strategic mechanism for sourcing external resources (Baum *et al.*, 2000; Birley, 1985; Eisenhardt and Schoonhoven, 1996). We extend this research by theorizing two distinct strategies through which firms utilize the resources that flow through partnering relationships to develop new products, enter new markets, and achieve high levels of growth. We identify three mechanisms linking partnering portfolio configurations to differences in firm growth and performance. First, new firms configure their partnering portfolios to pursue distinctive logics for sourcing external resources. Second, they align these logics with their value-creation

logics for linking resources for new product development. Third, they use the combination of distinct resource-sourcing and resource-linking logics to embark on different growth trajectories, which contribute to different performance patterns. These theoretical insights contribute to current understanding of the external and internal sources of heterogeneity in the performance of entrepreneurial firms. They extend current research on the strategic use of entrepreneurial networks and the resource-based view of the firm in four main areas, as we will discuss.

Partnering portfolios: distinctive configurations and consistent adaptation

Past research has suggested several important attributes of the configurations of partnering portfolios that make them particularly advantageous to new firms. For example, researchers emphasize the value of portfolios composed of many and diverse ties as providing access to multiple sources of information and numerous types of resources (Baum *et al.*, 2000; Lavie, 2007; Powell *et al.*, 1996). They also stress that partnering with a large number of partners increases a firm's network centrality and serves as a signal of collaborative capability (Ahuja, 2000); and that a new firm itself becomes more valuable as a partner as its own partnering portfolio increases in size (Ozcan and Eisenhardt, 2009). Therefore, current research conducted from the resource dependence, structural-network, and strategic shaping perspectives supports the conclusion that rapid development of a large and diverse partnering portfolio is highly advantageous for a new firm.

Our insights suggest a more complex understanding of the relationship between the configuration of partnering portfolios and new firm growth. Consistent with the recommendations of prior research, we observe that Yahoo configured a large and diverse portfolio, which enabled it to pursue multiple, rapidly changing opportunities. We find that such a portfolio supported a strategy based on a logic of opportunity capture (Bingham and Eisenhardt, 2008), which involves building temporary advantages in rapidly changing markets (Rindova and Kotha, 2001). As the logic of opportunity capture requires that the firm be positioned in a flow of opportunities, configuring a broad, diversified partnering portfolio enables a new firm to achieve such a position. It also enables it to sustain such a position

in a dynamic fashion by responding to market changes and shifts in opportunities.

We further find that a new firm can benefit from configuring a partnering portfolio with different attributes when it pursues a different strategy, as in the case of Google. Google's strategy is consistent with the logic of resource leverage, which involves developing and leveraging resources in markets where these resources can create value. While prior research suggests that this strategy is generally more effective in relatively stable markets (Bingham and Eisenhardt, 2008), our insights suggest a new firm can enact a dynamic form of this strategy by using its partnering portfolio. In our study, by configuring a focused portfolio, which it gradually scaled up, Google was able to: (1) source specialized external resources to enhance its core technical competencies; and (2) do so in a dynamic way, changing its resource base with the changes in its target markets. More generally, we argue that a focused, gradually expanding partnering portfolio supports the dynamic development of an expanding resource base, which can be leveraged to introduce new products at a pace comparable to the one supported by a large and diverse portfolio. Therefore, we suggest that future research should investigate how the attributes of partnering portfolios interact with firms' strategic logics for value creation in order to develop a more comprehensive account of the attributes of high-performing partnering portfolios for new firms.

Resource-linking: aggregating vs. integrating

Research from the resource-based perspective has tended to explain 'firm heterogeneity and profitability differences as arising primarily from internally generated capabilities' (McEvily and Zaheer, 1999: 1152). Recently, Capron and Mitchell (2009: 294) have argued that firms must 'selectively employ both internal and external modes of expansion.' Research has also shown that firms, in fact, develop specialized capabilities for specific types of external resource sourcing, such as acquisitions or alliances (Puranam, Singh, and Chaudhuri, 2009; Zollo and Singh, 2004). Consistent with these ideas, we observe that high-growth firms rely heavily on external resources to access complementary resources for developing new products and entering new markets. Surprisingly, however, a key difference between the focal firms was not in the *extent to which they relied on external vs. internal resources*, as prior research

has emphasized (Capron and Mitchell, 2009; Hoffmann, 2007), but rather in *how they linked* internal and external resources to develop new products. Therefore, we suggest that the strategic logics of resource linking that new firms employ are an important source of interfirm heterogeneity that leads to persistent differences in their strategies for product innovation and performance.

A second important insight from our study is that high-growth new firms co-align their external sourcing and internal resource-linking logics, thereby demonstrating consistent underlying value-creation logics. Whether such alignment occurs more generally and how it relates to new firm performance are important questions for future research. Our observations of two high-growth firms suggest that such alignment enables new firms to strategically utilize resources from their partnering portfolios to enact distinct value-creation logics and embark on different growth trajectories. Yahoo's resource linking through aggregation enabled it to implement a logic of opportunity capture to *pursue* numerous changing opportunities; Google's resource linking through integration enabled it to *create* new opportunities by extending and leveraging core technical competencies. These ideas contrast with RBV arguments that growth trajectories are a function of the resources possessed (Pettus, 2001). Our findings suggest that the patterns of resource use have important implications for understanding how firms develop distinctive trajectories of growth and resource accumulation.

Resource-sourcing and resource-linking logics: simple rules for large-scale strategic processes

The observations and insights from our study are highly consistent with the view of strategy as simple rules (Bingham, Eisenhardt, and Furr, 2007; Eisenhardt and Martin, 2000; Eisenhardt and Sull, 2001). Strategy, in this view, 'consists of a unique set of strategically significant processes and the handful of simple rules that guide them' (Eisenhardt and Sull, 2001: 109). In a similar vein, we observe that the focal firms developed consistent logics that structured key strategic processes, such as external resource sourcing through partnering and resource utilization through linking. These logics can be thought of as different types of simple rules guiding strategic processes of partner selection and resource use (Bingham and Eisenhardt, 2008). Although different in content, these rules are similar in function

in that they direct strategic processes, making them simultaneously persistent over time and adaptive to external changes. Thus, consistent with past research, we also observe that simple rules organize key strategic processes through which firms achieve both consistency and flexibility in high-velocity markets.

In addition, our observations suggest that not all simple rules are equally beneficial. Notably, we observe that combinations of simple rules can generate interactions among key strategic processes, in ways that are positively reinforcing, but also in ways that may push the firm toward the edge of chaos. For example Google's process for resource linking strengthened internal development which, in turn, strengthened external resource sourcing. In contrast, the simple rule guiding Yahoo's portfolio configuration supported opportunity capture in a rapidly changing environment, but also led to 'an internal collapse,' (Davis *et al.*, 2009) as it required ability to link increasingly diverse resources on an increasing scale.

These insights highlight a larger theme in strategy research regarding the importance of understanding strategic processes. Eisenhardt and her coauthors have pointed out that in highly uncertain environments, the processes that a firm uses constitute the actual strategy of the firm (Bingham and Eisenhardt, 2008; Eisenhardt and Martin, 2000; Eisenhardt and Sull, 2001). Our findings resonate with these ideas. In contrast to much of the prior research in RBV that has emphasized positional advantages based on controlling valuable resources, our study reveals how strategic processes—of structuring partnering portfolios and using resources—sustain interfirm heterogeneity and generate different growth outcomes over time.

Importantly, the processes we describe can be characterized as large-scale strategic processes in that they are revealed in the patterns within streams of firms' actions and activities. These processes are distinct from the microprocesses that have attracted current research attention in the area of routines and dynamic capabilities (Teece, 2007). While the latter are based on micro interactions among individuals and groups, the former are systematic patterns of interrelationships among firm activities. Our findings illustrate how two large-scale interrelated organizational processes—resource sourcing and resource linking—are used differently by two new high-growth firms competing in the same market to capture opportunities and generate firm growth. Developing a better understanding of large-scale

processes, therefore, is at the heart of understanding the dynamic aspects of strategy.

Boundary conditions

Whereas much of the research on partnering by new firms emphasizes their resource limitations, the two firms we studied enjoyed a degree of resource affluence due to their founding conditions and initial value propositions. Yahoo's distinctive approach to organizing information on the Web and Google's search algorithm that produced highly relevant results made both firms attractive partners and afforded them more partnering opportunities and greater strategic choice in constructing their partnering portfolios than is typical for new firms (Ahuja, 2000). Thus, it can be argued that the processes we describe may apply only to relatively resource-rich new firms. While this is indeed a characteristic of our setting that may define a boundary condition for our theoretical insights, we also note that research conducted on extremely resource-poor entrepreneurs who engage in bricolage in order to piece together resource pools in impoverished environments has observed processes that resemble some of the dynamics we describe. For example, Baker and Nelson (2005) describe two types of bricolage—one characterized by parallel pursuit of multiple bricolage opportunities and the other based on selective pursuit of key opportunities—that led to very different types of growth trajectories. Taken together, these ideas suggest that in both resource-rich and resource-poor contexts, entrepreneurs take different approaches to seeking access to resources and that the resource-sourcing logics they employ have important consequences for their growth trajectories.

Also, given that our study focused on the search market in its period of emergence and growth, it can be argued that the different growth trajectories we observe are determined by different market conditions, which also affect their relative effectiveness. As prior research has pointed out, nascent markets are often more ambiguous and rapidly changing and, therefore, present strategists with numerous challenges to devising coherent long-term strategies (Santos and Eisenhardt, 2009). Under such conditions, the growth trajectory on which Yahoo embarked was highly effective, as it let the firm adapt to changing markets and opportunities. The effectiveness of Google's growth trajectory, in contrast, requires somewhat lower levels of uncertainty

so that strategists can identify high potential markets and accumulate resources with which to shape them. Therefore, the effectiveness of the approaches to growth we identified may vary with market uncertainty and internal resource strengths (see Hoffmann, 2007, for a discussion of using partnering portfolios for adapting to and shaping markets in the context of large firms). While we observe that the focal firms adapted their portfolios to respond to market changes, we also observe that they maintained alignment between their logics of resource sourcing and resource linking. Therefore, our insights suggest that high-growth firms both adjust to market conditions and utilize distinct and persistent strategic logics to guide their patterns of resource access and use, thereby sustaining their different approaches to growth over time.

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APPENDIX

ATTRIBUTES OF PARTNERING PORTFOLIO CONFIGURATIONS AND CATEGORIES OF RESOURCE LINKING

Partner industry diversity: Refers to diversity in partners' industry membership. We used the Onesource.com and Hoovers.com databases to obtain SIC codes for each partner. We found that there were five main industries represented in the data: (1) traditional media; (2) information technology; (3) telecom; (4) computer hardware; and (5) finance. We used Blau's (1977) heterogeneity index, computed using the formula: $D = 1 - \sum p_i^2$ where p represents the proportion of cases belonging to the i th category, and i is the number of different categories. The maximum diversity score possible with five categories is 0.8.

Resource type diversity: Refers to diversity in the types of resources accessed through partnerships. 'Marketing resources' captures agreements for joint advertising campaigns, targeted sales and promotional efforts to highlight focal firm's products and services, and agreements for sharing salespeople and sales channels. 'Search

technologies' includes Internet search and search-driven advertising. 'Interactive technologies' includes interactive services on consumer and enterprise portal platforms and Internet access infrastructure. 'Content resources' captures print, video, and audio content produced, distributed, and consumed on the Internet. We computed diversity in type of resources accessed using the Blau heterogeneity index, which had a maximum score of 0.75 for the four categories.

Resource linking categories: Under 'aggregated,' we classified instances in which the firm bundled a resource belonging to a partner with an internal resource to create a new offering. The 'integrated' category consisted of cases in which the firm acquired a resource, integrated it into its existing resource base, and built it into new products. Under 'internally developed,' we classified new products for which the firm did not identify the use of partner resources.

Product market entries: Based on the press releases of the two focal firms, we coded the new products they announced and the market domains they claimed to enter with these products.