Partnering with Corporates

An Important but Complicated Aspect of Growing Cleantech Companies

Cleantech Group

In collaboration with

VantagePoint Capital Partners

svb Silicon Valley Bank

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Acknowledgments

Authors:

Stefanie Krieger
Advisory, Cleantech Group

Amanda Faulkner
Research, Cleantech Group

Sheeraz Haji
CEO, Cleantech Group

Advisors:

Stephan Dolezalek
Managing Partner,
VantagePoint Capital Partners

Matt Maloney
Head of Cleantech Practice,
Silicon Valley Bank

Rob Tompkins
Director, SVB Analytics,
Silicon Valley Bank

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I. Executive Summary

Corporates, with their capital, access to markets, technological know-how, and validation, often seem like obvious partners to help cleantech startups overcome two of their biggest barriers to success: adoption and scale. Yet despite all the noise and recognized importance of partnerships—amongst entrepreneurial companies ("startups"), large established corporations ("corporates"), and investors alike—the success rate from these complex relationships has been less than we expected.

This study seeks to explore the different ways corporate relationships add value to startups, corporates, and investors; uncover the ingredients that constitute a successful and meaningful corporate relationship; and determine how each of the parties can manage these relationships to ensure that the greatest success is achieved.

We interviewed several cleantech leaders—startup CEOs, managing partners at top venture capital firms, and corporate executives—who all agree that meaningful corporate relationships can be a powerful contributor not only to a startup's success, but also to corporate and venture capital growth. We study how corporate partnerships add value in the following ways:

To startups:

- Provide validation for a company and its products to the market and to investors
- Assist in establishing early paths to commercialization through financial assistance and institutional knowledge
- Open doors to new customer, distribution, and geographic channels

To venture capital firms:

- Provide insight into technology and business model due diligence
- Offer access to and perspective on new markets and geographies
- Stimulate additional interest in the VC's portfolio companies

To corporates:

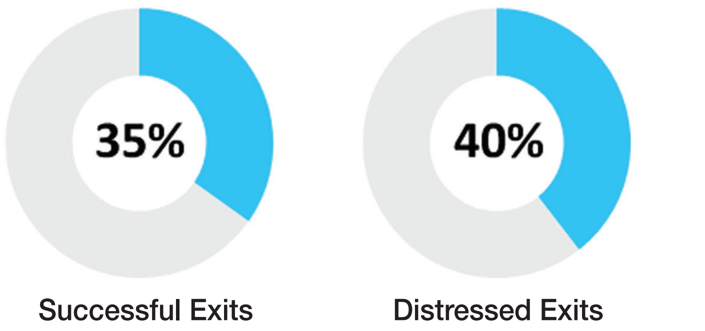
- Expand their portfolio of customer offerings
- Provide access to new resources and opportunities to validate potentially interesting technologies
- Offer insight into companies for future investment and acquisition fit
- Inspire additional innovative thinking across the organization

Using Cleantech Group's proprietary i3 platform, we developed a list of the top successful and distressed cleantech exits of the last decade to measure the impact of meaningful corporate relationships on these startups' outcomes and investigate how and whether these benefits were materializing. Do meaningful corporate partnerships truly help startups grow and succeed?

I.

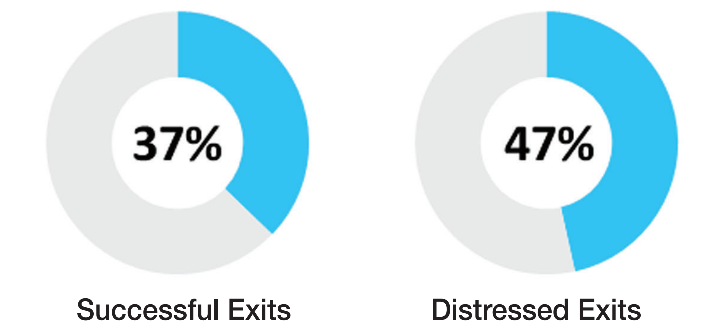
Our analysis showed that corporate investments were, in fact, not more predominant in successful companies. On the contrary, companies with distressed exits had a higher occurrence of corporate investors. Surprisingly, the same was true of meaningful corporate relationships. To date, at least, partnering itself is not a direct route to success.

Percentage of Cleantech Companies with Corporate Investment



Source: Cleantech Group's i3 Platform

Percentage of Cleantech Companies with Corporate Relationships



Source: Cleantech Group's i3 Platform

This study argues that while partnerships can be an effective way to accelerate innovation for corporates, startups, and investors, it is most definitely not a simple way. Innovation is complex, much like these partnerships, and both require careful nurturing and management.

In short, it's complicated.

Startups and corporates live and operate in isolated worlds and need to balance the tensions that emerge from their opposing and potentially misaligned timescales, sensitivities, differing approaches to leadership, and conflicting priorities and growth strategies. Identifying and acknowledging these challenges, and working closely with industry leaders who specialize in relationships across the sector, can help alleviate these tensions and unlock the full benefits of these corporate partnerships.

Our Corporate Partnership Playbook proposes strategies and tactics for both startups and corporates to establish and nurture successful partnerships in light of these challenges. Our playbook recommends the following approaches to managing expectations and relationships:

- Set yourself up for success with a team and internal processes capable of navigating the complexities
- Establish executive relationships and a succession plan for your relationships
- Diversify among players and across deal types
- Remember: Good fences make good neighbors
- Expect to be in it for the long haul

When managed and executed properly, corporate partnerships reveal a tremendous potential for innovation and for scale across the cleantech sector. The growth in these partnerships could serve as an opportunity to unite entities–industry leaders, consultants, entrepreneurs, investors—in an effort to generate new ideas and models for further collaboration and innovation in cleantech. To unlock this potential, companies must take deliberate and strategic approaches to nurturing these relationships.

II. Foreword

A great deal has been written about the importance of corporate partnering to venture-backed companies in general and in particular for companies in more capital-intensive sectors such as clean technology. Obviously, more mature sectors such as information technology and biotechnology now have thirty-plus years of relationships and learning on which to reflect. Cleantech is newer and very much still developing its own set of best practices. But, for a capital-intensive sector, these relationships are regarded as more meaningful and more important to startup success than might be true in Internet, social networking or mobile-application deals. Recent years have also seen a significant increase in the number of corporate venture funds and thus the amount of corporate capital as a percentage of the total capital invested annually in cleantech opportunities.

At VantagePoint, we started our Cleantech practice more than a decade ago, and from the beginning, we have adhered to the notion that corporate involvement is a key aspect of what we see as the necessary ingredients for investment success. Specifically, we form Strategic Partner relationships with a select group of Global 500 corporations. These relationships focus on maintaining a deep and structured relationship with three levels of corporate involvement:

(i) a key executive sponsor at the board or CEO level;

(ii) a series of business unit relationships focused on joint areas of interest; and

(iii) the corporate venture unit as an integral part of the team that drives success for us, the startup and the corporate.

We also organize specific events that regularly connect us to these three constituencies within each partner as well as connect the partners to each other. This includes our invitation-only ResourcePoint Summit, an event that brings together our strategic partners, other significant corporate players, global thought leaders and government officials, as well as a group of what we deem to be the most interesting startups in cleantech. In addition, within our own group we designate individual partners with the responsibility of maintaining certain corporate partner relationships on a weekly or monthly basis, matching our sectors of interest with those of the strategic partner.

We find that productive relationships require significant time and mindshare commitments by both parties and require that same level of activity across all three levels of contact. We have also discovered that the level of focus among corporate partners tends to change over time, largely driven by CEO-level strategic priorities at the top of the organization. This results in our making occasional changes between partners as one corporation's focus shifts away from areas of strategic overlap and others emphasize areas of strength and focus for us.

As we gain experience in working with corporate partners, we have discovered that such experience also makes it easier for us to connect with other major global corporations, as we better understand their thinking processes, capabilities, limitations and priorities and the differences between how they and we approach working with startups. In particular, we have discovered that while our strategic partners are quite good at working with us on technology validation and due diligence, they often see the pace of disruptive change in a more conservative light than the pace at which we and our portfolio companies are seeking to drive it. We also see that we place a meaningfully higher priority on the qualities of our CEO's and management teams than do our corporate relationships (they, in turn, tend to be more technology focused; looking at what they might accomplish with those technologies in their own hands).

We have also discovered differences between our approach and that taken by corporates in working with other venture funds. Often, where the corporate venture group is the key sponsor of the relationship, we find a symbiotic deal-sourcing relationship; one in which the corporate venture group uses the outside venture firm as a source of deal-flow by virtue of sharing information not only on deals done, but deals looked at on a regular basis. These relationships tend to focus more on earlier-stage investments and on providing the corporate with an early indicator of potentially disruptive technologies. In contrast, we tend to focus on finding specific technology sectors into which we and the strategic can do a deep dive, attempting to look at every single company in that specific sector, often establishing a ranking and noting the differences between how we and the strategic rank the companies. Our objective is trying to find, with each corporate, just one or two companies where the nature of the relationship will actually move the needle for the corporate (typically this means relationships that represent billions of dollars in potential corporate revenue, either through M&A, joint ventures or partnerships). We find this focus better meets the objectives of the corporate CEO and specific business units, but perhaps less so the not-as-focused technology scouting objectives of some venture units.

In sponsoring this work with Cleantech Group and in seeking the assistance of Silicon Valley Bank to provide key statistical analyses, we have focused on discovering overall best practices in relationships between and among corporates, startups and VC's, and on attempting to quantify whether such practices are producing meaningful results. In so doing, we have discovered that popular belief does not necessarily match actual results; more specifically that there are no simple answers, but lots of more complicated ones, that success requires hard work by all involved and yet that neither size, nor quantity of relations correlates directly to success. We hope that by digging deeper into a number of these complicated factors, we can better align expectations among the constituent parties, improve outcomes for the startup companies and better meet the expectations of both VC's and corporations.

J Stephan Dolezalek

Stephan Dolezalek
Managing Director
VantagePoint Capital Partners

III. Introduction

Adoption and scale are two of the biggest challenges that entrepreneurial companies ("startups") face across all stages of growth. Large, established corporations ("corporates") seem like obvious partners to a startup, giving it the necessary capital, validation, access to markets, and technology knowhow to help it grow and succeed, all while helping drive corporates' own internal innovation strategies. This seemingly natural marriage is why there has been a great deal of noise and awareness about the importance of corporate partnerships, particularly in the cleantech sector where adoption and scaling up are particularly difficult.

But do meaningful corporate partnerships truly help cleantech startups grow and succeed? This is precisely what this study sets out to investigate.

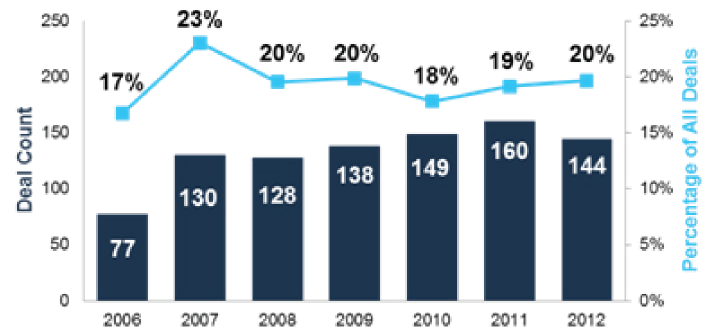
First, let's take a brief look at the history of corporate partnerships in cleantech. In the last decade, we saw a rapid increase in the number of corporates establishing both dedicated venturing units (for instance, Repsol, GM, and E.ON recently launching their corporate venture capital (CVC) units) and cooperative funds (for instance, EDF's, Allianz's, and Idinvest Partner's fund, Electranova Capital).

We also saw a growth of 108% in the number of cleantech investment deals with corporate participation between 2006 and 2011 (Exhibit 1). The slight year-over-year decrease in deal count in 2012 is part of a decline in overall deals in the cleantech sector (Exhibit 2). Even with this sector-wide decline, the percentage of all deals featuring corporate relationships continued to hold steady.

The corporates that have been the most active investors into cleantech companies have been in the oil and gas, energy, industrial, and technology industries, with companies like GE, ConocoPhillips, Mitsui, and Google posting the largest number of cleantech deals over the last two years (Exhibit 3).

Exhibit 1: Corporate Participation in Cleantech Investment

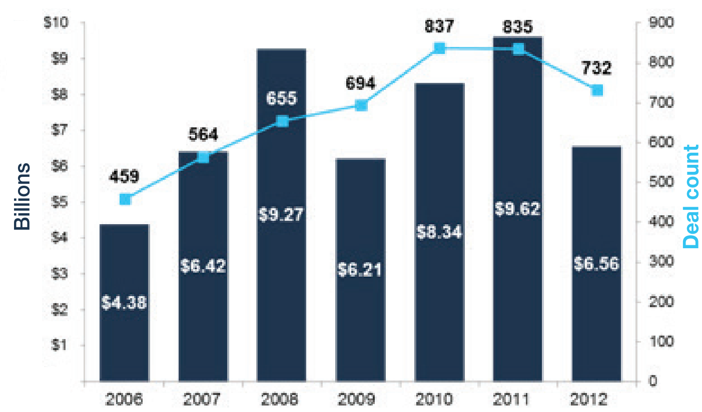
Deal Count and Percentage of All Deals



Source: Cleantech Group's i3 Platform

Exhibit 2: Global VC Investment in Cleantech

Dollars Invested and Deal count



Source: Cleantech Group's i3 Platform

Although corporate investment is key to a startup's capital journey, it represents only a small piece of the corporate partnership story. Startups need to look beyond equity to achieve adoption and scale. They need validation for their technology, access to new channels, and greater market intelligence. This is where R&D, distribution, and joint-venture partnerships with corporates play a fundamental role in a startup's growth. A few corporates have established programs that focus primarily on developing these non-equity partnerships rather than in making direct investments. Veolia's Innovation Accelerator and Saint-Gobain's Nova External Venturing program are two examples of corporate programs using this approach to partnerships.

Whether an investment or a non-equity relationship, each of these partnership models can serve as an effective way for corporates to address the emerging threats they are facing from resource constraints, external disruption, and new business models.

Exhibit 3: Most Active Corporate Investors in Cleantech
By Deal Count 3Q11-2Q13

Investor*	Deal Count 3Q11-2Q13	Featured Portfolio Companies
GE	23	Tendril, Better Place, Codexis
ConocoPhillips	18	Skyonic, Ioxus, Glori Energy
Mitsui & Co., Ltd.	17	Marrone Bio Innovations, Kaiima, BioAmber
Intel Capital	13	JouleX, Nexant, Enlighted
Google	12	Uber, Clean Power Finance, Silver Spring Networks
Total	11	NanoH2O, LightSail Energy, Ambri
bp	11	Solidia, BrightSource, Cool Planet Energy Systems
Solvay	9	BuildingIQ, Avantium, Plextronics
WM Waste Management	8	Recyclebank, Harvest Power, Agilyx
ABB	8	Trilliant, TaKaDu, Aquamarine Power

*Includes BUs, CVCs and joint venture groups such as Aster and Energy Technology Ventures

Source: Cleantech Group's i3 Platform

While a partnership can accelerate innovation for both corporates and startups, establishing one is not always a simple process. Like innovation, a partnership requires careful nurturing and management.

We interviewed several cleantech leaders—startup CEOs, managing partners at top venture capital firms, and corporate executives—and all agree that meaningful corporate relationships can be a powerful contributor not only to a startup's success, but also to corporate and venture capital growth. Although startups, corporates, and investors recognize the importance of these partnerships, we found that very few are truly organized and equipped to best leverage the potential of these relationships.

This study seeks to explore the different ways that corporate relationships do add value to startups, corporates, and investors; uncover the ingredients that constitute a successful and meaningful corporate relationship; and determine how partners can manage these relationships to ensure that the greatest success is achieved.

Primary Types of Corporate Partnerships:

1. **Distribution partnership:** Corporate leverages own network and resources to distribute a startup's products
2. **Joint venture:** Corporate and startup enter an agreement to collaborate on a project, typically focusing on a plant or other capital-intensive plans
3. **R&D relationship:** Corporate leverages internal resources or current technology infrastructure to supplement a startup's products or solutions or to co-develop a new offering
4. **Venture unit investor:** Corporate makes an equity investment in a startup through its corporate venture capital (CVC) unit
5. **BU-level investor:** Corporate makes an equity investment in a startup off specific BU balance sheet
6. **Customer:** Corporate simply purchases a startup's goods or services

"Cleantech is moving away from its early stages, where it was a movement that pushed technologies into the hands of early adopters that were willing to pay a premium for 'clean'. Today, it is increasingly becoming an integral part of corporate agendas, no longer a cost, but rather a way to increase productivity while decreasing their environmental footprints."

Wal van Lierop

President & CEO, Chrysalix

IV. Startups: Achieving Scale, Adoption, and Knowhow

We already mentioned that scaling and adoption are two of the greatest hurdles that cleantech startups must overcome on their paths toward success. Whether for an early-stage company developing a new product or a late-stage company seeking new markets and customers, corporates have resources and knowhow that can lift these barriers to success. The nature of how corporates engage with startups differs tremendously based on a variety of factors, such as the startup's sector and its current stage of development. We have observed that capital-intensive startups prefer developing joint ventures with corporates, while startups with software-based products more frequently look to establish distribution partnerships.

In either case, the value that the corporate provides can be critical, if correctly structured, to driving growth at any stage of a startup's maturity. Across the sector, we have found there are three primary ways that corporates add value to cleantech startups:

1. Provide validation for a company and its products

Whether it's a distribution or a development partnership, the relationship with a corporate can provide invaluable validation to the startup's brand and product. This validation can, to some extent, come from an equity investment, but it more powerfully emerges through the formal endorsement of a startup through collaborations, joint ventures, or other partnerships. Equity investments often show an especially strong commitment to the startup when coming from a corporate's balance sheet rather than from the company's venture unit because it typically indicates a more vested interest in the company. Investments from corporate venture capital (CVC) units can be very useful in the fundraising story of a startup, but given the broad and sometimes self-governing mandates of CVCs, an investment (particularly if smaller in size, for example, below $5 million) may not appear as strategic as an investment by the corporate itself.

Corporate validation is critical when a late-stage startup is bringing their product to market, scaling, or obtaining a positive valuation from institutional investors. According to Jeremy Hux, Managing Partner at Credit Suisse, "institutional investors do look carefully at a company's meaningful corporate relationships during a company's valuation process." Solar energy management company Enphase established a formal distribution agreement with Siemens; however, investors close to Enphase believe that access to the distribution channels themselves was not as critical to Enphase's success and initial valuation as was the brand validation that it received through its partnership with Siemens. Similarly, bringing in both ABB and GE as large-scale investors alongside other financial investors put Trilliant on the map among smart grid companies, perhaps more so than its prior standalone successes in deployment.

> "institutional investors do look carefully at a company's meaningful corporate relationships during a company's valuation process."
>
> Jeremy Hux, Managing Partner, Credit Suisse

Corporates can also offer an opportunity for a startup to validate and test their technology and products in a risk-free environment. Canada's Oil Sands Innovation Alliance (COSIA) is in the process of establishing a Water Technology Development Centre – a dedicated test facility to allow water companies to test-drive their technologies using Canadian oil and gas company Suncor's operations and a "live" environment. COSIA states the test facility will "shorten the current eight-year time frame required to field test technologies and move them to commercial application, leading to an accelerated return on investment." Siemens and other corporates, particularly utilities, have established or are in the process of establishing these types of testing platforms. Utilities have long demonstrated the importance of conducting small-scale trials, followed by limited-test deployments, before moving to full deployments – a practice that can take frustratingly long for the startup but certainly provides increasing levels of validation as the startup proceeds through each phase.

Equally as important as later-stage deployments and scaling, validation can also play a key role in the early stages of a startup's development. Corporates can help confirm whether a startup is chasing a real opportunity. For instance, a corporate in the chemicals sector can validate whether a startup will have market and customer traction if producing a chemical at a certain target price.

2. Provide the capital and knowhow to establish early plants

Corporates add significant value when helping a startup build its first plant or an early plant by providing both the necessary knowhow and financial support. These types of partnerships are particularly important and predominant in capital-intensive sectors – for instance in wind, solar, batteries, biofuels, waste, and advanced materials. LanzaTech's joint venture with China's leading steel company Baosteel is a clear example of the value that these partnerships can provide. LanzaTech, the Illinois-based developer of carbon capture technology to create biofuels, entered in the joint venture with Baosteel to build an ethanol plant in China following an initial successful demonstration plant that showed that the technology had tremendous scaling potential. Baosteel is providing the financial support for the ethanol plant, which will be LanzaTech's first commercial-scale operation. The relationship with Baosteel may also be a gateway to other Asian markets in India, South Korea, and Japan, which have all shown interest in LanzaTech's technology since the successful partnership.

3. Access to new channels (customer, distribution, geographic)

As a result of their existing and widespread customer and distribution networks, corporates can quickly open doors for startups by expanding the companies' access to new channels. These partnerships can be through either formal or informal agreements. Formal agreements are typically publicly announced relationships, as was the case with Enphase's partnership with Siemens to sell the company's solar micro-invertors through Siemen's distribution network. Informal partnerships, as seen with electronics recycling kiosk company ecoATM's partnership with coin-exchanging operator Outerwall, are also effective in expanding a startup's network. Outerwall was a financial investor in ecoATM and allowed the company to maintain autonomy in its sales processes while serving as a critical relationship broker to high-profile vendors.

We frequently observe these partnerships among smart grid companies, who partner with utilities to quickly pilot and deploy their technologies to new customers. Silver Spring Networks established pilot partnerships with a number of energy companies, both in the U.S. with companies including PG&E, ComEd, and CPS Energy, and abroad with partners in Brazil (AES Electropaulo, and CPFL Energia), Singapore, and New Zealand. All these partnerships were cultivated before Silver Springs Networks filed for its IPO earlier this year, and they were paramount to scaling up and increasing adoption of its product in new markets and geographies.

In addition to acquiring new customers and markets, corporates can provide startups with important market definition criteria that allow the startup to fine-tune its product offering for greater success. Developer of advanced, nanostructured materials solutions NanoSteel received an investment from GM Ventures in 2012, but the partnership was also critical for NanoSteel in the continued development of its nano-structured advanced high strength steel (AHSS), because it received the necessary industry input from GM to commercialize its product.

Corporates can provide startups with important market definition criteria that allow the startup to fine-tune its product offering for greater success.

While not an exhaustive list, the above examples of how corporate partnerships add unique value to startups highlight the difficulty in reaching scale and adoption in the absence of this validation, early plant support, and channel expansion that corporates bring to the table.

V. Venture Capital Firms: The Emerging Corporate Partner

As cleantech matures, investors are learning that the sector is quite different from IT and have come to value the importance of corporates to their funds and to their portfolio companies. In short, corporates matter a great deal.

While they haven't traditionally been obvious candidates, cleantech venture capital firms also benefit from meaningful partnerships with corporates. IT-focused venture capitalists traditionally do not spend very much time engaging with corporates. They generally view corporates in two ways: as unlikely disruptors and as potential exit paths for their startups. Many cleantech venture capitalists adopted this mindset, and many underestimated the differences between cleantech and IT investing. Specifically, many investors underestimated the importance of big companies in industrial markets.

In industrial segments, corporates often control channels to market and possess scale-up capital and experience difficult for startups to acquire. Conservative customers (for instance, utilities) generally prefer to buy from big, well-established companies, and thus these channels are particularly important to cleantech companies who frequently sell into these more traditional markets.

Capital for cleantech venture funds has grown increasingly constrained over the past five years. While big institutional investors (such as CalPERS and CalSTERS) actively participated in the first wave of cleantech limited partner (LP) investments, institutional investors have largely pulled back from cleantech fund investments since 2008. Funds of Funds have had mixed success in cleantech, so cleantech venture firms have increasingly turned to corporates as potential investors in their funds. A number of recent firms have achieved success with this strategy. For example, the Westly Group was able to secure E.ON as one of their anchor investors in their recent $160-million cleantech fund.

As cleantech matures, investors are learning that the sector is quite different from IT and have come to value the importance of corporates to their funds and to their portfolio companies. In short, corporates matter a great deal. Below we highlight three ways we have seen corporates add value to cleantech venture capitalists:

1. Provide insight into technology and business model due diligence

A few cleantech venture firms have gone out of their way to build partnerships with corporates to assist in market validation, technology validation, due diligence, shared deal flow, and scaling their portfolio companies. Cleantech stretches across numerous sectors and technology areas, which can make it difficult for venture capitalists to prioritize which markets to focus on for possible new investments. Having a major industrial or energy company validate a key challenge area can help venture firms prioritize opportunities.

Venture firms can work closely with a corporate partner to source new deals and to validate which companies in a particular space are best positioned to succeed. Many large companies have significant R&D teams and are willing to leverage those resources to help partners conduct technology assessments. This access to deep technical skills can be very helpful to a venture firm. However, the most valuable feedback often comes from the business units where executives are talking with paying customers every day. Feedback on market dynamics can be instrumental in appropriately assessing emerging companies' future prospects. What are the competitive dynamics? What's happening with pricing? How hungry for change are the customers? How healthy are the margins for existing participants? What regulatory or other barriers exist today? These are a sample of the questions that will impact the growth of a startup. Corporates can add significant value to the investment process when they bring real market insights to a "deep dive" research effort.

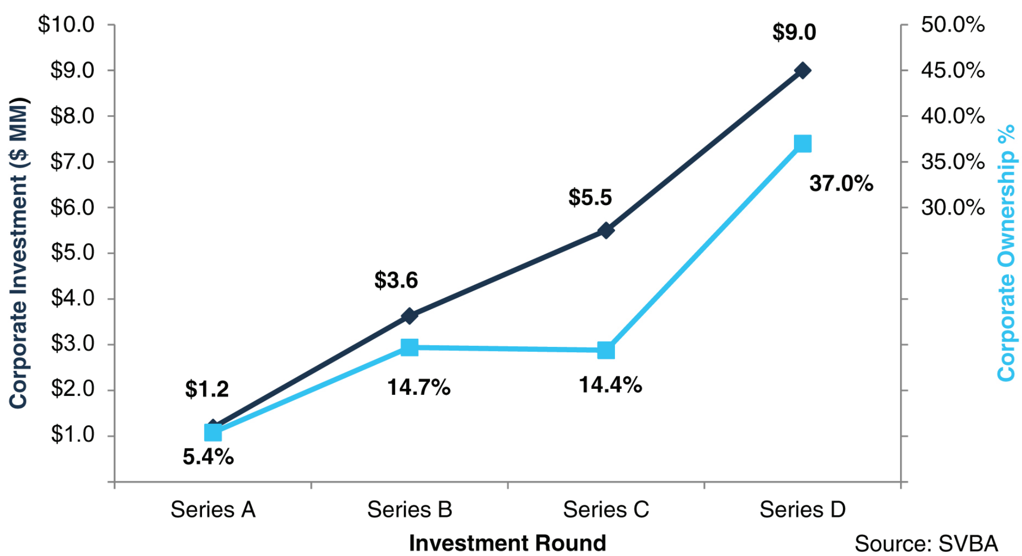
Feedback on market dynamics can be instrumental in appropriately assessing emerging companies' future prospects.

Once a target investment has been identified, corporates can leverage the market and technology knowhow described above to assist with due diligence. Are the startup executives well-regarded in their industries? Do their technology claims stand up when tested? Do they understand the markets they will be selling into? Do they have reasonable expectations on what's required to build a first plant and to scale the business? These are questions where venture capitalists can gain valuable help from effective corporate partnerships.

On the other end of the spectrum, venture capital firms can provide corporates with necessary validation as well. Corporates tend to invest more conservatively in early stages of a company, only acquiring greater ownership in later investment stages.

Exhibit 4: Corporate Investment in Cleantech Companies

Median Corporate Investment Amount and
Median Corporate Ownership Percentage



2. Offer access to and perspective on new markets and geographies

In addition to assisting with due diligence, corporates can provide valuable insight into the geographies and markets in which they operate. These insights can be useful both in providing portfolio companies with access to new geographies as well as in giving the venture capitalists insights into their target markets. EnerTech Capital has established co-located offices within two of its strategic LPs, Hatch in Montreal and Newalta in Calgary, to increase collaboration between the firm and its corporate partners, gain further insight into these strategic markets, and identify new investment opportunities.

3. Stimulate additional interest in VC portfolio companies

Exits are key to making the venture model work. In cleantech in particular, there have been few successful public offerings to date. While Tesla, SolarCity, and a few other public cleantech companies are experiencing terrific growth and strong valuations, a number of other cleantech companies recently have gone public, and but are neither meeting investor expectations nor freeing themselves from the need for additional dilutive financing. In today's climate, investors need to plan for a M&A exit as being as viable as an IPO, or perhaps more so. Strong relationships with key corporates can help stimulate interest in specific startups in the portfolio. This often leads to an extended period of time where one or more corporate watches a sector and eventually buys a leading startup.

Corporates also typically rely on the venture community to establish valuations. Until very recently, most corporate venture units have been reluctant to lead or price deals, preferring instead to come in behind a well-known venture lead, as previously shown. Although some corporates take Board seats, they more often leave corporate guidance decisions, particularly hiring and firing of key personnel, to the venture firms.

A strong partnership with a venture firm can significantly augment dealflow.

These relationships are a two-way street. When the relationship works, corporates see venture firms as an efficient way to interact with the startup ecosystem. Instead of engaging with emerging companies individually, corporates can gain exposure to a portfolio of startups. A strong partnership with a venture firm can significantly augment dealflow. Through conversations with investment professionals and startup executives, corporate executives can gain key market intelligence. This is especially valuable as it relates to potential disruptions that may not be obvious from inside a larger, more insular company. But corporates also acknowledge that they often do not know what to do with smaller startups. Taking a company from $100 million to $500 million or more in revenue is familiar territory for most corporates. Taking a group of startups from $10 million to $50 million in revenue is far less familiar territory and is typically seen as the venture capitalist's responsibility. Particularly at the CEO level, corporates are looking for transactions that can "move the needle" during their tenure and this typically means high returns in less than five years.

Over the last five years, corporate executives have chosen to establish their own captive investment vehicles. Launching a corporate venture capital fund is not trivial and history shows that across a number of sectors the enthusiasm for fund formation tends to ebb and flow over 5- to 7-year cycles. There are many strategic and tactical decisions to make. Few corporates have in-house experience investing in startups. Working closely with one or more venture firms can be a good way to learn how the venture profession works – for instance, insight into deal mechanics, recognizing good team practices, and learning how to be an effective Board member.

Three Funds with Strong Strategic Partner Focus

A number of venture and private equity funds have specifically dedicated themselves to working with corporates as part of their overall strategy and value-add to startup companies. Over the years, others have described themselves as closely aligned with corporates, but have since dropped such descriptions from their websites; perhaps signaling just how difficult it is to get these relationships right over time and to keep them fresh from fund to fund and across personnel changes in the corporates. Here we detail three different funds that all got started in 2001, thus now representing over a decade of experience in the Cleantech sector. Each fund differs in size, approach, and perspective on how best to work with corporate partners.

VantagePoint Capital Partners

VantagePoint is by far the largest of the funds that have maintained a dedicated corporate partner program, having invested more than $1 billion into cleantech companies, and now has more than a decade of experience. The Fund has always been globally focused with personnel and offices in North America, Europe, and Asia. Participation in the program involves entering into a detailed agreement spelling out the responsibilities of each of the parties, provisions to keep confidential data sharing between them, and calling out specific individuals who from time to time shall be responsible for carrying forward the relationship at three levels. Those three levels require an executive sponsor in the C-Suite or at the Board of Directors of the corporate; one or more business unit sponsors who represent the areas of strategic interest; and, when a corporate venture unit exists, a connection within that unit. Partners are selected on a fund-by-fund basis. Generally, as part of the partnering process, the firms agree on specific areas of interest that they wish to explore together, often collaboratively diligencing as many as 50 or more companies in a sector of interest. In order to confirm their commitment to making the relationship work, the corporates typically make an investment of $10 million or more in one of the VantagePoint funds or a larger investment in a specially dedicated vehicle.

Some of the corporations who have been active in the VantagePoint program include BP, DuPont, Procter & Gamble, Jabil, BestBuy, Scottish & Southern, Schlumberger, and Air Products. In addition, VantagePoint has organized an annual summit, ResourcePoint, which is a 150-person, invitation-only event held over the course of three days to allow the VantagePoint team and members of its Strategic Partners to meet with thought leaders, senior government officials from various states and countries, and some of the best startups in the business to discuss how to move their collective agendas forward. Discussions first initiated at ResourcePoint have resulted in hundreds of millions of dollars' worth of corporate partnering transactions.

Pangaea Ventures

Pangaea Ventures has offices in Vancouver and New Jersey. As a fund, it is tightly focused on technology breakthroughs in the advanced materials area. Its current fund has closed on the first $55 million of a $100 million target size. In this first closing, it has signed up a significant number of corporate LPs who are specifically interested in technology investments in the advanced materials sector, including Asahi Glass, Asahi Kasei, Bekaert, CoorsTek, JSR Corporation, Mitsubishi Chemical, Murata Manufacturing, Nitto Denko and SABIC. Typical corporate investments are $5 million and corporates represent the vast majority of the limited partners in the fund.

Pangaea looks for "capital light" investment opportunities, in search for better EBITDA multiples than it believes can be commanded by the largest cleantech companies. In addition, the fund has signed on advisors (many of them representing the corporate venture unit) from many of the same corporates as are its LPs.

vFor corporate venture units looking for deal flow in the advanced materials sector, Pangaea provides ready access to its deal flow and the opportunity to share that with other corporates having the same interest.

In that regard, the VantagePoint and Pangaea strategies are diametrically opposed, with VantagePoint focusing on a very small number of strategic investments that can move the needle at the highest level of the big corporations and Pangaea focusing on much smaller and earlier investments that give the corporate venture units an early view of potentially disruptive inventions. As discussed in this report, both strategies are highly viable; they just focus on differing objectives and relationships at different levels within the corporation.

Chrysalix represents some of what VantagePoint and Pangaea are each focused on, being in the middle size, with an early-stage bias like Pangaea, but focusing on bigger win deals and with a more international approach like VantagePoint.

Chrysalix Ventures

Chrysalix Energy Venture Capital was established in 2001 in Vancouver, Canada. More recently, it has formed a network that now has offices in North America, Europe, and Asia. The firm is focused on "early-stage financing, hands-on assistance, and strategic connections to innovative companies confronting the world's most important energy and environmental issues." It looks for game-changing companies that support the "new energy economy" – what Chrysalix describes as "Green Elephants" of the future. Together, the Chrysalix network firms discuss local deal flow, exchange knowledge, and share networks which they believe results in faster geographical expansion for their portfolio companies, lowered investment risk, and superior fund performance.

Chrysalix's last fund, in 2010, was a $125 million fund, with the firm making a significant number of new investments (enough to make it, together with its network firms, the most active early-stage investor in Cleantech from 2010 to 2012).

Chrysalix corporate involvement is particularly strong in the oil and gas and chemicals sectors, and its deals reflect a prioritization in line with the interests of a number of its corporate LPs.

VI. Corporates: Growing and Differentiating Amid New Threats

Previously we highlighted the need for corporates to innovate, grow, and differentiate to prepare for and respond to emerging new threats and market disruptions. Many corporates' innovation efforts today are limited to their R&D groups, which are experiencing diminishing returns. Executives are increasingly aware that there are hundreds of innovative startups and projects operating outside of their walls that could dramatically impact their future. They increasingly want to access this innovation, assess it, and partner with top talent that can help them disrupt their own businesses before someone else does. Yet, corporates have a very different genetic makeup compared to startups, particularly as it pertains to risk.

> Investing in a high-risk, high-reward startup means the corporate loses far less on failure than if it took on the whole project on its balance sheet.

Almost by definition startups are willing to assume risks that their far more mature brethren would shun. Corporates are often willing to engage in disruptive early-stage R&D efforts, but moving such R&D out of the lab and into full-scale growth mode is typically seen as far more difficult in a corporation facing conflicting objectives and internal competition for corporate budget. Startups are typically singularly focused and thus also risk a far more binary outcome between success and complete failure. The personalities of the executives and the employees best equipped to handle such binary outcomes are less likely to be successful in a more structured corporate environment.

> Rather than being disrupted by these startups' emerging technologies, these partnerships can allow corporates to experience the risk and reward of the disruption in a more balanced fashion.

These differences are a big part of why partnering makes sense and can function as a risk-mitigating step for both parties. Investing in a high-risk, high-reward startup means the corporate loses far less on failure than if it took on the whole project on its balance sheet. It also, however, creates the opportunity for the corporate to step in and take a greater role, investment interest, or even full acquisition at the point where the startup has achieved enough success that its risk-reward profile more closely matches that of the corporate. Similarly, corporates can explore new markets through their startup relationships, both without directly signaling their willingness to commit to these markets and with far less reputational damage if they pull out, than if the same effort were done internally.

Below we discuss in greater detail four ways that these partnerships contribute value to corporates:

1. Expand portfolio of customer offerings and enter new markets

By working with a startup on its products, a corporate is able to rapidly expand its own offerings to its existing customers, enter new markets, or solve problems related to its strategic businesses priorities, without needing to go through traditionally lengthy R&D processes. These partnerships allow corporates to keep up with their growing customer demands for these new and more "innovative" types of products and solutions – a demand that is quickly emerging and that is currently being addressed by startups. Rather than being disrupted by these startups' emerging technologies, these partnerships can allow corporates to experience the risk and reward of the disruption in a more balanced fashion.

2. Provide access to new resources and validation on technologies

These partnerships also allow the corporate to test multiple products with their customers and within their own company before committing to one offering. This has recently been the case for many utilities who are exploring their growth opportunities in smart grid technology and deployment. Utilities including PG&E and Duke Energy have established numerous partnerships with startups like Silver Spring Networks, Tendril, and Aclara to provide their customers with smart meter and smart grid solutions, rather than developing these solutions in-house or acquiring a company that offers a single technology. This technology "testing" gives the utilities better insight on which technologies, if any, they should focus on and scale. From the startup's perspective, these relationships can be a mixed bag – gaining these initial deployments can be expensive and margins on trial deployments are often thin; but those that emerge victorious can achieve company-making status ("you can't win if you don't play") – but are a requisite to company success, particularly in the utility-heavy sectors.

Partnerships with startups allow corporates to add second sources for key supply chain needs, gain access to technology improvements for their existing products, and obtain a leg up on competitors by pre-empting potentially disruptive products and technologies. We see this type of disruption occurring within corporates that are highly dependent upon fossil-based inputs and fuel sources. Investments or collaborations with biofuels or biochemical companies are a strategic way to begin to expand their feedstock requirements. Companies such as Elevance Renewables, Genomatica and Solazyme are all good examples of how corporates are exploring the burgeoning industrial biotech sector, particularly as it relates to biochemicals.

Corporates that view startup partnerships as an opportunity to strengthen their offering through new supply sources often require that the startup meet volume demands and thus these partnerships are typically seen with later-stage startups that can be an adequate source for supply chain needs. Working with these later-stage startups (that are more likely to be ready for full commercial-scale facilities) can give the corporate an opportunity to repurpose or deploy idle manufacturing capacity in working with a relevant startup in a way that makes immediate economic sense for both parties.

Case Study

GE recognizes the importance of partnerships in promoting innovation. Its Open Innovation program, ecomagination Challenge, and GE Ventures are a few approaches that the company has taken to call upon entrepreneurs to help tackle GE's strategic priorities. GE Ventures has made over 60+ startup investments in the energy, software, health care, and advanced manufacturing sectors, and works closely with companies, providing them with access to GE's technical infrastructure, research centers, customer relationships, and extensive global reach. GE has not only partnered with leading venture capital firms, such as KPCB and RockPort Capital Partners to fund its ecomagination challenge, but is also leading the industry with collaborative models including Energy Technology Ventures, a joint-venture cleantech fund involving GE, NRG Energy, and ConocoPhillips.

We sat down with Senior Executive Director for GE Ventures, Colleen Calhoun, to discuss GE's startup partnership approach:

Why does GE engage with startups?

Engaging with startups gives GE a window into new technologies and markets. It provides the company with insight into what traditional models today's startups are trying to disrupt and keeps us ahead of the curve.

How does GE add value to these startups?

By far, the number one value add is GE's ability to quickly bring technology experts to the table. GE has the resources and knowledge to solve the hard problems that startups may not have been able to solve on their own. GE can also add tremendous value by opening doors to new customer and commercial channels.

What are the most challenging aspects of these relationships?

Fit and alignment are the two top challenges we usually encounter. Startups often don't fit perfectly into what GE is looking for and it's important to carefully manage those differences. It's sometimes not easy to quickly identify when these differences are too irreconcilable for a relationship to succeed. Corporates can also become fatigued with startups when it takes them awhile (6-8 years) to figure out their business model, get traction, and scale.

(Note: for more insights from Colleen Calhoun and other corporate leaders, visit www.cleantech.com/10x13 to watch our series "10 Interviews with Thought Leaders in 2013")

Illustrative example of GE Investments:

Portfolio Company	Sector	Technology	Select Co-Investors
view	Energy Efficiency	Electrochromic glass for efficient heating and cooling	Corning, Khosla Ventures
Trilliant	Smart Grid	Advanced metering, distribution automation and demand response	ABB Technology Ventures, VantagePoint Capital Partners
coolplanet ENERGY SYSTEMS	Biofuels & Biochemicals	Fuels and biochar from non-food cellulosic biomass	BP, ConocoPhilips, Google Ventures
SustainX SMARTER ENERGY STORAGE	Energy Storage	Compressed air for grid scale energy storage	RockPort Capital Partners, Polaris Venture Partners

3. Offer insight into companies with potential acquisition fit

By engaging with a company in its early stages, a corporate can have a voice in the development and shape of the company, which could prove to be helpful if the corporate ever chooses to invest further into or acquire that company. Whether the corporate is actively participating in the startup's development, or watching from a close distance, this insight into the way the company functions gives the corporate competitive advantage in the due diligence process if it ever decides to go down the path of acquisition. ecoATM and Outerwall designed their partnership to not limit ecoATM's potential future acquisition by another company. However, the startup was, indeed, ultimately acquired by Outerwall who understood how the company functioned and could offer the most compatible partnership and facilitate the due diligence process given its existing insight into the company.

4. Inspire internal innovative thinking

In a world characterized by greater volatility and a greater pace of change, more and more corporates feel a need to constantly reinvent themselves. Doing so from the inside can be a disruptive process. Doing so through a series of close relationships with companies that are constantly exploring the bleeding edge of new markets and new technologies can provide an internal stimulus for creative thinking as well a warning against complacency. We believe this notion may be a key driver of the volume of new corporate venture efforts announced in the last several years. By demonstrating a commitment to new technologies and an appetite for innovation through their partnerships with emerging startups, a corporate can promote this shift in thinking within the broader company and encourage additional innovation.

"The fact is that GE was becoming too complicated. We were simply working on too many things that aren't important. We had too many "checkers" and not enough "doers." Visiting with entrepreneurs has helped me focus on complexity, accountability and purpose."

Jeff Immelt

Chairman & CEO, General Electric

2012 Annual Report: GE Works

Interestingly, while the benefits of partnerships differ between corporates, startups, and investors, there are several thematic overlaps. For instance, startups benefit from the access to corporate networks and channels and corporates benefit from potentially increasing their channel reach by offering the startup's product. Another parallel is in validation; startups receive brand validation from corporates, while corporates can partner with startups to validate a new technology, and investors partner with corporates to provide validation in the investment process.

VII. Corporate Partnering: It's Complicated

In exploring the ways that corporate partnerships add value across the cleantech sector, we've found that given that A) startups and corporates live and operate in different worlds, and B) relationships, though potentially valuable, differ tremendously based on circumstance, there is not one silver bullet to developing a successful corporate relationship – in short, it's complicated. Corporate partnerships can be mutually beneficial to all parties but simply having a partnership does not necessarily equate with success.

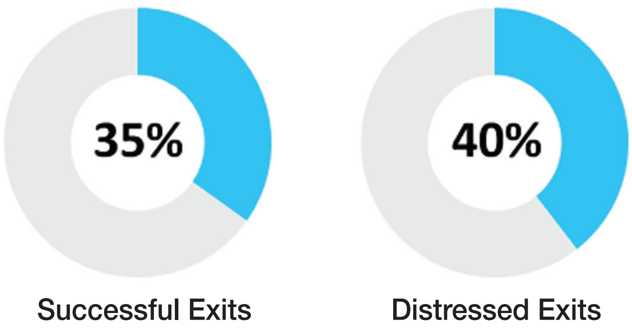
> There is not one silver bullet to developing a successful corporate relationship – in short, it's complicated.

We investigated whether and how all these previously identified benefits were materializing by using Cleantech Group's proprietary i3 platform to develop a list of 86 of the most successful and most distressed exits in cleantech of the last decade (for more information on our Methodology and i3 database, please see the Appendix). While we don't consider exits to be finish lines, we do believe that they are a key milestone in a company's journey.

Our analysis showed that startups with successful exits did not have a greater frequency of corporate investors (Exhibit 5). In fact, startups with distressed exits had a slightly greater percentage of corporate investments. Although this is unexpected, it is not necessarily surprising given the fact that corporate investments come in a variety of forms, including small investments where the corporate serves only as an observer.

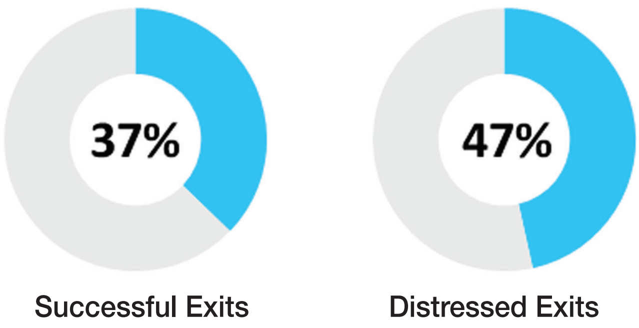
The surprising piece of our analysis is what emerged on the impact of corporate partnerships. We defined these partnerships as distribution, joint-venture, and development partnerships. Customer and vendor agreements, while important to the startup-corporate relationship, were not considered in our analysis because the nature of these agreements is less known and tend to be further removed.

Exhibit 5: Percentage of Cleantech Companies with Corporate Investment



Source: Cleantech Group's i3 Platform

Exhibit 6: Percentage of Cleantech Companies with Corporate Relationships



Source: Cleantech Group's i3 Platform

These results further emphasize that these relationships are very complex and to date, not a direct route to success.

The unique priorities and operating rhythms of each partner contribute to the beauty of these partnerships, with each entity adding complementary value to the relationship. However, they are also the source of many of the challenges and tensions that exist in developing and maintaining these partnerships. If not managed properly, these challenges can lead to unsuccessful relationships that have a greater negative impact on all parties involved.

When entering into a partnership, it is critical to identify the types of tensions that typically emerge in order to be better prepared to manage them. We found that corporates and startups are generally both aware of these tensions, each from their own perspective, but awareness does not always equate with the ability to identify and manage through the tensions to success. Below we present a few of the most frequently encountered challenges in corporate relationships.

Awareness does not always equate with the ability to identify and manage through the tensions to success.

Opposing and potentially misaligned timescales sensitivities

Startups, consistently faced with rapid competitive pressures from other emerging companies, are concerned that processes with corporates will not move fast enough to maintain their own competitive advantage.

Due to the structured and compliance-driven nature of their organization, corporates typically require longer timelines to drive a project and fulfill requests. These lengthy processes are challenged by and challenging to the startup's nimble and fast-paced decision-making approach. Startups, consistently faced with rapid competitive pressures from other emerging companies, are concerned that processes with corporates will not move fast enough to maintain their own competitive advantage. Startups also fear that these prolonged processes and decision-making practices will impact their fundraising process during times where capital is especially critical.

Within the finance community, venture capital funds are accustomed to the notion that a particularly "hot" startup may require a very rapid decision process, even one that violates the weekly decision timeframe of the venture fund. In the pre-2008 market correction, there are stories of venture funds chasing down startup executives shortly after their first presentation to the fund in order to make sure a deal got done before the startup had a chance to meet with a competing fund. Such timelines are not just stressful to most corporates, but may simply make it impossible for the corporate to get into the early rounds of such in-demand companies.

Differing approaches to leadership

A successful corporate executive may not excel at a senior role at a startup, and the same is often even truer for a startup CEO in a larger corporate environment.

The culture and leadership styles of corporate teams can differ significantly from those in a smaller and younger startup. A successful corporate executive may not excel at a senior role at a startup, and the same is often even truer for a startup CEO in a larger corporate environment. These differences can add unique value and perspective to partnerships, but are a source of tension that must be addressed and correctly managed during the nascent stages of these relationships.

We find that although there is a broad-based and general recognition of and appreciation for these differences, rarely does that translate into properly valuing how singularly determinant of success those differences can be. Quite frequently, the startup CEO must take on risks that would simply be imprudent for his corporate counterpart. On the other hand, the corporate CEO has often encountered enough experiences to better identify potentially lethal risks. This is one area where the venture capitalists on the startups Board of Directors can play a crucial role in intermediating between those differences and assist in guiding the startup safely through without alienating the corporate.

Differing priorities and growth strategies

Given the rapid and nimble nature of their business, startups often prioritize adoption and growth over immediate profitability. As a result, startups tend to accept pricing a product at a loss if it means gaining new customers or increasing market traction. This type of product pricing is more difficult to justify in a corporate environment, where profitability is a driver of most business decisions. These types of diverging paths to growth can impact how a startup's product is embedded in a corporate portfolio.

Startups often worry that their corporate partners will "chill" their ability to partner with or be acquired by others. Corporates have the opposite worry – that they will validate and invest resources into a growing startup just to see it be acquired by a competitor who did not invest in their development. This is a tension that, when well-managed, can reinforce the relationship by making sure the startup can ultimately achieve "market value" for its success and the corporate can benefit by using its insider status to act strategically, all the while increasing the trust and openness between all parties involved and allow for greater transparency in their interactions. Done wrongly, however, it can severely limit the startup's upside without giving the corporate any real benefit.

These challenges will likely be present across most relationships between corporates and startups, given that they emerge as a result of the inherent characteristics of each entity. Their existence, or lack thereof, does not guarantee the failure or the success of the partnership. In fact, many of these tensions can serve to strengthen and reinforce the partnership, if carefully addressed and managed. However, very few corporates and startups recognize these challenges or have established processes and approaches to help resolve them.

The first important step is the ability to clearly identify these tensions presented above. In the following section, we discuss how startups, corporates, and investors can address and manage the complexity of these relationships to help ensure the partnership's success.

Many of these tensions can serve to strengthen and reinforce the partnership, if carefully addressed and managed.

VIII. The Corporate Partnership Playbook

While corporate relationships are complicated and complex, there are strategies that startups and corporates can deploy to establish and nurture successful partnerships in light of these challenges.

Relationships and experience are key factors in achieving success. The more relationships you have with potential corporate partners (at varying levels within their organization) the more likely it is that you will choose an appropriate partner and will know exactly whom to approach about such a partnership. As importantly, the more actual partnerships you have witnessed or been involved with, the more your experience will allow you to tailor the desired partnership for success. By definition, the average startup CEO has a limited number of such relationships and has experienced a limited set of prior deals. Similarly, corporate executives often have a limited view into the entire landscape of startups that could complement and enhance their offerings and may make the decision to partner with a company without having complete information about others in the industry.

Relationships and experience are key factors in achieving success.

Turning to others who can reach into a much broader set of relationships and can use their experience with a greater number of deals is often a key way that startups or corporates can achieve a better outcome. Working with venture funds, consultants, and other industry leaders who specialize in such relationships can accelerate and improve outcomes. We have developed a playbook to help both corporates and startups better navigate and manage these delicate and complex relationships and unlock their full benefits.

Set yourself up for success

From an external point of view, corporates often appear to operate in similar ways across the board – for instance, it may appear that partnering with one of the tech giants or with its competitor will result in similar benefits. Startups are often doing themselves a disservice by pursuing or accepting the first partnership that comes along with a high-profile corporate. Each corporate has a unique way of doing business, tracks different metrics, has its own culture and executive personalities. Startups should invest in understanding what needs they are looking to a corporate to fulfill and identify which corporates are good matches to meeting those needs. This is typically difficult to do from an external position, so it becomes critical to engage others that can give the startup an insider's point of view of working with a specific corporate. Corporates face this challenge as well, and often have a narrow scope of the landscape of startups that could prove beneficial to invest in or partner with in the future.

As previously mentioned, venture capital firms are a good resource for understanding this landscape, but many have not developed a strategy or the experience base to broker the best-fitting relationship for their portfolio companies. It's important to identify which venture capital firms are best equipped to address the corporate's or startup's needs and priorities.

In addition to engaging with industry leaders to survey the landscape to understand which startups are most complementary to their businesses and their visions for growth, corporates should establish formal and informal internal processes that facilitate relationships with startups. Here too corporates can benefit from engaging with venture capital firms and outside experts who can design and establish these processes that allow the corporate to better extract value from these relationships. Startups will differ in how they will want to engage with the corporates and the level of autonomy they will want to maintain for their own company, making it critical to have these processes established before engagement begins.

Establish executive relationships

Given their different cultures and operating rhythms, corporates and startups often encounter challenges when managing the relationship. Startups will find that personnel changes frequently occur within corporate business units in two- to three-year cycles. This makes it difficult to maintain the continuity in the relationships that a business unit individual was building with a startup, given that these relationships frequently mature over a much longer time scale (typically five to seven years). Managing this type of corporate turnover will be critical to maintaining a stable and meaningful relationship within the company.

Managing this type of corporate turn-over will be critical to maintaining a stable and meaningful relationship within the company.

Engaging with industry leaders can help the startup quickly establish a relationship with a corporate executive to guarantee that even through personnel changes, there will continue to be a corporate mandate to ensure the relationship continues. C-level executives are the ultimate driver of whether meaningful relationships are going to succeed – but are often the hardest for a startup to develop a relationship with unless through channels mentioned above. Founder and Managing Partner at DBL Investors, Nancy Pfund, played a key role in introducing SolarCity to PG&E's senior executives who were known for their interest in sustainability and desire for innovative solutions using new business models. These early relationships helped develop and strengthen the partnership between both companies. Pfund believes that executive-level relationships are especially important at utilities due to the active role that governments and regulators often play in shaping their destiny, resulting in most strategic decisions being made at the executive-level.

Founder and Managing Partner at DBL Investors, Nancy Pfund, played a key role in introducing SolarCity to PG&E's senior executives who were known for their interest in sustainability and desire for innovative solutions using new business models. These early relationships helped develop and strengthen the partnership between both companies.

Tesla and Toyota – Making the Most of a Single Meeting

As important as is a gradual, strategic, and thoughtful approach to building multiple partnerships is the ability to "seize the moment" of a one-time meeting with a key corporate decision maker. There is perhaps no better example of this than the now well-described "breakfast-meeting" between Elon Musk and Akio Toyoda, Chairman of Toyota Motor Corporation. It was several hours of test driving the Roadster around Los Angeles by Toyota Chairman Toyoda, interrupted by a breakfast meeting, that led to the $50 million investment and a deal to develop prototype electric vehicles with Tesla and support for Musk's $42 million offer for the billion-dollar Nummi factory in Fremont. This meeting highlights the critical importance of (a) being prepared, (b) being flexible and opportunistic during the key meeting, and (c) driving home the result.

Case Study

Key Insights

- **Establish Good Partnering Practices:** That is how Solazyme approaches its internal framework dedicated to fostering long-term relationships with its partners on multiple levels through strong communication and a determination to always over-deliver. Using this framework, the Solazyme team has successfully deepened relationships with multiple partners across industries and helped the company avoid the disruption caused by frequent personnel changes at corporates.

- **Be in it for the long haul:** Solazyme thinks of their partnerships in a long-term timeframe rather than taking a short-term "what can I get from this partnership today" approach. Understanding that it's important to make the necessary compromises in relationship agreements, the company focuses on the extended health of the partnership by avoiding tradeoffs with only the immediate goal of securing that partnership in mind.

"When building a relationship, it's not only fundamental to align on the long-term vision, but also align on what the vision looks like to get there."

Jonathan Wolfson, Co-founder of Solazyme

- **Be more open than you think you should be:** Transparency in relationships is key. Many startups enter these relationships with the mentality that it needs to hold everything close to the chest. Although it carries a large risk, Solazyme's open approach to partnerships sets the right tone from the beginning of the relationship, helps them venture into much deeper partnerships, and results in a much bigger payoff.

Ten years ago, in March 2003, Jonathan Wolfson and Harrison Dillon co-founded Solazyme with the mission of designing and producing renewable oils and bioproducts that would serve as a replacement, or enhancement to, petroleum-, plant-, and animal-based oils.

Four years and two venture rounds later, Solazyme began attracting accolades for its success, initially by being selected as a 2007 GoingGreen 100 Top Private Company and as the Most Promising U.S. Green-Tech Firm at the World Investment Conference – the only U.S. company to receive the honor. By 2009, Solazyme had been named to the Cleantech Group/UK Guardian Clean Tech 100, received the San Francisco Business Times' Bay Area Green Business Award in Renewable Fuels, the TiE50 Top Cleantech Start-Up award, and was one of two companies presented with the "Green Leap" distinction at the Clinton Global Initiative. It was also ranked by Biofuels Digest as #1 among the 50 Hottest Companies in Bioenergy. That same year (2009), the company closed on a $57 million Series C funding round. In 2010 it again made the Cleantech Group's Top 100 list and then disqualified itself for further such recognition by going public in the spring of 2011.

That summary makes the company sound like a fairly ordinary eight-year path to a successful IPO, with the market branding it a "winner " at age four and beyond. Perhaps that is the way the venture community would like to see the story. But behind that is the real story of how a successful industrial biotech company is actually built – one partnership at a time and over a period that will span more than a decade – longer than the life span of the typical venture fund.

Solazyme's partnering activities began at about the same time it received its first accolades, in January 2008, as the company entered into a Biodiesel Feedstock Development and Testing Agreement with Chevron Technology Ventures. That transaction was followed in fall of 2008 by a contract with the U.S. Department of Defense to develop Navy fuels from algae. In March of 2010, the company announced its partnership with Unilever to bring algal oils to the personal care marketplace. These early partnering deals helped Solazyme bring in its first strategic investors as both Unilever and Bunge joined its Series D financing round in August of 2010.

Continuing the theme of joint R&D agreements, and after two years of early stage R&D collaboration, Solazyme signed a Phase 3 Research and Development Agreement with Ecopetrol, one of the four major oil companies in Latin America, to analyze manufacturing viability of algae-based diesel fuel.

The partnering activities continued in 2011, with Solazyme initiating collaboration with the airline company Qantas to pursue the potential for commercial production of Solazyme's microbial derived aviation fuel, Solajet™, in Australia.

Two months later, the company announced three more partnerships. The first was in the cosmetics industry as Solazyme, beauty retailer Sephora® and global multimedia retailer QVC® agreed to take Solazyme's microalgae-based prestige anti-aging skincare line, Algenist™, to the market in the U.S. and internationally. The second partnership was with Dow Chemical to advance the development of Solazyme's algal oils for use in next generation, bio-based dielectric insulating fluids key to transformers and other electrical applications. The final agreement was one with Roquette Freres to joint venture in the commercial development of innovative microalgal food ingredients.

So, shortly after completing its IPO, Solazyme had amassed nine partnerships (five in the biodiesel arena (Chevron, U.S. Navy, Bunge, Ecopetrol and Quantas), two in personal care (Unilever and Sephora), and one each in food (Roquette) and specialty fluids (DOW)). But the reality was that these were mainly exploratory relationships and the critical step of building large-scale commercial plants to produce these products was

Solazyme (continued)

still ahead of the company. The company had also achieved a nearly $1 billion market value when it went public in May 2011.

Now, it became necessary to actually begin to deliver on commercial potential. The first milestone was an agreement between Solazyme, Dynamic Fuels, LLC, a joint venture between Tyson Foods, Inc. and Syntroleum Corporation, to supply the U.S. Navy with 450,000 gallons of renewable fuels. Solazyme also signed a partnership agreement with United Airlines and fueled the first US commercial passenger flight in 2011 on advanced biofuels from Houston to Chicago using Solajet in a 40% blend with petroleum.

Next came a joint venture with Bunge to build, own and operate a commercial-scale tailored oils production facility. The facility, equally funded by Solazyme and Bunge and financed with The Brazilian National Development Bank, is expected to have an annual production capacity of 100,000 metric tons of oil and the partnership announced expansion potential to 300,000 metric tons. Later in 2012, Solazyme broke ground on a 100,000 metric ton renewable oil production facility adjacent to Bunge's Moema sugarcane mill in Brazil. In the U.S., the company announced that it would be using Archer-Daniels-Midland's Clinton, Iowa, manufacturing facility to produce 20,000 metric tons of oil in a capital efficient manner with the opportunity to expand to 100,000 metric tons of renewable algal oil production.

In February of 2013 yet another corporation entered the picture: Solazyme and Mitsui & Co., Ltd. announced a $20 million multi-year agreement to jointly develop a suite of triglyceride oils for use primarily in the oleochemical industry. That agreement was followed by an agreement between Solazyme and AkzoNobel targeting the development of advanced tailored oils and commercial sales for a number of AkzoNobel's end market applications, specifically surfactants and paints and coatings.

Later in 2013, Solazyme announced its first dissolution of a partnership, pulling out of the relationship with Roquette on grounds that the two parties differed with regard to the pace of moving the microalgal food ingredients project forward. Investors saw this as a strong business decision independent of other partnerships as it gave the company back ownership of its discoveries and allowed the company to commercialize at a faster rate.

The most recent Solazyme partnership was announced in August of this year. It is a partnership with Sasol Olefins & Surfactants GmbH for the supply of an algal oil rich in erucic acid under development at Solazyme for production of downstream derivatives such as behenyl alcohol.

The company is now a decade old. It is about to cross the major threshold of large-scale commercial production of an industrial biotechnology product, one of the very first to do so in the bio-fuels and bio-chemicals sector. In fact, Solazyme just announced a major sales agreement with Unilever for 10,000 metric tons of sustainable oils produced out of the new plant in Brazil that will be online by the end of the year. Its market capitalization is again at roughly $750 million, having undergone the downward movement seen as investor interest in the biofuels sector waned as other companies announced delays and failures. As its commercial facilities come on line, there is very significant upside potential for the stock based on real revenue and EBITDA multiples. Without a very significant and continuing partnering strategy, it is unlikely that the company could have made it this far, more likely it might have shut its doors by now (as many other less partnered companies in this sector have done). The reality is that many of the top company accolades it received in 2008, 2009, and 2010 were prescient but perhaps pre-mature as the then cleantech community underestimated the scale of capital, of time, and of partnering that was really involved in building a breakthrough new industrial biotech company.

Diversify

Beyond executive-level relationships, developing other relationships across the company—at business and venture units—is important to ensuring continuity, though approaching many areas of the business at a shallow level is not as effective as focusing on one or two businesses at a time. Focusing on a few meaningful partnerships within a corporate can help open doors across other parts of the business. This was the case for Biosynthetic Technologies, producer of bio-based synthetic oils, which received substantial investments from both Monsanto and BP Ventures (over $21 million over two years). Both of these investment relationships began in the R&D group, where they sent a sample of their product. The product was validated by the commercial group leading to an interest to invest in the company at the venture unit level.

Maintaining the continuity of a particular relationship is crucial, yet we also found that it is also important to maintain that continuity across all partnerships. Identifying multiple corporate and startup partners has often proved to be a risk mitigation strategy for both parties as it will allow more flexibility and security if a relationship fails in any way. Developer of renewable oils, Solazyme has cultivated dozens of partnerships over the past decade and this strategy has been a paramount contributor to its success to date (refer to detailed case study on Solazyme). In mid-2013, Solazyme announced the dissolution of a joint-venture partnership with Roquette Freres on grounds that the two parties differed with regard to the pace of moving the microalgal food compounds project forward. Had that been Solazyme's only relationship or even one of just a few, it might have brought the company to its knees (at least in the eyes of public stock investors), but because of the wealth of relationships the company has developed, investors appeared willing to accept that going forward on its own was a sensible business decision for Solazyme.

Multiple partnerships are also helpful when scaling a company globally or across geographies where regulations differ, as each partnership will provide unique value and specifications that can allow the startup to succeed in a new market. This is especially true in the cleantech sector, where global energy markets abide by different standards and regulations. It's important to note that while multiple partnerships can add significant value to both corporates and startups, each company should assess its needs, priorities, and goals to determine whether this strategy makes sense for them.

Remember: Good fences make good neighbors

ecoATM founder Mark Bowles attributes the company's successful partnership and eventual acquisition by Outerwall to that approach. Their partnership allowed both companies to operate independently, while still providing ecoATM the growth benefits of Outerwall's industry knowhow, validation, and capital, and Outerwall with valuable insight into the electronics recycling market.

Many of the challenges discussed here (e.g., timescale sensitivities, differing leadership and growth strategies) often result from misaligned expectations. Addressing these challenges at the nascent stages of a partnership can help establish a relationship that is built for success. Industry leaders can serve as a helpful resource in determining how to approach these relationships so both parties can be satisfied with the terms that are ultimately agreed upon.

We found that by aligning on the clear "upside" to both parties and the level of autonomy that is expected through the relationship is a good exercise to begin managing the expectations of the overall relationship. Though time-consuming, documenting these expectations and what both parties have aligned on is a practical way of ensuring that even through management changes (as discussed previously) or through challenging circumstances, there are clear records of the initial intentions of the partnership that can help mitigate any tensions.

Case Study

ecoATM
Automated eCycling Stations

Key Insights

- **Good fences make good neighbors:** Establishing a relationship where ecoATM maintained autonomy allowed both ecoATM and Outerwall to still benefit significantly from each other while avoiding some of the typical challenges that emerge when two companies that beat to different heartbeats attempt to integrate too rapidly and prematurely.
- **Be a good negotiator:** ecoATM's leaders evaluated every new investment to determine whether it would create barriers for the company in the future.

"It's critical for a startup to set itself up for success during the negotiations with a partner and avoid accepting terms that may limit future partnerships or the potential of a successful exit."

Mark Bowles

- **Become an expert:** To be a better negotiator in these partnerships, the ecoATM team spoke to many experts in the field—both those that succeeded and those that failed—to become an expert themselves and strengthen the position of the company in these relationships.

ecoATM, the first company to create an automated self-serve kiosks system to recycle personal electronics, was acquired by Outerwall (formerly known as Coinstar) for $350M in July 2013. In April, 2013 ecoATM announced it had recycled one million electronic devices through its self-serve kiosks, which collect, evaluate, and buy back used phones, tablets, and MP3 players. ecoATM only partners with a limited number of eWaste recyclers who are certified to either R2 or eStewards. ecoATM is certified to R2 and ISO14001. Prior to its exit, ecoATM had raised $34.4 million from VCs including Claremont Creek Ventures and Outerwall, so the acquisition was a significant success for the five-year old company.

Outerwall is best known for its Coinstar machines where individuals exchange their coins and paper currency for cash vouchers, gift cards, add funds to a PayPal account or make charitable donations. The company also operates Redbox entertainment kiosks enabling people to rent movies and games. It total, Outerwall has more than 65,000 kiosks. The relationship with Outerwall began when ecoATM won Outerwall's Next Big Idea challenge in 2009, establishing a strategic partnership that resulted in the company being an early investor in ecoATM and acquiring a 23% stake in the company in early 2011 in a Series A round with Claremont Creek Ventures. Outerwall's stake was deducted from the actual cash paid at the time of the aquisition. Individually, Claremont Creek Ventures and Outerwall were each crucial to closing the deal and provided the other with essential knowledge, insight, and resources.

While Outerwall did not formally enter a R&D or distribution agreement with ecoATM, the company's experience as a leader in automated retail allowed ecoATM to scale its business and increase adoption. Outerwall was not in the business of electronics recycling and their traditional offering was not a typical cleantech product, however the relationship between the two companies was a perfect fit as they both had a fundamentally similar business promise and a clear vision of how the relationship would be mutually beneficial. Part of Outerwall's long standing mission is to provide value to consumers and retailers. ecoATM's mission (whicn is to give consumers cash for their old devices while simultaneously manage the recycling in an environmentally friendly manner) resonated strongly with Outerwall. In return, ecoATM gained access to tailored knowledge of growing a kiosk business and access to new markets where they did not currently have reach – for instance, through introductions and external validation when approaching new retailers.

As a public company, Outerwall had different metrics and operating parameters than the young ecoATM, but having built a similar business model allowed Outerwall to understand how ecoATM operated and where and how it could add the most value to the company, quickly identify problems and propose appropriate solutions.

ecoATM founder Mark Bowles attributes this successful partnership to the level of autonomy that ecoATM always maintained. Outerwall provided valuable advice and guidance on growing an automated retail business, while maintaining separate operations, sales forces, and call centers. "Good fences make good neighbors," says Bowles when acknowledging that this independence helped ecoATM maintain flexibility and largely avoid the challenges that these partnerships tend to face. Outerwall invested because the company believed ecoATM had a viable and promising business and Outerwall was committed to fostering innovation in automated retail. In order to prepare it for a successful partnership, Bowles reached out to Outerwall's original founder, Jens Molbak, to gather insights that would be valuable when approaching Outerwall about a strategic partnership with ecoATM. Molbak had started Outerwall (then Coinstar) and took the company public so he had both the experience of growing a small company and the understanding of how a much larger, public company functioned. Gaining this third party insight was critical for ecoATM to begin to learn to navigate that relationship and has resulted in a more formal role for Molbak as an investor and a member of ecoATM's Board of Directors.

The story of ecoATM and Outerwall is key to portray that while multiple corporate partnerships can prove to be beneficial to increasing scale and adoption of a startup, a single but very collaborative and strategic relationship can add significant value to growing a company. This story stresses the importance of conducting proper diligence before engaging in partnerships to help ensure alignment on vision and on level of autonomy to foster a successful relationship and outcome for both parties.

Be in it for the long haul

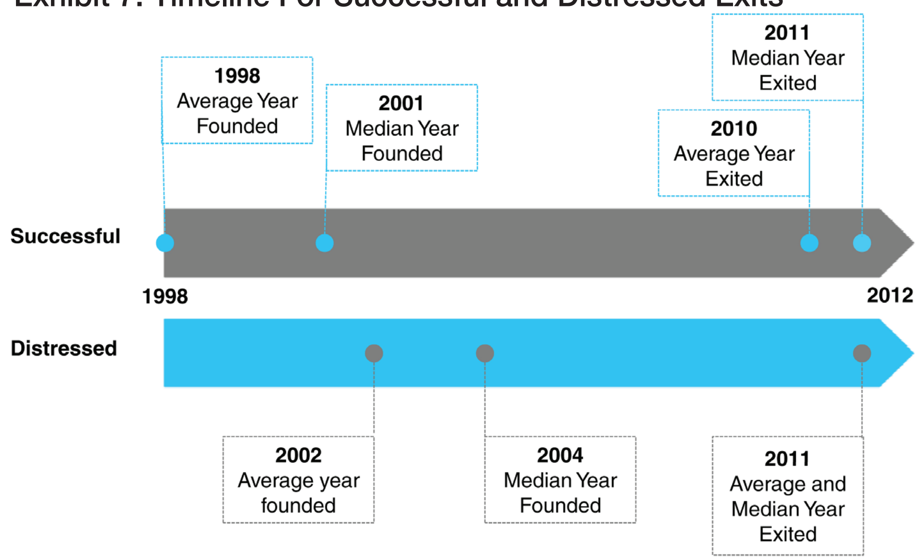
Solazyme co-founder and CEO Jonathan Wolfson approaches all of their partnerships with a long-term vision rather than just addressing the value that the partnership could bring today, and this has resulted in many successful partnerships. Establishing a long-term vision for a relationship will help mitigate the challenges that emerge when either the corporate or startup change their business strategies. Maintaining a transparent and open relationship is crucial to this lasting partnership. While startups often view sharing too much with corporates as a risky strategy, Wolfson argues that this open approach sets the right tone from the beginning of the relationship and helps them venture into much deeper partnerships, resulting in a much bigger payoff.

Wolfson argues that this open approach sets the right tone from the beginning of the relationship and helps them venture into much deeper partnerships, resulting in a much bigger payoff.

Our data shows that companies with successful exits had a longer "nurturing" period between founding and their exit, emphasizing the importance of viewing corporates as key partners across a company's journey, and not as a quick win or path to rapid exit (see Exhibit 7).

Wind turbine developer, Clipper Windpower's partnership with Fortune 500 company United Technologies Corporation was primarily focused on near-term solutions. Clipper was facing consumer pressure resulting from cracks in their turbine blades and high warranty costs and plummeting sales. UTC acquired the company in 2010 to help with their financial woes but sold Clipper two years later, claiming that the company was no longer aligned with UTC's strategic focus on the aerospace and building industries (see full case study on Clipper for more information).

Exhibit 7: Timeline For Successful and Distressed Exits



Source: Cleantech Group's i3 Platform

Case Study

Key Insights

While corporate partnerships alone will not save a company that is already struggling, a strategic partnership could still prove to be very valuable to a stressed startup. By keeping Clipper separate from its core business, UTC did not provide the necessary validation or open the channels that could have given Clipper's customers confidence that the product was worth the investment. UTC's leadership stated that the purchase of Clipper was a financial burden to the company and "a mistake" because it no longer bore strategic significance to UTC as the expectation of a renewables mandate in the U.S. dissipated. UTC also stated that Clipper no longer fit into the corporate's strategic focus on the aerospace and building industries.

Wind turbine developer, Clipper Windpower is technically listed as a success based on our methodology, with their acquisition by United Technologies in 2010 being over nine times greater than their pre-M&A paid-in capital. It could still have been a success for its early investors but the resulting partnership could be considered a failure for both UTC and Clipper.

Clipper Windpower had a strong start as a wind turbine company by being highlighted in the Business Times' list of fastest growing companies and receiving an award from U.S. DOE for Outstanding Research and Development Partnership. The company's revenue grew almost 3,000% between 2007 and 2008. The company's financial difficulties began shortly after with customer complaints of cracks in the turbine blades, leading to high costs in warranty repairs for Clipper. The financial implications were even more damaging, with sales plummeting as a result of customer hesitation to purchase Clipper turbines, fearing that the company would no longer be around to fix any issues.

United Technologies came in late 2009 in an attempt to resolve these issues by acquiring 49.5% in stake with hopes that this would provide Clipper not only the required equity financing, but also validation and access to new customer and distribution channels. This partnership did not fulfill its promise and Clipper's financial woes only worsened, leading to a decision by UTC to buy the remaining stake in the company resulting in a full acquisition, keeping Clipper as an independent subsidiary. Eventually, UTC sold the subsidiary to Platinum Equity for an undisclosed amount in 2012.

IX. The Future of Corporate Partnerships

> Companies must take deliberate and strategic approaches to nurturing these relationships.

As resource efficiency increasingly becomes a strategic priority, corporates will look to cleantech startups to help them rapidly innovate and meet growing efficiency demands and pressures. Over the last decade, cleantech startups have emerged as corporate disruptors, with technologies that threaten to render aspects of corporates' offerings obsolete. Startups often face challenges when trying to scale and achieve adoption of these new technologies, stressing the increasing need to see corporates as partners rather than competitors. We will likely see meaningful corporate partnerships emerging at a greater rate, as startups, corporates, and investors continue to realize the importance of these partnerships for growing their own business. While equity investments will continue to play a key role in these partnerships, the exciting trend to watch will be the relationships that develop outside of the balance sheet. Innovative cross-sector collaborations and partnership platforms will likely emerge as companies understand how best to leverage the value of these relationships.

As discussed, corporates and startups live in separate worlds and speak different languages making the complexity of these relationships a delicate dynamic to manage. The growth in these partnerships could serve as an opportunity to unite entities across the cleantech sector—industry leaders, consultants, entrepreneurs, investors—in an effort to generate new ideas and models for further collaboration and innovation across the sector.

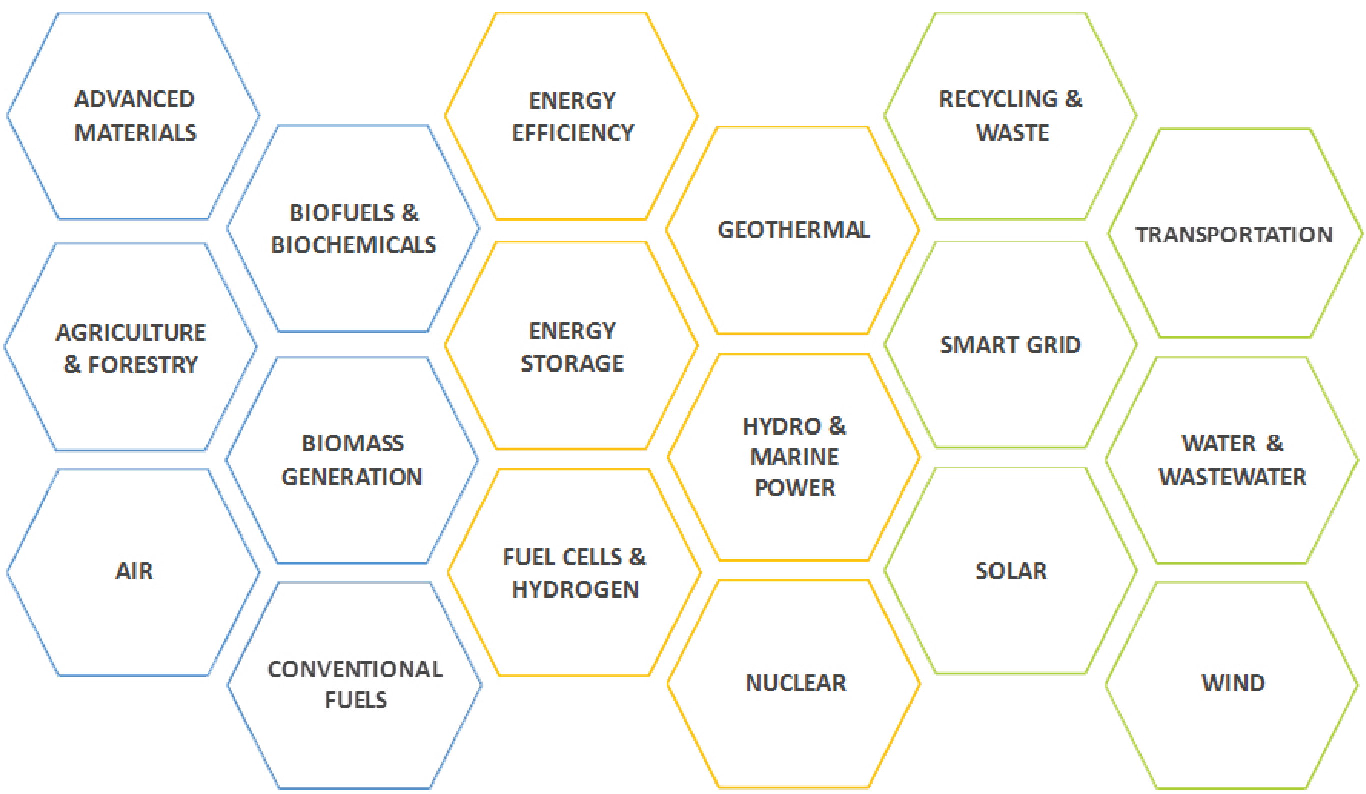
To date, however, very few corporates and startups recognize how to approach and manage these relationships in a way that adds unique value to their business and promotes innovation within their company. Companies must take deliberate and strategic approaches to nurturing these relationships. When they begin to do so, we expect the positive impact of these partnerships to emerge even more clearly.

X. Appendix

Methodology: Cleantech Group Analysis

Cleantech Group's proprietary i3 data and market analysis platform tracks investment deals and other activity across 18 sectors and over 22,000 companies. In our analysis of the impact of corporate participation in cleantech startups, we defined success and distress based on exit outcome. We defined the parameters for success as venture-backed U.S. companies that exited in the last ten years either through an IPO, with a market cap greater than $250 million (as of August 1, 2013) or through a M&A deal, where the deal value was equal to or greater than five times the company's paid-in capital. We defined the parameters for distress as U.S. companies that either went out of business or exited in the last ten years through a M&A deal at a firesale price. Our analysis was based on a total of 86 exits, 43 successes and 43 failures.

Corporate relationships were defined as distribution, channel, technology, development, and joint-venture partnerships between corporates and cleantech companies. Customer and vendor partnerships were not considered in the analysis. We included companies that fit within our eighteen primary sectors shown below.



Methodology: Silicon Valley Bank Analysis

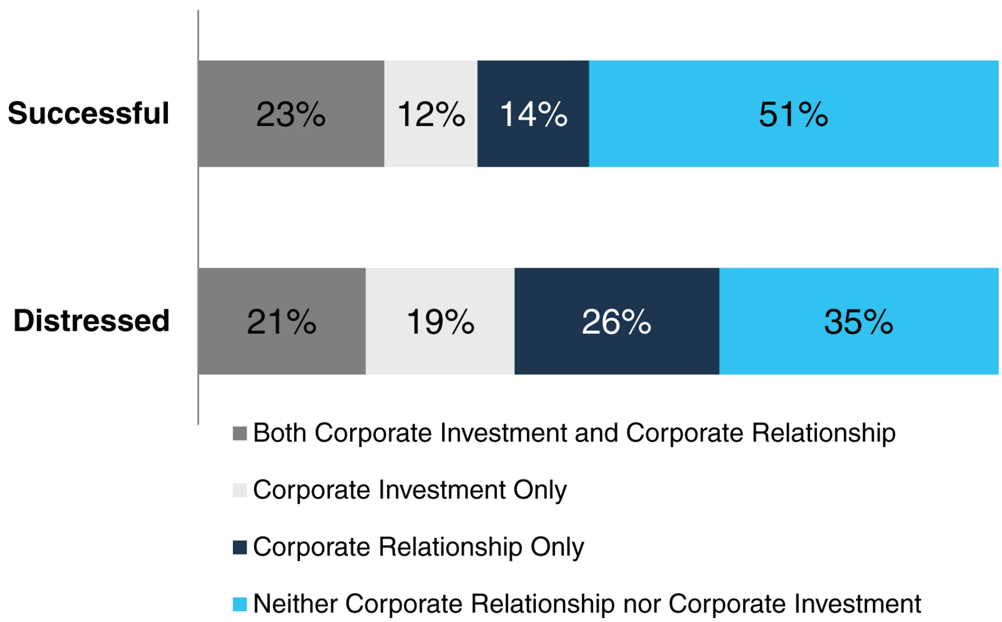
SVB Analytics ("SVBA"), an affiliate of SVB Financial Group, aggregated financial and ownership data (capitalization tables and deal terms from companies' articles of incorporation) across approximately 100 unique companies it its portfolio. SVBA identified those companies that had received investment from one or more strategic investors and looked at ownership patterns (total dollars invested in the round, amount of the round purchased by strategic) and pre-money valuations associated with the round. SVBA calculated pre-money valuations in a two-step process: first, the post-money valuation was calculated by multiplying the number of shares in the fully diluted cap table by the per share price of the most recent round raised; and second, by subtracting the total amount raised in the round. For example:

- Series B investment = $10M
- Series B price per share = $1.00
- Fully diluted shares outstanding = 50M
- Post-money valuation = 50M x $1.00 = $50M
- Less: Amount raised = $10M
- Equals: Pre-money valuation of $40M

It is important to note that SVBA's data is not a random sampling of U.S. cleantech companies. As such, SVBA's data contain biases based on sector and size. SVBA's cleantech portfolio is heavily weighted toward capital intensive companies (e.g., solar, advanced renewable fuels and specialty chemicals), approximately 40% of which raised money from strategic investors at some point during their lifecycle.

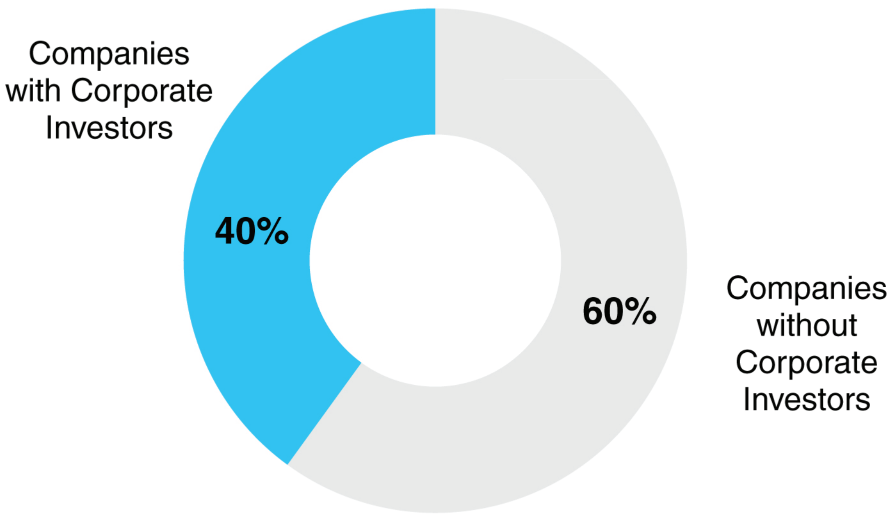
Additional Charts: Corporate Involvement in Companies

Exhibit 8: Corporate Involvement in Cleantech Companies with Successful and Distressed Exits (for companies studied)



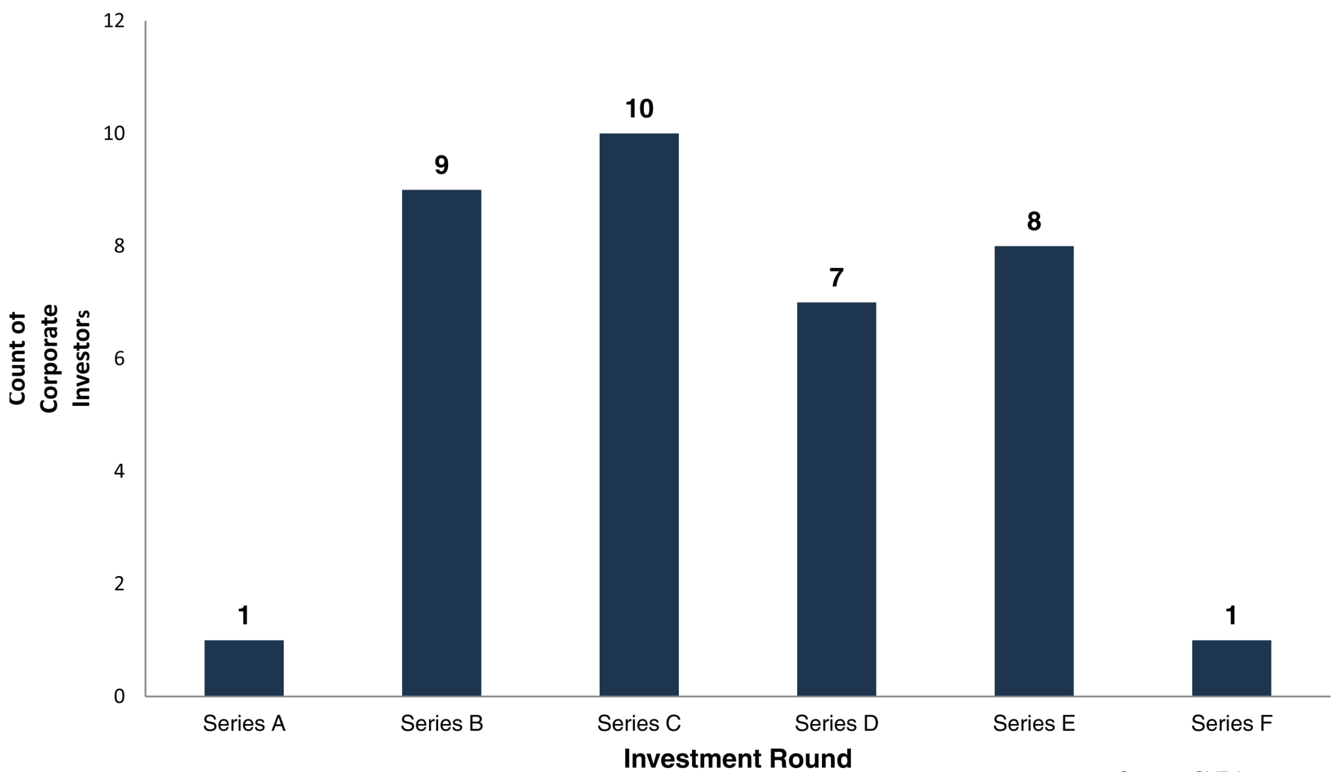
Source: Cleantech Group's i3 Platform

Exhibit 9: Cleantech Companies with Corporate Investors



Source: SVBA

Exhibit 10: Corporate Investment into Cleantech Companies By Round



Source: SVBA