KAPYON VENTURES

SEAD MODEL

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TECHNOLOGY INCUBATION IN AGRICULTURE

Early stage technology commercialization has always faced a unique set of challenges unlike that seen in other businesses. The transition from science to products has been one of the most difficult and has often been termed the "Valley of Death". This valley has only continued to widen during the recent economic contraction as fewer dollars were spent on basic research and risk aversion pulled venture capital towards later stage companies.

These challenges are further compounded in agricultural biotechnology where the industry has not benefited from the same level of early stage investment and entrepreneurial success seen across other segments of life sciences and high tech (software, social media). The creation of technology eco-systems whether in Silicon Valley, Boston or San Diego, all have their origins grounded in strong research and entrepreneurial talent that sought to build the technology hand in hand with the researchers that had created the science foundations. The successes of these entrepreneurs subsequently resulted in the genesis of new spinouts and venture groups often comprised of previous company founders. In the tech industry, companies such as Google, Yahoo and Facebook can trace their history back to their start ups roots and are now not only industry leaders but sources of capital partnerships and even acquisition.

The development of the agriculture industry in contrast has been conservative and the eco-system of entrepreneurs and financiers has never truly emerged. Many of the industry leaders today can trace their history back to commodity seed or chemistry where innovation was a means to an end rather than a function for growth. One notable exception has been Monsanto, which unlike its counterparts took a different approach by making biotechnology the center of their business and the commodity the delivery. However the success of this progressive strategy; brought about the consequence of monopolistic dominance that sidelined other industry participants. The eco-system was further damaged when the culture became one of stifling competition rather than fostering collaboration. Many startups faced the harsh reality that cannibalization of their technology portfolio was often the only option for securing further financing.

Despite these past challenges, our industry is facing a watershed opportunity. The importance of biomass productivity is now not only a target of agriculture but of energy, consumer products and society in general-as we look for a sustainable way to reduce our reliance on petroleum. Agriculture now at the epicenter of so many industries is drawing in new entrants who in the past have only been tangential. These new leaders have voiced their appetite for new innovation that can secure the biomass volume necessary to sustain their core businesses. With core intellectual property coming to expiration, the next wave of agricultural innovation is at the forefront of investment interest. Not only will innovation target the major row crops that make up the majority of biotech acreages but will further proliferate across new species and kingdoms that will leapfrog the research investment from agricultural. Technology that is valuable for soybeans can readily be customized for new oilseeds such as jatropha and even into unrelated species such as algae.

Furthermore innovation unlike previous investment cycles will also be driven by the advances in biotechnology. The improvements in synthetic biology, gene synthesis, and computational biology have removed many of the barriers to discovery as they becoming increasingly leveraged into agriculture. What this shift means practically is that biology is becoming more predictable, the risks better quantified and the costs dramatically decreased. New ventures will be less capital intensive and

innovation will be driven more by inventiveness rather than infrastructure. (Agbiotech is heading towards the "garage venture" model)

As development in agbiotech migrates to more capital efficient or venture lite models, technology incubation, a business model that has gained traction in other technology sectors can greatly benefit agriculture as well in nurturing new startups. Technology incubators have ranged in their activity and value propositions often include (i) low cost infrastructure (ii) mentorship (iii) access to networks (iv) and brand clout (for established incubators).

Kapyon is seeking to lead this effort in agriculture. Although incubation in our industry is still in its nascent stages, there are several solid foundational pillars that already exist. Agricultural research investment has always been a cornerstone of government investment and yet has been an under explored area for deal flow. This lack of investment depth is driven partially by the fact that research in agriculture is often disconnected and without the visibility of complementary technology suites and expertise, development is often undertaken in a vacuum with only one piece of the puzzle. It has also been limited by the fact that the talent pool of ag-entrepreneurs and sophisticated investors with domain expertise has been limited and therefore the friction between innovators and investors have been greater than in other industries.

Kapyon's **Systematic Enterprise Acceleration & Development (SEAD)** model capitalizes on the strong science foundations of the research community while addressing many of the shortcomings of traditional incubators. The Kapyon team is compromised of proven entrepreneurs who have successfully started, funded and even exited agbiotech companies. Furthermore Kapyon is one of the few if not only incubators that exclusively focuses on the translation of science to commercial enterprises within research systems. Partnership with Kapyon Ventures in essence gives our research partners a turnkey and dedicated management team that can drive commercialization.

KAPPYON IN PRACTICE

Kapyon's relationship with research institutes typically comprise of a management services agreement that covers the engagement and a joint venture agreement that lays out the development and assignment of IP and resulting spinouts. The primary goal of the partnership is to create new technology ventures between Kapyon and its research partners. Kapyon in parallel will also facilitate several other commercialization strategies including licensing, sponsored research and partnerships for technologies that do not meet the criteria for a new venture formation. For our existing research partners, the relationship with Kapyon has also translated into additional grant funding through well formulated commercialization strategies and early identification of commercial partners. The SEAD process is comprised of three phases and a detailed summary is provided below:

KAPYON'S SEAD MODEL

SEAD	Description	Time	Funding
PHASE I	Phase I typically commences with an evaluation across the technology areas of interest where the university would like to augment its development. Within agriculture, Kapyon focuses specifically on plant sciences, industrial biotechnology, microbiology and agritech (engineering solutions to agriculture). Kapyon will evaluate the technologies across a number of criteria including (i) strength of science (ii) research novelty (iii) freedom to operate (iv) product conceptualization (v) patentability and (vi) willingness/interest of researchers to continue in a commercial setting. Kapyon typically looks for projects where (i) an IP portfolio concept exists but no formal IP is filed so that it can add value to patent strategy (ii) it can shape research spending to reach financing and commercialization targets and (iii) there is no discovery risk. Many of the technologies reviewed will have no commercial outlet. Through the early identification of these projects, it provides our research partners an ability to target research spending more efficiently and also identify commercialization barriers in its evaluation of future science projects. Deliverables will typically be formal written recommendations on how to continue or abandon projects moving forward.	3-6 mth	N/A

SEAD	Description	Time	Funding
PHASE II	For technologies that Kapyon feels has commercial merit for further development, Kapyon will make a recommendation to graduate those technologies to Phase II. Phase II technologies have met the criteria of Phase I but are typically not ready for external funding. Often the data while promising has certain parameters that are unknown. This uncertainty can significantly impact the understanding for the mechanisms of the science, which in turn adds risk to the technology's efficacy beyond a model system and furthermore obscures what the resulting intellectual property can be. Phase II is also where Kapyon significantly differs from other accelerators or incubators. One of the greatest criticisms of incubators has been their ability to mentor but not necessarily manage early stage technology ventures, which incidentally is also one of the most critical success factors (blocking and tackling). Mentorship comes as a by-product of the Kapyon process through its offering of product management, strategy, IP formation, science due diligence, licensing and access to capital and networks. By removing many of the administrative overheads and infrastructure costs that Kapyon is able to leverage through its SEAD model, Kapyon in turn can dedicate its time and resources towards building enterprise value. Once a Phase II project has been identified, Kapyon will present a formal business plan to the Executive Committee (usually determined at the outset of an engagement). The business plan will be evaluated with all the same rigors of a venture diligence process; however with internal research milestones aimed at securing external financing. This strategy ensures that pre-venture research investment is properly targeted and defined. During this stage, Kapyon will work closely with scientists to manage the development program and ensure that a defined end milestone is met. If Kapyon is confident that exemplification can occur within the one year time frame and that the patent strategy can be defined broadly at the outset, it will work with its research partner to create the provisional patent applications. Otherwise patenting may be delayed until there is further conclusive data. Kapyon encourages research publications and will not unduly delay publications. However to ensure proper IP protection, very often publications may be delayed by 12-18 months. Any delays will be evaluated alongside the researchers as well as technology transfer offices.	12-24 mth	100-800K

SEAD	Description	Time	Funding
PHASE III	When a technology has been developed to a point where it is ready for seed or early stage venture financing, it enters Phase III and officially becomes a Kapyon portfolio company. At this stage the technology: 1. Has been reduced to practice with early stage data in a model system. The parties have a strong understanding of how the technology works and can assess the deployment of the technology in various areas. 2. Rigorous review of science for freedom to operate with early stage intellectual property (provisional or PCT) filed 3. Defined business plan for the development of the technology to raise external financing. 4. Identification of development resources and personnel moving forward. Where possible development will ideally be kept at the research partner's facilities. The structure of the new venture typically is: 1. Formation of a new C Corp where Kapyon and its research partner (as well as other key affiliates) will be founders and hold founder (common) stock 2. A royalty bearing license for the co-developed intellectual property which will be in-licensed into the company usually on a global exclusive basis sometimes with certain fields of use only. 3. Kapyon will continue in the management role of the company and where necessary will bring in full time management resources from its networks. 4. Kapyon will at this stage, seek to secure financing from its venture networks (Seed or Series A- preferred stock)	12-24 mths	1-5M

KAPYON RESEARCH VALUE PROPOSITION

Through the Kapyon SEAD model, our research partners realize several benefits:

1. **Improved Research Spending:** Research funding can be better allocated to projects with clear commercial goals early on in the projects life cycle with well defined go/no-go decision points.

2. **Venture & Industry Networks:** Kapyon's engagement with the venture community and industry will provide access to market intelligence that can guide and enhance many of the development programs. Early stage exposure to the industry also accelerates relationship building and engagement.

3. **Upskilling:** Researchers who are able to work with Kapyon receive operational exposure in undertaking development within a commercial setting. This training creates a development asset and improves the ability to attract future contract research from Kapyon and other third parties.

4. **Contract Research:** Under the Kapyon model, development will preferably be conducted at the sites of our research partnerships under contract research. For institutions that become a "**Kapyon Center of Excellence**", they will receive preferential consideration to undertake development in certain areas.

5. **Licensing Revenues:** All IP licensed into new ventures will be on royalty bearing terms. With the dedicated development effort of the spinout, our research partners will have first hand visibility to the advancement of the technology. The exit strategy for most ventures will be through M&A which often involve milestone payments and penalties for not meeting the obligations of further development. Therefore the probability of realizing licensing revenues through this model is greater than straight licensing.

6. **Enterprise Value:** The equity component is a feature unique to the Kapyon model by treating our research partners as co-founders. It also represents the largest portion of potential returns and in the past, universities and research organizations have not participated in this part of the value capture. Informal examples of financial success can be seen by leading universities such as Stanford or MIT especially in the high tech area.

7. **Kapyon Brand:** Kapyon has demonstrated the quality of its deal flow and the rigor with which it builds early stage startups. With the management team coming from industry and venture capital we understand the expectations of financiers and corporate partners. The portfolio companies that come out of the Kapyon pipeline will have a higher probability and visibility of receiving serious investment interest from our co-investment networks. Kapyon's two spinout companies ZeaKal and Algenetix have both raised professional rounds of financing and continue to operate under the Kapyon incubation model.

KAPYON CO-INVESTOR VALUE PROPOSITION

Through the Kapyon SEAD model, our co-investors also realize several benefits:

1. **Unique Deal Flow Pipeline:** Kapyon's broad research partnerships give it privileged access to early stage technologies that typically are not within the scope of venture funds. In agriculture especially, the core of new science innovation comes from universities and government research organizations. One of Kapyon's key value propositions is its ability to bring together multiple research programs and build a stronger portfolio than can be achieved by any individual institute. Kapyon's current portfolio companies were developed across three separate research organizations and are now continuing their development at two separate universities.

2. **Technology Risk Mitigation:** Through the SEAD model, Kapyon is able to remove significant early stage risk without the need for external venture dollars. Many companies raise their Series A financing on technology concepts or discovery programs. However when development is driven by discovery, it is very difficult to quantify the time and capital necessary to reduce it to practice. All of Kapyon's portfolio companies will have zero discovery risk with further risk mitigation achieved through a combination of early stage validation and access to proven research capabilities in specific fields.

3. **Financial Leverage:** Our co-investors receive the immediate benefit of leveraging significant global government research dollars. Although Kapyon prices its company at early stage seed or Series A valuations, very often the stage of the technology is well beyond this due to the targeted research spending driven by the SEAD model.

4. **Capital Efficiency:** Kapyon's portfolio companies undertake their development through contract research across its **Centers of Excellence**. This model allows Kapyon to cost efficiently and flexibly access turnkey research facilities and talent. Kapyon estimates that for plant science programs, it can undertake early stage development for 5%-10% of the cost of what Ag Majors have reported. Without the need for significant infrastructure investment and recruitment, capital can be targeted towards increasing real asset value.

5. **Exit Driven Strategy:** Kapyon's goal is to drive early stage returns for its investors by focusing capital on a discrete part of the company's life cycle. Our investment thesis concentrates on reducing science to practice, building IP, focusing on product strategy all the while maximizing patent life for our potential acquirers. Activities beyond this (regulatory, distribution, and even undertaking multiple programs in parallel) require certain economies of scale and fixed cost investment where the cost of capital becomes much higher for a startup. Through creating industry relationships and optimizing the risk return for all parties, Kapyon can maximize value not only for its investors but potential acquirers as well.