

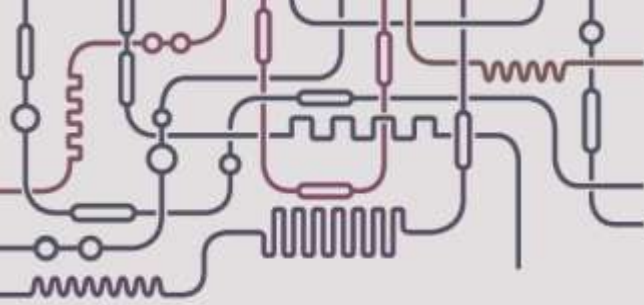
# Breathing Life Back Into Biotech

## Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

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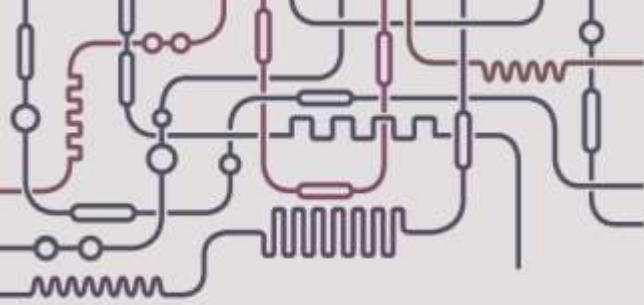
# Breathing Life Back Into Biotech

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## Breathing Life Back Into Biotech Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

### Introduction

Entrepreneurs are the lifeblood of innovation. The early years of Apple and Facebook were distinguished by their big plans and small budgets, with Steve Jobs building homemade circuit boards in his **parent's garage** and **Mark Zuckerberg writing code in his dormitory** room at Harvard University. While both entrepreneurs secured financing down the line and were able to move their operations out of the university dorm and garage, the early-stages of Apple and Facebook are a testament to the hurdles experienced by companies with big plans and small budgets.

For emerging growth biotechnology companies (EGCs), pre-seed and early-stage funding comes from four main sources: financial investors like Venture Capital and/or Angel Investors, strategic investors like Big Pharma, public investors like the NIH, and philanthropic investors through the form of a grant. The 2008 economic downturn placed financial constraints on banks, Venture Capital, Angel Investors, foundations, and institutional investors. These organizations are now more risk-averse and scrutinizing when investing in startup and early growth companies.

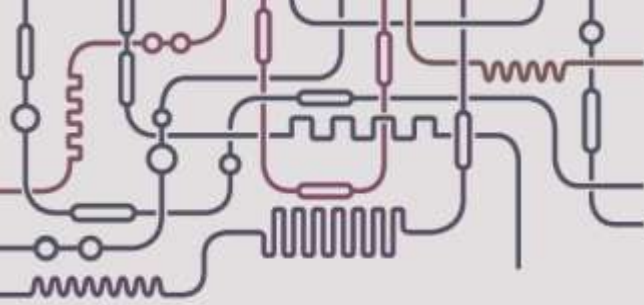
Biotech companies are facing a grim reality. "It's a lot like the housing market right now" said David Pompliano, chief executive of the biotech BioLeap, "The environment is tough."<sup>1</sup>

These circumstances are especially difficult for emerging growth healthcare companies, for whom early-stage funding is mostly scarce, overall suggesting alternative and hybrid financing mechanisms are necessary for seed and early round stages of funding. In an economy where bringing a new drug to market can be as high as \$2 billion, it is clear existing financial mechanisms be improved and restructured to support medical innovation.

One of the most viable and innovative funding mechanisms for emerging growth companies is Donation and Rewards based Crowdfunding. By utilizing social networks and web-based platforms, individual entrepreneurs and early growth companies can solicit donations from individual stakeholders (including patients, friends and family, medical professionals, researchers and entrepreneurs) by appealing to their intrinsic, emotional, and social motivations.

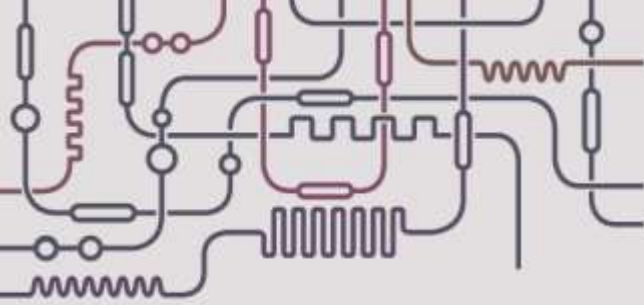
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<sup>1</sup> David Pompliano, as quoted in Rockoff, Jonathan D., and Pui-Wing Tam. "Biotech Funding Gets Harder to Find." *Wall Street Journal*. N.p., 16 Mar. 2012. Web. 28 Nov. 2012. <<http://online.wsj.com/article/SB10001424052970203961204577267814201399918.html>>.



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In this paper, we will investigate the current funding mechanisms available to early growth biotechnology companies, the potential of Crowdfunding and hybrid investment models to finance early-stage biotech and medical research companies, and the paradigm shift of achieving medical innovation through crowd feedback and wisdom.



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### Current Funding Mechanisms for Early-Stage Biotech and Life Sciences companies

*"The bubble mentality, where every good idea gets funding, is over."*

*-Elias Zerhouni, Former Director, National Institute of Health<sup>2</sup>*

In life sciences and biotech, emerging growth healthcare companies have traditionally sought funding from four major sources: financial investors, strategic investors, public investors, and philanthropic investors. Financial investors, usually Venture Capitalists, Public Equity, and Angel Investors provide early-stage companies with capital in exchange for equity stakes in the company. Strategic investors, usually large pharmaceutical companies, provide large chunks of capital to biotech companies in exchange for the rights to the compound or right to purchase the company once the drug is viable. Public investors are government agencies who distribute grants to promising and innovative biotech companies. Finally, early growth companies can apply for grants from philanthropic investors, usually foundations, who are motivated by charitable intent rather than return on investment.

On average, it takes 10 years and almost two billion dollars to bring a new drug to market in the United States. With a difficult economic climate and the high costs of drug development, strategic, financial, public, and philanthropic investors have tightened their investments in emerging growth companies. During the construction of this whitepaper, we interviewed a number of biotech companies on the impact of funding on their business models, including Zenobia Therapeutics.

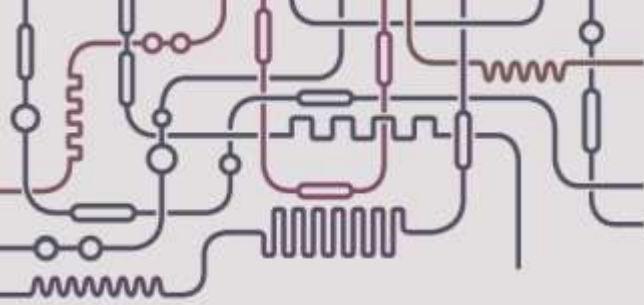


#### Strategic Investors: Big Pharma

Pharmaceutical companies have been funding promising biotech companies for years, striking deals where the sponsoring pharmaceutical company provides the capital in exchange for licensing rights, co-marketing rights, or even rights to purchase the company once the drug is fully developed. In 1995, for every individual therapeutic drug developed

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<sup>2</sup> Elias Zerhouni, as quote in Rockoff, Jonathan D., and Pui-Wing Tam. "Biotech Funding Gets Harder to Find." *Wall Street Journal*. N.p., 16 Mar. 2012. Web. 28 Nov. 2012.



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in the United States, the sponsoring pharmaceutical company spent over \$250 million with an average lifecycle of 14.8 years. By 2000, developing a new drug cost \$800 million. While costs were high, a blockbuster drug can continue to generate revenue for 10 years, signalling a worthwhile investment for Big Pharma.<sup>3</sup>

The new millennium ushered in new circumstances and challenges for drug discovery. Following a series of mergers and acquisitions between 2000 and 2008, the top 15 pharmaceutical companies lost roughly \$850 billion in shareholder value. During the consolidation, R&D departments experienced decreased productivity, resulting in the slashing of R&D budgets by as much as 20%. This caused a change in the terms of investment in emerging growth companies. Where Big Pharma was previously able to easily invest in early-stage companies, the reality of reduced R&D budgets, compounded with an 85-95% risk that the drug never makes it to market, caused large pharmaceutical companies to reassess their business models. Moreover, large pharmaceutical companies are facing major competition from generic drug manufacturers, constricting their cash flow even more.

As a result, large pharmaceutical companies transitioned into the business of purchasing the drugs produced by late-stage research biotech firms, rather than investing in promising biotechs. This model allows the pharmaceutical company to only take on the risk that the drug fails in the market (i.e. commercialization risk). In 2006, large pharmaceutical companies spent \$17 billion on more than 250 biotech companies.<sup>4</sup>

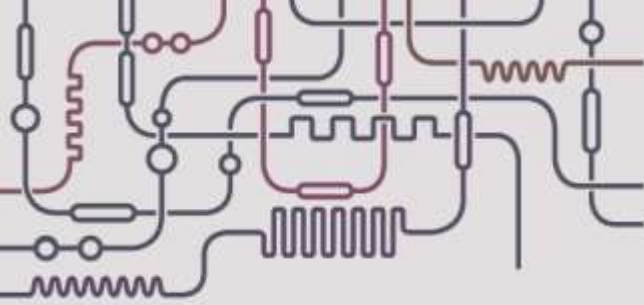
For those early-stage companies who do secure funding from Big Pharma, that funding is tied to the biotech company meeting certain scientific and commercial milestones during the development of the drug, rather than purchasing the company or the rights to the compound. According to an interview in the Wall Street Journal with Kristen Peck, Director of Business Development at Pfizer, "I'm not buying you out and paying you upfront. I'll give you enough to pay you for what you accomplished today."<sup>5</sup>

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<sup>3</sup> Herper, Matthew. "The Truly Staggering Cost Of Inventing New Drugs." *Forbes*. Forbes Magazine, 10 Feb. 2012. Web. 26 Nov. 2012. <http://www.forbes.com/sites/matthewherper/2012/02/10/the-truly-staggering-cost-of-inventing-new-drugs/>.

<sup>4</sup> "Investing In The Biotech Sector." *Investing In The Biotech Sector*. N.p., 18 Apr. 2012. Web. 28 Nov. 2012. <<http://www.investopedia.com/financial-edge/0412/investing-in-the-biotech-sector.aspx>>.

<sup>5</sup> Kristen Peck, as quoted in Rockoff, Jonathan D., and Pui-Wing Tam. "Biotech Funding Gets Harder to Find." *Wall Street Journal*. N.p., 16 Mar. 2012. Web. 28 Nov. 2012. <<http://online.wsj.com/article/SB10001424052970203961204577267814201399918.html>>.



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Financial Investors: Venture Capital

By the late 1990's, emerging growth biotechnologies began looking for funding mechanisms beyond Big Pharma. Venture capital was the answer, and for a time, like large pharmaceutical companies, venture capitalists were flooding early biotech companies with funding. Early-stage companies were able to secure millions of dollars in capital through Venture Capitalists for initial funding, and even more money from public offerings. According to Venture Source, Venture Capital biotech investment peaked in 2007, with a total of \$6.17 billion invested in biotech startups<sup>6</sup>

Yet as a result of the 2008 economic recession and poor stock offerings, venture financing for biotech has been on the decline. The number of active biotech venture capital companies dwindled to 462 by 2010 from a high of 1,022 in 2000. For many venture capitalists, the high costs and long life cycle of development (paired with small markets, particularly for rare disease treatment research) prompted many firms to steer clear from risky and expensive bets in biotech.

Research from Deloitte and the National Venture Capital Association shows an overall lack of confidence in the future of the biopharm industry, citing a confidence level of 3.08 (on a 1-5 scale, 5 being highest level of confidence) in the United States. Moreover, investors were not particularly optimistic the modest 3.08 ranking would increase, with 81% of respondents expecting either no change or a decrease in overall capital invested in drug research over the next five years.

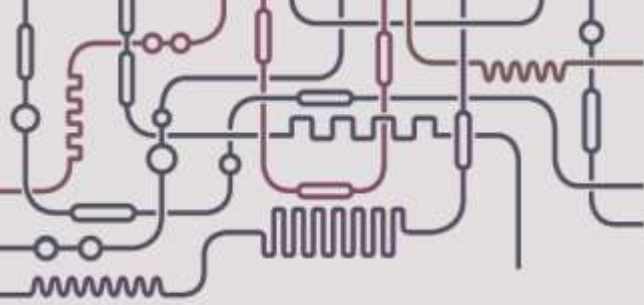
The gloomy outlook for the biotech entrepreneurs is further influenced by the following industry perceptions:

- The IPO market remains unavailable to many young drug developers, hurting one of the traditional routes to exit from investments in biotech companies
- Drug development is a binomial event and majority of drugs fail in the clinics
- Challenging FDA environment upon NDA submission
- Drug Development is capital intensive with long timelines to approval
- More attractive industries like social media with favorable risk profiles and exit strategies

These perceptions have resulted in the majority of VC financing being channeled into companies with products in late-stage development. By the first quarter in 2012, \$780 million of VC investment went into lifesciences, witnessing not only a 43% drop from the

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<sup>6</sup> Rockoff and Tam, "Biotech Funding Gets Harder to Find."



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preceding quarter, but including indications from Reuters that the majority of the \$780 million was invested in existing companies with products in late stage development.

For venture capitalists, early-stage growth companies are high risk and are defined by their high attrition rates, high cost of drug development, regulatory and reimbursement unpredictability, and long development lifecycle. This is a major contrast from internet startups, viewed by venture capitalists as more profitable, cheaper to fund, and less dependent on unpredictable regulatory environments.

### Philanthropic Investors: Foundations and Venture Philanthropy

Healthcare non-profits and foundations have been pouring money into laboratory and academic research for decades. While grants provided the necessary funding for researchers, many foundations and non-profits experienced little progress, prompting them to look into alternative paths to finding treatments and cures. Foundations and healthcare non-profits **began studying the model of venture capitalism, as both VC's and foundations are tasked with dispensing funding to parties with promising therapies and R&D pipelines.**

Since Big Pharma and Venture Capital are less likely to invest in early-stage biotech companies because of the risk, high costs, and high attrition rates, early-stage biotech companies present the opportunity for foundations and non-profits to fast track commercialization of treatments and cures. While foundations and non-profits do not have the billions of dollars required to oversee the entire lifecycle of a drug from research to market, they do have the funds to invest in the early-stages of R&D, filling the funding gap during the period of highest risk. For example, the Michael J. Fox Foundation for **Parkinson's Research has poured \$170 million into Parkinson's research, with \$18.6 million into 39 industry-led projects. One such company, biotech startup Carmont, received a grant for it's promising neuroprotective drug targets. According to the Foundation, for Carmont to receive full funding, it must meet specific milestones and make the research available to the Parkinson's research community.**<sup>7</sup>

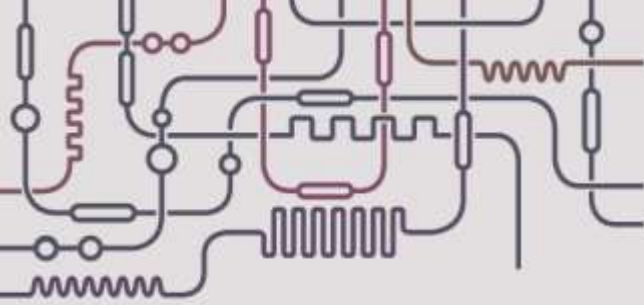
While grants are an effective funding mechanism for early growth companies, foundations are beginning to take larger stakes in start-ups by retaining equity or by taking a percentage of royalties from sales once the product is on the market. This phenomenon is

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<sup>7</sup> Leuty, Ron. "Biotech Startup Lands Michael J. Fox Foundation Grant." *San Francisco Business Times*. N.p., 20 Jan. 2010. Web. 28 Nov. 2012.

<<http://www.bizjournals.com/sanfrancisco/stories/2010/01/18/daily48.html>>.





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known as *Venture Philanthropy*, a term coined in the 1960's as a new means for foundations to become more actively engaged in the affairs of the grant recipient.

Today, Venture Philanthropy is viewed as an investment rather than a contribution, allowing executives to take an active role in project management and set benchmarks and goals as a condition for additional funding; in other words, Venture Philanthropy allows foundations to apply private sector models (capitalizing on efficiency, effective management, and organization) to their charitable venture. Under the Tax Reform Act of 1969, foundations are required to give at least 5% of their yearly assets to a charitable cause or charitable purpose in order to maintain a tax-exempt status. Program Related Investments (PRIs) are a means for a foundation to invest in a for-profit or educational purpose as long as profit is not the end goal. Examples of PRIs include interest free or below-market loans, loan participations or guarantees, letters of credit, and equity investments. For foundations investing in biotech companies, royalties from cures or drug therapies can be re-invested into research or other opportunities.

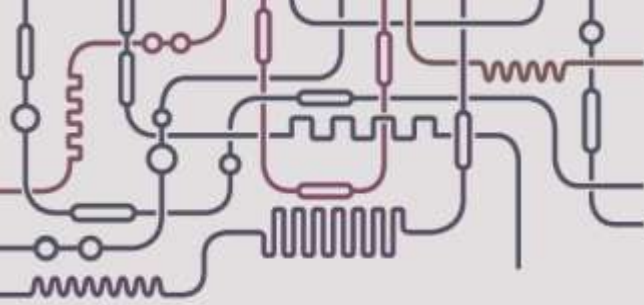
**For example, the Alzheimer's Drug Discovery Foundation helps fund drug discovery** programs in both academia and biotechnology companies. Recognizing the major gap in funding, the ADDF proposes a larger aim on their website:

To fill the critical translational funding gap between basic research and later stage drug development. We fund high risk, early-stage drug discovery and development projects and catalyze scientists to enter the drug discovery field. We have adapted the operating model and principles of Venture Capital investing to our philanthropic mission in biomedical research. We help to create new biotechnology companies, and to fund early-stage biotechnology companies, with **programs dedicated to Alzheimer's disease drug discovery. We seek a return on investment for all of our grants based on the achievement of scientific and/or business milestones. When these milestones are met, funds return to the Foundation to increase our ability to support more research.**<sup>8</sup>

For the emerging growth companies, working with foundations espouses several benefits: Unlike Venture Capitalists, foundations and non-profits **generally don't have stringent** terms, investment return requirements, and are a source of non-dilutive capital. Foundations have the resources to assist emerging growth healthcare companies during the clinical trial period by increasing participation through their patient networks, can help

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<sup>8</sup> "Alzheimers Drug Discovery Foundation." *Alzheimers Drug Discovery Foundation RSS*. N.p., n.d. Web. 28 Nov. 2012. <<http://www.alzdiscovery.org/>>.



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attract scientific experts to drug development program, and assist researchers in understanding the needs of the patient at an early stage.

While Venture Philanthropy has a positive outlook for future investment in emerging growth companies, the mechanism alone cannot fill the major funding gap in the biotech sector. In the coming pages, we will look to the prospect of Crowdfunding as a supplemental funding mechanism to Venture Philanthropy, strategic, and financial investments and suggest new hybrid mechanisms that can breathe new life into medical innovation.

### Public Investors: Grants from Federal Agencies

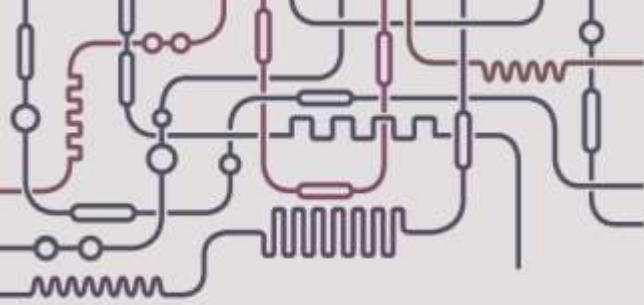
The United States Federal government has agency funded initiatives in place to support innovation and the commercialization of viable products and therapies in the biomedical space. The Small Business Innovation Research (SBIR), created in 1982, is a joint venture between twelve government agencies, supports small domestic businesses in their R&D efforts by tying profit incentives and additional funding to promising research. The goals of the program are as follows: stimulate technological innovation, meet Federal research and development needs, foster and encourage participation in innovation and entrepreneurship by socially and economically disadvantaged persons, and increase private-sector commercialization of innovations derived from Federal research and development funding.<sup>9</sup>

The SBIR Program recognizes the funding challenges experienced by biomedical entrepreneurs across the board and is designed to mitigate some of the risk and expense early-growth companies experience. The Program is divided into three separate phases:

*Phase I.* The objective of Phase I is to establish the technical merit, feasibility, and commercial potential of the proposed R/R&D efforts and to determine the quality of performance of the small business awardee organization prior to providing further Federal support in Phase II. SBIR Phase I awards normally do not exceed \$150,000 total costs for 6 months.

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<sup>9</sup> United States. Small Business Innovation Research. *SBIR.gov*. N.p., n.d. Web. 28 Nov. 2012. <<http://www.sbir.gov/about/about-sbir>>.



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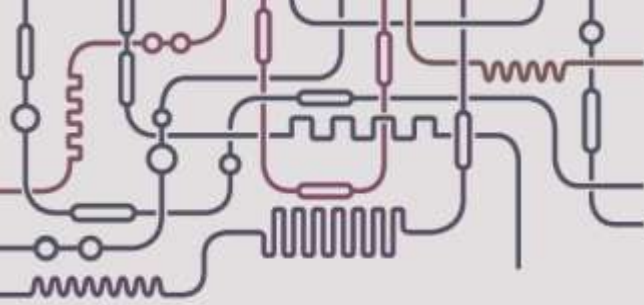
*Phase II.* The objective of Phase II is to continue the R/R&D efforts initiated in Phase I. Funding is based on the results achieved in Phase I and the scientific and technical merit and commercial potential of the project proposed in Phase II. Only Phase I awardees are eligible for a Phase II award. SBIR Phase II awards normally do not exceed \$1,000,000 total costs for 2 years.

*Phase III.* The objective of Phase III, where appropriate, is for the small business to pursue commercialization objectives resulting from the Phase I/II R/R&D activities. The SBIR program does not fund Phase III. Some Federal agencies, Phase III may involve follow-on non-SBIR funded R&D or production contracts for products, processes or services intended for use by the U.S. Government.<sup>10</sup>

For early growth companies, government sponsored grants are a viable source of support, as they are designed to support the company during a high-risk period. However, as institutional, strategic, and philanthropic sources have dried up with the ensuing period of economic instability, competition for such grants has increased significantly.

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<sup>10</sup> <<http://www.sbir.gov/about/about-sbir>>.



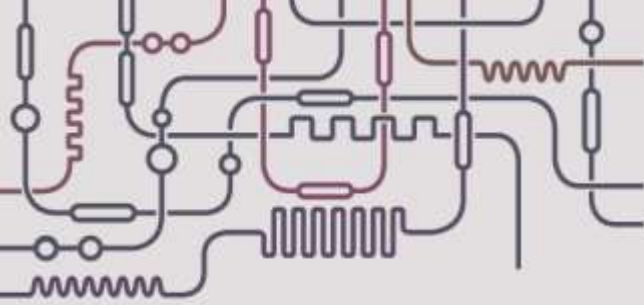
## Introduction to Crowdfunding

Crowdfunding is one of the most novel funding mechanisms to emerge in the past decade and has since established itself as one of the most viable methods of sourcing early-stage and seed capital. Crowdfunding finds its origins from the concept of crowdsourcing, **where the 'crowd' is used to obtain ideas, solutions, and feedback for the development of activities or initiatives.**

The Crowdfunding **model is described by Wikipedia as the 'collective effort of individuals who network and pool their resources, usually via the internet, to support efforts initiated by other people or organizations.** Crowdfunded projects have a wide range, including disaster relief, startup company funding, filmmaking, gaming, and for the purposes of this paper, disease and healthcare research and development. Where traditional funding routes like bank loans or Venture Capital center on large dollar investments, Crowdfunding solicits small contributions from large numbers of people. Moreover, Crowdfunding espouses access to the minds of the donors and crowd, allowing entrepreneurs and project owners to test and market their idea on a group before bringing it to market.

There are four types of Crowdfunding models:

Form of Contribution	Definition	Example
Donation	Contributions are given in the form of a donation. Donors are motivated by social or intrinsic aims, and receive intangible benefits (i.e. no money, equity or perk) in return.	<a href="http://www.donete.ly">www.donete.ly</a>
Peer to Peer	Contributions are given in the form of a loan. Lenders are motivated by desire for reward and intrinsic aims, and receive repayment of the loan with interest. Occasionally, if the donor is socially motivated, the loan is repaid without interest.	<a href="http://www.kiva.org">www.kiva.org</a>
Equity	Contributions are given in the form of equity. Investors are motivated by a combination of intrinsic, social and financial motivation, and receive return on investment over time, if the business succeeds.	<a href="http://www.circleup">www.circleup</a>
Reward	Contributions are given in the form of donation or pre-purchase of a product or service. Donors are motivated by the rewards (perks) and by social aims, and receive the reward or perk as payment.	<a href="http://www.kickstarter">www.kickstarter</a>



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In 2011, Crowdfunding raised \$1.5 billion for projects and businesses in need of funds. The research firm Massolution forecasted \$2.8 billion will be raised via Crowdfunding in 2012, with 450 platforms active worldwide.<sup>11</sup> While reward based Crowdfunding is currently the most popular model, equity based Crowdfunding is expected to transform the way businesses raise capital. The signing of the Jumpstart Our Business Startups Act (JOBS Act) in April 2012 legalized the equity model, aiming to help startups raise early-stage equity based financing and reduce restrictions on equity Crowdfunding of for-profit businesses then present in state and federal securities laws.

The Crowdfunding model is disrupting the traditional fundraising ecosystem. Research from the Angel Capital Education Foundation shows startups raise \$60 million annually through friends and family, compared with \$20 billion for Venture Capital and \$20 billion from Angel investors.<sup>12</sup> For emerging growth companies with revenues under \$10 million per year, there is a huge funding gap, making it extremely difficult for business owners to get loans or credit lines from banks. The legalization of equity Crowdfunding for non-accredited investors will allow both the average American citizen (those making less than \$200,000 per year) to invest in start-up companies and widely expands the pool of potential investors for early growth companies.

### Current Landscape of Donation & Reward Based Crowdfunding: The Pebble Watch & Double Fine Adventure

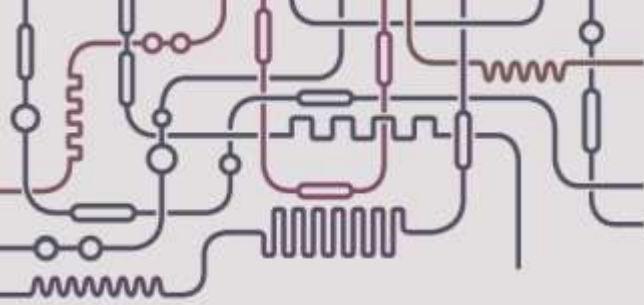
While the JOBS Act and equity Crowdfunding will ripple into the larger economy in the near future, current donation and rewards programs serve as a microcosm for the future Crowdfunding on a national and global scale. Since its launch in 2009, Kickstarter, the giant among all U.S. Crowdfunding platforms, launched 73,620 projects, with a success rate of 43.85% with pledges of \$381 million.<sup>13</sup> Below are two successful campaigns launched through the Kickstarter website, both of which offer valuable lessons for other industries and entrepreneurs interested in the Crowdfunding model:

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<sup>11</sup> "The New Thundering Herd." *The Economist*. The Economist Newspaper, 16 June 2012. Web. 20 Nov. 2012. <<http://www.economist.com/node/21556973>>.

<sup>12</sup> Schroter, Wil. "Crowdfunding Streamlines the Friends and Family Round." *PandoDaily*. N.p., 6 July 2012. Web. 28 Nov. 2012. <http://pandodaily.com/2012/07/06/Crowdfunding-streamlines-the-friends-and-family-round/>.

<sup>13</sup> "Kickstarter." *Wikipedia*. Wikimedia Foundation, 28 Nov. 2012. Web. 15 Nov. 2012. <<http://en.wikipedia.org/wiki/Kickstarter>>.



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### *The Pebble Watch*

Among the successful Kickstarter projects is the Pebble Watch, a watch that displays messages from a smartphone via Bluetooth 4.0. While Pebble Technology founder Eric Migicovsky raised \$375,000 through venture capital, the company was unable to secure additional funding and turned to Kickstarter to run a Crowdfunding campaign. Utilizing the reward Crowdfunding model, Pebble Technology set a goal of \$100,000 for a five-week campaign where individuals who pledge \$115 receive a Pebble Watch when they become available. Donors are essentially pre-ordering the watch at a discounted price of \$115 rather than waiting for the watch to become commercially available at the retail price of \$150. At the end of the five week campaign, the Pebble Watch had raised \$10,266,844 from 68,928 people.<sup>14</sup>

### *Double Fine Adventure Project*

The Double Fine Adventure Kickstarter project is also worthy of note. Double Fine is an adventure point-and-click adventure game created by Tim Schafer. While Schafer was a veteran of LucasArts, a prominent media firm, adventure games are fairly niche and the founders experienced difficulty securing financing for Double Fine. In February 2012, Schafer launched a Kickstarter campaign to raise \$400,000 for Double Fine, with \$100,000 destined for film production and the other \$300,000 invested in the game. Using a rewards-based model, the campaign offered perks ranging from a special edition version of the game (for \$100 donors) to lunch with Tim Schafer and Ron Gilbert and all of the perks offered at every level (for 4 backers, pledging \$100,000). The latter sold out, and Double Fine raised \$3,336,371 from 87,142 donors.<sup>15</sup>

Lessons Learned from Double Fine & The Pebble:

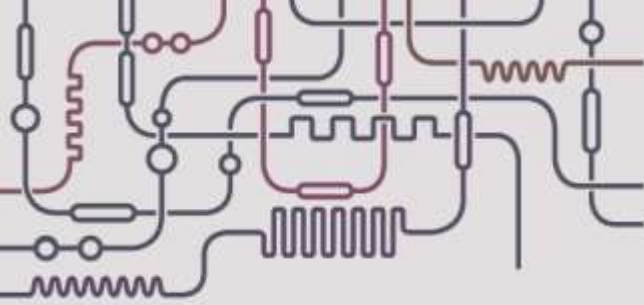
### *Crowd Wisdom & Feedback*

The success of the Pebble Watch and Double Fine offer important lessons about the non-monetary benefits of Crowdfunding: crowd wisdom and feedback. The Crowdfunding model creates a platform of communication between the funders and the company, whereby the funders can offer feedback and suggestions for the product. Based on

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<sup>14</sup> "Pebble (watch)." *Wikipedia*. Wikimedia Foundation, 23 Nov. 2012. Web. 15 Nov. 2012.  
<[http://en.wikipedia.org/wiki/Pebble\\_\(watch\)](http://en.wikipedia.org/wiki/Pebble_(watch))>.

<sup>15</sup> "Double Fine Adventure." *Wikipedia*. Wikimedia Foundation, 23 Nov. 2012. Web. 15 Nov. 2012.  
<[http://en.wikipedia.org/wiki/Double\\_Fine\\_Adventure](http://en.wikipedia.org/wiki/Double_Fine_Adventure)>.



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feedback from funders, Pebble Technology altered the watch to make it water-resistant, an important feature that came from the virtual community of Pebble donors and potential buyers rather than Pebble Employees.

Like the Pebble Watch, the Double Fine Game was influenced by their donors. During the development of the game, Double Fine focused its efforts on brainstorming with their community, ultimately soliciting their advice on concept for the location of the game and to submit ideas for future locations and backdrops. Several of the ideas were developed and illustrated by the concept artists at Double Fine. Tim Schafer promised to keep his fans updated about the progress and development of Double Fine through social media and **the unbridled enthusiasm of the backers can still be viewed on the Double Fine's** Kickstarter website, where backers engage in dialogue about the game through their virtual community.

### *The Emotional Quotient*

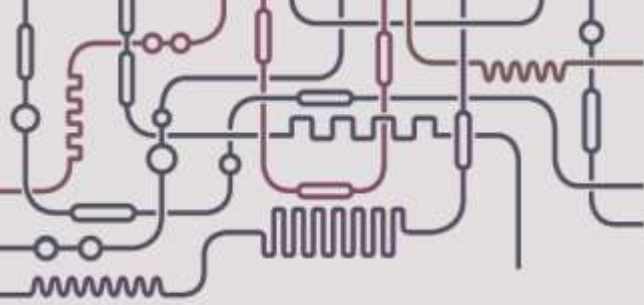
Funding struggles are equally difficult in the consumer goods industry as in healthcare. Like many founders of early growth companies in the healthcare sector, Migicovsky of Pebble Technology was qualified and knowledgeable in his field, experiencing earlier success with a Blackberry-compatible smart watch called the inPulse. Despite the acclaim he received for the inPulse, venture capitalists and angel investors in Silicon Valley rejected the Pebble. In an interview with the Los Angeles times, Migicovsky stated "I wasn't extremely surprised," Migicovsky told The Times. "Hardware is much harder to raise money for. We were hoping we could convince some people to our vision, but it didn't work out."<sup>16</sup>

Tim Schafer and Ron Gilbert at Double Fine were even more experienced in the gaming sector; Schafer had a number of successful adventure games under his belt at LucasArts **and Ron Gilbert is considered the "unofficial father of the genre," according to Wired Magazine.**<sup>17</sup> Yet both individuals expressed their cynicism with traditional funding mechanisms, Schafer stating "If I were to go to a publisher right now and pitch an

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<sup>16</sup> Netburn, Deborah. "Pebble Smartwatch Raises \$4.7 Million on Kickstarter Funding Site." *Los Angeles Times*. Los Angeles Times, 18 Apr. 2012. Web. 15 Nov. 2012. <<http://articles.latimes.com/2012/apr/18/business/la-fi-tn-pebble-smart-watch-kickstarter-20120418>>.

<sup>17</sup> Brown, Mark. "Tim Schafer Persuades Fans to Finance next Adventure Game." *Wired UK*. N.p., 9 Feb. 2012. Web. 11 Nov. 2012. <http://www.wired.co.uk/news/archive/2012-02/09/double-fine-kickstarter>.



## Breathing Life Back Into Biotech Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

adventure game, they'd laugh in my face."<sup>18</sup> Gilbert expressed a similar sentiment, stating "From first-hand experience, I can tell you that if you even utter the words "adventure game" in a meeting with a publisher you can just pack up your spiffy concept art and leave. You'd get a better reaction by announcing that you have the plague."<sup>19</sup> With a stigmatized genre and laughable reactions from the industry, turning to friends, family, and fans was the viable alternative.

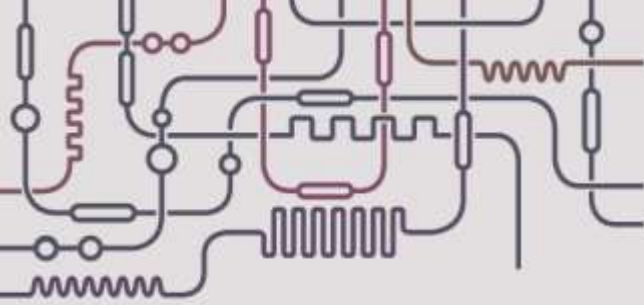
What is compelling about both of these stories is the rejection of funding from traditional mechanisms was by no means a reflection on the experience or quality of either the **business idea or the entrepreneurs: it's an issue of perceived risk**. With that in mind, the real and serious potential for Crowdfunding is that it hones in on the emotional quotient, whereby individual donors choose to fund initiatives that hold intrinsic meaning or emotion. For the supporters of the Pebble Watch, the watch is a new, cool, and geeky. They also get to own one before the product goes to market, and for many people, the perceived social **value of being an 'early adopter' is worth the investment**. For supporters of Double Fine, it's a whole genre of adventure game fans, many of which are already connected emotionally with the previous works of Ron Gilbert and Tim Schafer. The impetus for donors in Crowdfunding is largely intrinsic--where banks, Venture Capitalists, and Angel Investors are tied to inherently risk-averse business models.

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<sup>18</sup> <http://www.wired.co.uk/news/archive/2012-02/09/double-fine-kickstarter>.

<sup>19</sup> Gilbert, Ron. "Grumpy Gamer Adventure Games (via)." Weblog post. *Grumpy Gamer Adventure Games (via)*. N.p., 25 July 2005. Web. 15 Nov. 2012. <http://grumpygamer.com/3258434>.





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### New Paths: Crowdfunding in the Life Sciences

Strategic  
Investors

Financial  
Investors

Philanthropic  
Investors

Governmental  
Investors

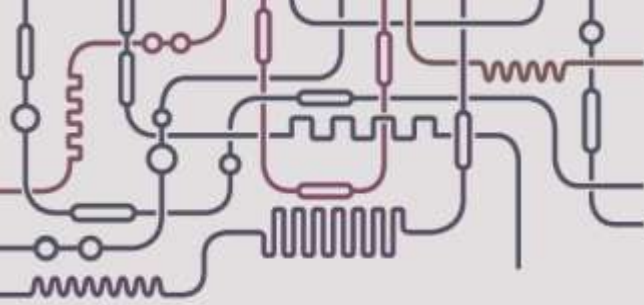
Crowd

For emerging growth companies in the healthcare sector, donation and rewards based Crowdfunding are natural allies. While most biotech companies are for-profit entities, they are dedicated to the universal good of creating drugs, therapies, cures, medical devices, and technology for diseases and then bringing them to market. However, the road to market is long, expensive, and fraught with risk, and as a result, traditional sources of funding are unable to assume full financial responsibility, leaving emerging growth companies with little choice but to seek new and hybrid funding sources.

At the same time, there exists a population of patients, friends and families, medical professionals, and researchers for whom finding a cure is an urgent and highly-emotional matter. Yet members of this population are not necessarily equipped with the resources (background, brain power, time to spend) to enter into drug R&D or find a cure on their own. They are, however, willing to donate time and money to organizations who can make a difference. This is known as compassionate giving. At the moment, these individuals usually donate to foundation or non-profits dedicated to finding cures, who in turn fund academic research through grants.

Donation and rewards based Crowdfunding allows key populations (patients, friends and family, researchers, entrepreneurs, and medical professionals) to directly impact medical innovation. For years, individuals have been happy to donate money to large foundations. Yet individual donors are becoming increasingly alienated by non-profit monoliths who provide little transparency as to where their checks are going.

In some cases, like that of Roger Chapin, a former real-estate developer who launched 20 charities, donations were used for a \$17,000 annual country club memberships, high salaries for Chapin and his wife, vehicles, and real estate investments-expenses entirely



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illegitimate and contrary to the mission of the charity.<sup>20</sup> In other cases, like the Disabled Veterans National Foundation, funds are squandered on marketing; and in the very worst cases, fraud ensues. Individual donors often times don't even know they are being duped.

The Crowdfunding model espouses full transparency as to where the funds are going and for what purpose. Where donation based campaigns fulfill the intrinsic motivation of personal responsibility and going the right thing, rewards-based campaigns often times attach perks for individual donors. These can range from having the donors name mentioned on the website of the campaign to having the cure named after the donor.

Let's take a look the example of iCancer, a rewards based Crowdfunding campaign currently raising funds through the Indiegogo platform.

Case Study: iCancer



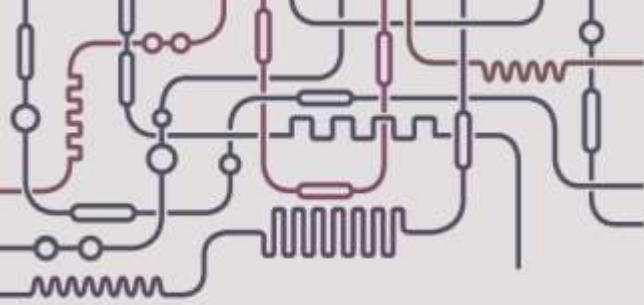
The iCancer campaign on Indiegogo self identifies as a team of guerilla fundraisers dedicated to finding a cure for the cancer that killed Steve Jobs. The iCancer team has **identified a potential therapy in Sweden, but due to lack of funds, the therapy is "currently sitting in a freezer in Sweden" because the industry is unwilling to pay the £2 million** required for the therapy to enter clinical trials.<sup>21</sup> As a result, research on this particular therapy will halt, leaving the the thousands of people who suffer from neuroendocrine cancer (NET) without a potentially life-saving therapy.

From a strictly monetary perspective, donation based Crowdfunding in biotech ventures is a win-win situation: the emerging growth company receives non-dilutive capital and the donor has a precise understanding of how their money is being spent. Donation and rewards based Crowdfunding will also offer biotech companies a number of critical non-monetary benefits that traditional funding mechanisms can not. We will explore those benefits below.

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<sup>20</sup> Baram, Marcus. "Veterans Charity Fraud: Despite Widespread Outrage, Groups Continue To Abuse Public Trust." *The Huffington Post*. TheHuffingtonPost.com, 29 June 2011. Web. 17 Nov. 2012. <[http://www.huffingtonpost.com/2011/06/29/veterans-charity-fraud\\_n\\_886259.html](http://www.huffingtonpost.com/2011/06/29/veterans-charity-fraud_n_886259.html)>.

<sup>21</sup> "iCancer Campaign." *iCancer*. Indiegogo, n.d. Web. 24 Nov. 2012. <<http://www.indiegogo.com/icancervirus>>.



## Breathing Life Back Into Biotech Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

### *Emotional Quotient*

The campaign elicits emotional buy-in of potential donors by appealing to the importance of human lives before profit, stating on the Indiegogo Website<sup>22</sup>:

And that's where we come in. We want to put people before profit. We want to raise the money for the clinical trials.

Experts across the world acknowledge that this anti-cancer virus is cutting edge - as you'll see on our video. It could have a massive affect on NET cancer sufferers - and it may well be able to help people with other cancers, too.

Steve Jobs said: 'Being the richest man in the cemetery doesn't matter to me. Going to bed at night saying we've done something wonderful...that's what matters to me.'

This is our chance to do something wonderful.

We've put our campaign together in little over a week. We have no money behind us and everybody is volunteering their time for free.

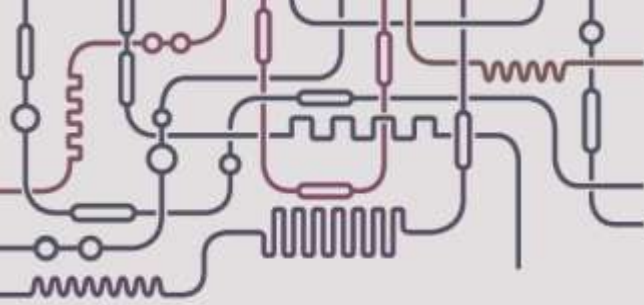
So there is no fancy website, no motivational wristband and no rock concert.

It's just us, the scientists, the virus and you.

The rhetoric is designed to elicit emotion around several ideas and concepts: that the therapy is life-saving, harkening back to the memory of a beloved cultural figure like Steve Jobs, the lack of funding and resources behind the team; the website cleverly appeals to **the intrinsic motivations and feelings of 'personal responsibility'** mentioned earlier in the paper. While individuals have different motives for donating to a campaign, the iCancer campaign appeals to several different motivations, giving it widespread appeal to a large pool of donors.

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<sup>22</sup> <http://www.indiegogo.com/icancervirus>.



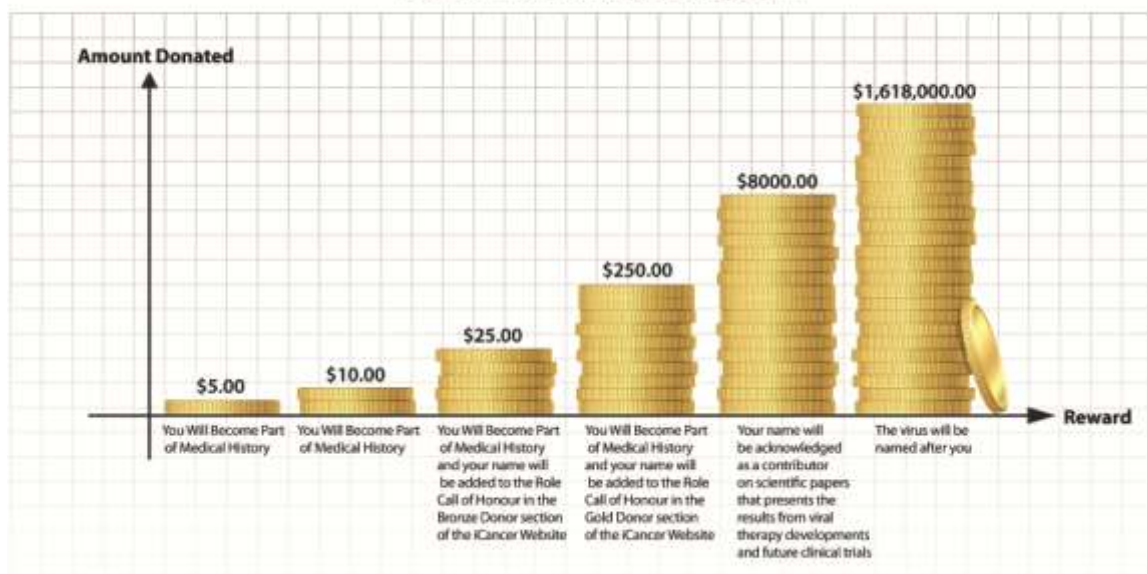
## Breathing Life Back Into Biotech Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

### Perks & Rewards

The iCancer campaign offers a tiered-rewards system for the contributions from donors. Below is a snapshot of their perks system<sup>23</sup>:

Like the Pebble Watch and Double Fine Adventure game, the tiered rewards system caters to the different desires of different donors, as well as to their pocketbooks. While the ultimate aim of a Crowdfunding campaign is to fulfill the funding goal, most individual donors do not have the disposable income to afford the \$1,618,000 perk of having the virus named after them. For that reason, the rewards system for iCancer focuses on the notoriety and emotional appeal that drives individuals to donate: the 48% of Americans willing to make a small donation to show their support to organizations or causes.

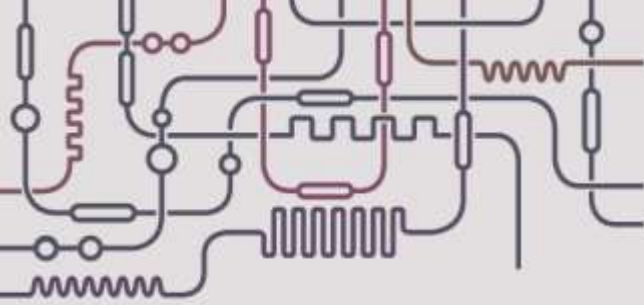
### iCancer Tiered Rewards System



### Virtual Communities & Inbound Marketing

Establishing communication around the progress of the research and campaign is one of the biggest benefits of Crowdfunding in the life sciences sector. As mentioned previously, large foundations and non-profits often times do not tell their donors how their money is being spent. Most Crowdfunding campaigns include a video presentation, where entrepreneurs are encouraged to discuss their background, how the project came to be, and other information designed to familiarize the potential donor with the goal of the campaign. Since Crowdfunding platforms are web-based, individual donors can both

<sup>23</sup> <http://www.indiegogo.com/icancervirus>.



## **Breathing Life Back Into Biotech** Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

familiarize themselves with the company founders and team, but also conduct additional research via the web and social networks to acquaint themselves with additional background information that will help the donor decide if the company is worthy of investment.

The virtual communities that are created through a Crowdfunding website not only connect like-minded users, but by connecting other social media sites like Twitter, Facebook, Mashable, and the rest of the blogosphere, donors and potential donors can get a thorough understanding of the progress of the initiative. In the case of iCancer, the website not only provides direct links to other social media sites where one can track the news of the campaign, but it also provides links to the individuals who are running the campaign itself. This allows potential donors to understand more about the people running the campaign, allowing them to understand whether the team is qualified and worthy of trust.

In the healthcare sector, this is particularly important when it comes to building a community of patient networks. In the case of iCancer, highlighting the point that the type of cancer they are aiming to cure is NET, the one which killed Steve Jobs, can motivate individuals who either know patients suffering from NET or can motivate others who felt a connection to Steve Jobs. Once that connection is established, individuals can then speak to a friend or a family member after reading something on a nonprofit or charitable organization's social networking site. According to the poll by Harris Interactive, 54% of Americans already do this.<sup>24</sup> Considering the nature of the Crowdfunding model, the initiative may raise more funds this way, but it also may find volunteers for clinical trials, information or ideas from scientists or other researchers, and countless other non-monetary benefits.

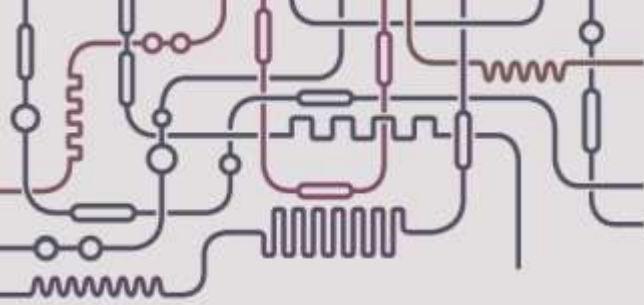
### Potential Drawbacks and Advantages of Crowdfunding as a Financing Model for Early Growth Biotechnology Companies

While examples like Double Fine and the Pebble Watch illustrate the clear benefits of Crowdfunding in their respective industries, Crowdfunding in healthcare is in its infancy. To understand the potential drawbacks of Crowdfunding as a viable fundraising mechanism in healthcare, we surveyed a number of biotech executives to hear their

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<<http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/611/ctl/ReadCustom%20Default/Default.aspx>>.



## **Breathing Life Back Into Biotech** Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

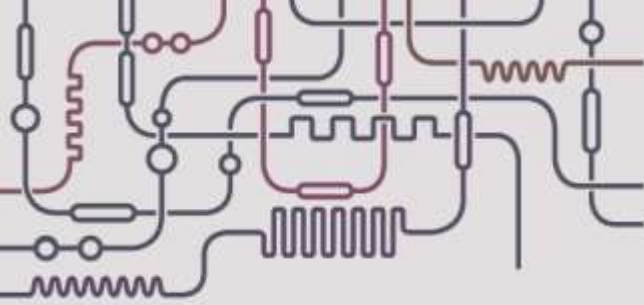
reservations about the model including Formula Pharmaceuticals, ViDAC pharmaceuticals, and Salarius Pharmaceuticals.

The most common objection raised by the biotech executives we surveyed was rooted in the fear that the funding needs of a company exceed the amount that could be raised via Crowdfunding. Many executives felt with such large funding needs, Crowdfunding would not be able channel the volume of funds typical of an institutional or strategic investor, and while all funding is good, the volume of funding simply is not large **enough to make a real dent in the company's funding goals.**

Second, executives believed managing such a large number of investors requires much time and money. While the number of investors varies from initiative to initiative, they can span in volume from a handful to tens of thousands; in the case of President Barack **Obama's** Crowdfunding re-election campaign, there were millions of investors. For companies, managing that volume is not only daunting, but would require hiring of additional personnel when many companies are already constrained from a human resources perspective.

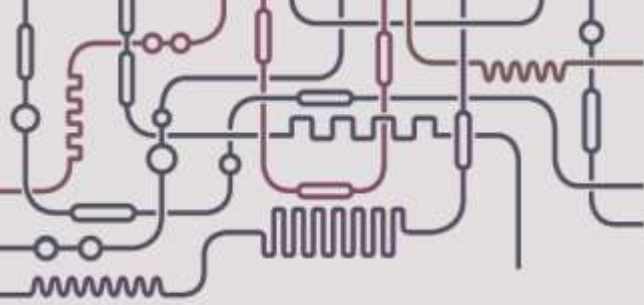
Third, Crowdfunding **may limit conventional investors' interest in investing**, due to pickiness among institutional investors of with whom they want to co-invest with. The decision among institutional investors to invest in an emerging growth company is often affected by the other investors the company has accrued; in the case of Crowdfunding, it remains early to be seen whether or not Crowdfunding signals a positive investment opportunity. Unlike strategic, public, or biotech-aligned institutional investors, Crowdfunding investors are likely to be friends and family, patients, and medical professionals who are governed more by emotional connection to the cause than by technical understanding of the asset.

Yet executives were optimistic about the potential for donation-based Crowdfunding as an additional funding source. The comments were particularly illustrative of the need for a **change in the current funding ecosystem, with one executive stating "Financing is clearly the scarce resource of today's market. Anything that can help bring money to great companies and early ideas is fantastic."** Executives were also optimistic about the potential for **more control within company's hands, due to small individual stake of each investor** and access to new investors through extended network of contacts through Crowdfunding participants.



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In terms of the non-monetary benefits of Crowdfunding, one of the most palpable opportunities lies in enrollment for clinical trials. By engaging with virtual communities that have a vested interest in finding a cure or therapy for a disease, early growth companies can enlist the help of members of the community for enrolling interested patients in clinical trials. For companies that do not have the backing of a pharmaceutical company, the virtual community behind a Crowdfunded company can help support a mechanism where biotech companies and patients bind together in the early-stages and create mindshare around a specific therapy. When the company is then ready for clinical trials, the virtual community will be central in educating patients and patient networks about the opportunity to enroll in the clinical trial.



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### The Case for Hybrid Mechanisms

If the average cost for drug development costs \$2 billion, Crowdfunding alone is not the answer. As such, it is crucial to look at the interaction and potential for financial, strategic, philanthropic, and Crowdfunding mechanisms to support the full lifecycle of a therapy or drug from early-stage to market. This is important for two reasons: First, the financial risk and burden is spread among a combination of financial supporters or investors, rather than relying on one such mechanism. Second, utilizing more than one mechanism allows **the early growth company to have access to a “super crowd.”** Consider the sources of the four financial mechanisms and their knowledge bases:

Venture Capital: Business Knowledge for Early-Stage Companies

Big Pharma: Scientific and Market-Specific Knowledge/Regulatory Connections

Foundations: Access to Patient Networks/Friends and Family/Disease Specific Knowledge

Crowd: Potentially all of the above

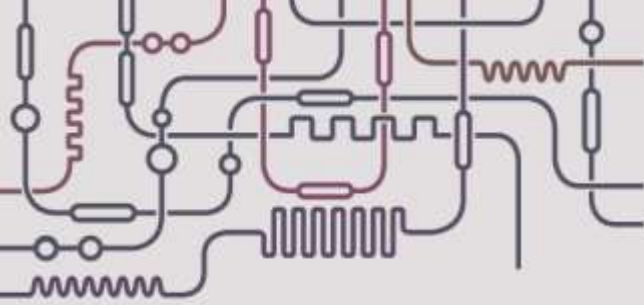
By creating hybrid funding mechanisms and utilizing crowd wisdom, biotech companies and their investors will have major stakes in solving the regulatory challenges, business challenges, and scientific challenges, and will be much more equipped to do so because it is effectively putting decision making in the hands of the invested crowd.

#### Presence of Hybrid Mechanisms in the Market Today

*Venture Philanthropy: The L3C and Program Related Investments*

As mentioned earlier in this paper, biomedical foundations are beginning to utilize Venture Philanthropy as a means of investing in early-growth companies. As the gap between the nonprofit and for-profit worlds begin to shrink and traditional funding mechanisms are disrupted, new structures and legal forms will emerge to facilitate socially beneficial investments. One such structure is the Low-Profit Limited Liability Company (L3C), defined as a for-profit, social enterprise venture that has a stated goal of performing a socially beneficial purpose, not maximizing income. Wikipedia describes the L3C as a hybrid structure that combines the legal and tax flexibility of a traditional LLC, the social benefits of a nonprofit organization, and the branding and market positioning advantages of a social enterprise. For emerging growth companies in the biotech sector, having L3C status permits acceptance of Program Related Investments (PRIs) from foundations.





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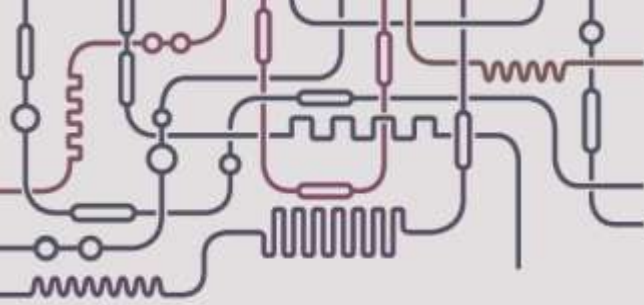
In May 2012, the IRS released proposed legislation that both simplifies the PRI process for foundations and illustrates examples of what future investments would be considered PRIs. Recognizing the economic potential of PRIs and L3Cs to feed entrepreneurship, hire more workers, and create socially-minded businesses, the IRS is proposing to expand the current regulations to become more start-up friendly. One of the examples cited in the proposal relates directly to healthcare R&D:

*Example 11. X is a business enterprise that researches and develops new drugs. X's research demonstrates that a vaccine can be developed within ten years to prevent a disease that predominantly affects poor individuals in developing countries. However, neither X nor other commercial enterprises like X will devote their resources to develop the vaccine because the potential return on investment is significantly less than required by X or other commercial enterprises to undertake a project to develop new drugs. Y, a private foundation, enters into an investment agreement with X in order to induce X to develop the vaccine. Pursuant to the investment agreement, Y purchases shares of the common stock of S, a subsidiary corporation that X establishes to research and develop the vaccine. The agreement requires S to distribute the vaccine to poor individuals in developing countries at a price that is affordable to the affected population. The agreement also requires S to publish the research results, disclosing substantially all information about the results that would be useful to the interested public. S agrees that the publication of its research results will be made as promptly after **the completion of the research as is reasonably possible without jeopardizing S's** right to secure patents necessary to protect its ownership or control of the results of the research. The expected **rate of return on Y's investment in S is less than the expected market rate of return for an investment of similar risk. Y's primary** purpose in making the investment is to advance science. No significant purpose of the investment involves the production of income or the appreciation of property. **The investment significantly furthers the accomplishment of Y's exempt activities and would not have been made but for such relationship between the investment and Y's exempt activities. Accordingly, the purchase of the common stock of S is a program-related investment.**<sup>25</sup>*

For healthcare and biotech startups, status as an L3C will permit funding from foundations and donations from Crowdfunding platforms during the pre-seed and seed stages which are the most difficult periods for fundraising. Moreover, if a biotech company receives

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<sup>25</sup> "Internal Revenue Bulletin - May 21, 2012 - REG-144267-11." *Internal Revenue Bulletin - May 21, 2012 - REG-144267-11*. N.p., n.d. Web. 28 Nov. 2012. <[http://www.irs.gov/irb/2012-21\\_IRB/ar11.html](http://www.irs.gov/irb/2012-21_IRB/ar11.html)>.



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investment from foundations and Crowdfunding platforms during this period, it signals credibility to other potential investors, including Venture Capitalists and Angel Investors.

#### Case Study: The Cystic Fibrosis Foundation and Vertex Pharmaceuticals



The collaboration of Vertex Pharmaceuticals and the Cystic Fibrosis Foundation provides an excellent case study on the first major union between a disease-focused foundation and for-profit company working to utilize Venture Philanthropy in the effort to to develop and successfully market a drug treatment for a rare disease.

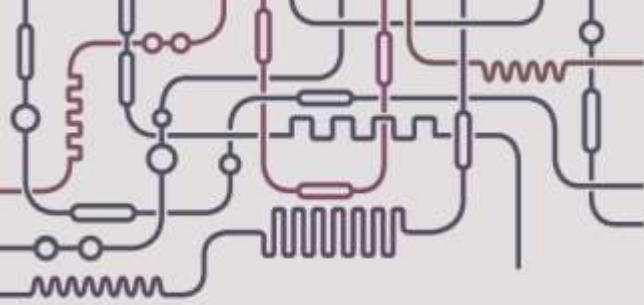
The Cystic Fibrosis Foundation was established in 1955 by parents of children suffering from the disease with the intent of finding a cure. There are approximately 30,000 people in the United States suffering from cystic fibrosis and the Cystic Fibrosis Foundation is the central vehicle behind the search for a cure. The organization is dedicated to drug development, finding a cure for the disease, and improving the quality of life for patients.<sup>26</sup>

In May 2000, the Cystic Fibrosis Foundation entered into a contract with Aurora Biosciences, a San Diego based biotech company focused on assay development, secondary screening, and technology for target identification and validation. The collaboration between the Cystic Fibrosis Foundation and Aurora focused on the screening of therapeutic compounds for treating cystic fibrosis. The five-year collaboration, the largest contract ever awarded to a for-profit business by a nonprofit health organization, announced the following terms in their collaborative announcement released on May 31, 2000:

CFF will fund the Aurora-CFF initiative through technology access fees for non-exclusive **access to Aurora's assay, screening, and chemistry technologies and fees** for ongoing scientific support. Committed funding payments and project progress payments received by Aurora could total approximately \$30 million over the course of the collaboration, before clinical milestone payments. Aurora and CFF have also agreed to co-commercialization arrangement that includes commercialization of promising candidate drugs resulting from the program in the CF and pulmonary fields, with revenue sharing on any marketed products.

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<sup>26</sup> Higgins, Robert F., Sophie LaMontagne, and Brent Kazan. "Vertex Pharmaceuticals and the Cystic Fibrosis Foundation: Venture Philanthropy Funding for Biotech." Harvard Business School Case 808-005, July 2010.



## Breathing Life Back Into Biotech Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

The following year, Aurora Biosciences was acquired by Vertex Pharmaceuticals for \$592 million. **The union of the two companies witnessed the unification of Aurora's assay development, screening, and cell biology capabilities with Vertex's integrated drug discovery platform, with a larger expectation of increasing "the flow of novel drug candidates into development, accelerate the creation of a broad intellectual property estate, and provide enhanced opportunities for major drug discovery, development and commercial alliances."**<sup>27</sup> The merging of these two companies sparked an internal debate on whether or not the relationship should be continued with the Cystic Fibrosis Foundation.

Ultimately, the relationship continued with the Cystic Fibrosis Foundation investing an estimated \$75 million in the creation of the drug Kalydeco. In January of 2012, Kalydeco became the first approved drug to target the mutated gene that causes cystic fibrosis. As per the agreement, the Cystic Fibrosis Foundation will receive royalties from the sales of Kalydeco, which will then be reinvested into further research. The Cystic Fibrosis Foundation has since committed an additional \$75 million into Vertex through 2016.<sup>28</sup>

### Case Study: Zenobia Therapeutics



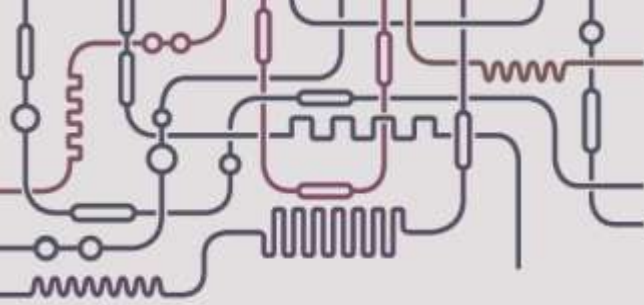
The partnership between the Cystic Fibrosis Foundation and Vertex Pharmaceuticals is an industry success story and testament to the potential for hybrid funding mechanisms for early growth biotechnology companies. San Diego-based Zenobia Therapeutics provides another compelling study of alternative paths to funding. Zenobia Therapeutics, founded in 2008 focuses on structure drug design and fragment-based lead discovery for **Central Nervous System (CNS) disease, including Alzheimer's, Parkinson's, and Huntington's diseases. Zenobia has traditionally acquired funding from SBIR's and grants from foundations, including Michael J. Fox Foundation and the National Institute of Health.**

As the United States has continued to suffer economic instability from the 2008 recession, funding from foundations and the federal government has becoming increasingly competitive and the amount of funding has decreased, particularly in the CNS area. While Zenobia was fortunate to have fairly regular access to funding grants, there were gap periods that could span for several months while the company waited additional grants to come through. In an effort to gain access to new sources of funding, the organization is in the process of finalizing an L3C under the larger umbrella of Zenobia Therapeutics. The

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<sup>27</sup> Higgins, Robert F., Sophie LaMontagne, and Brent Kazan. "Vertex Pharmaceuticals and the Cystic Fibrosis Foundation: Venture Philanthropy Funding for Biotech."

<sup>28</sup> Higgins, Robert F., Sophie LaMontagne, and Brent Kazan. "Vertex Pharmaceuticals and the Cystic Fibrosis Foundation: Venture Philanthropy Funding for Biotech."



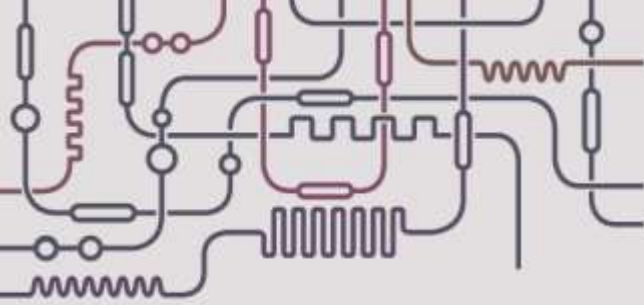
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goal of the nonprofit is to find a cure for Traumatic Brain Injury (TBI), an injury affecting soldiers who suffered blast injuries, football players, and is the number one cause of death in children. TBI often accelerates into Parkinson's or early-onset Alzheimers, and the **research that will be found through Zenobia's L3C will lead into their larger research on compounds and therapies for CNS disease.**

By holding a nonprofit under the larger umbrella of Zenobia Therapeutics, the organization will be able to fundraise not only through traditional mechanisms like grants from foundations, but can use grassroot fundraising techniques like galas, cycling events, and donation-based Crowdfunding. **According to Zenobia's President and CSO Vicki Nienaber, "If people do not want to die"** of diseases like AD for example, they will need to start donating now. A friend proposed in simple terms – is it worth \$20 dollars not die with **Parkinson's disease (or insert disease X).** **The point being that no one else is funding it and pharma is eliminating these departments so if we hope to find a cure, the public is going to have to get involved."**

**Through grassroots fundraising, Zenobia's L3C will be able to spend the initial funds for preliminary research.** Following that early research, the organization hopes to work with benefactors, committed donors like the National Football League (for whom TBI is a major concern), and the DOD. Considering the connection with TBI and CNS disease, Zenobia believes many of the compounds they fund through their TBI research will be repurposed for CNS research, and as a consequence, will be a confidence signaller to foundations and other potential investors.



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### A Profile of Charitable Giving in the United States

The Pebble Watch and Double Fine illustrate the benefits for companies who received funding via Crowdfunding campaigns. However, it is equally important to survey the current landscape of charitable giving in the United States so we can apply it to the Crowdfunding model. Why do Americans donate? How do they select a charity or cause?

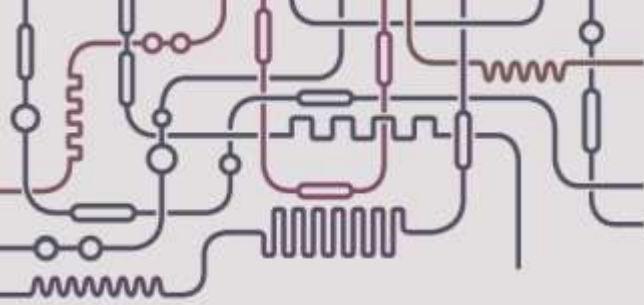
A national survey conducted by Harris Interactive in in September of 2010 shows 80% of Americans give time or money to charities, despite the current status of the economy. While individuals tend to give smaller amounts during periods of economic flux, the following data from the Harris Interactive poll sheds some light on the donation patterns in the United States:

#### *Contributing Time Or Money to Organizations:*

- The charities that U.S. adults care most about personally and donate their time or money to the most are charities that focus on youth and families (21%), medical research (14%), and education (10%). The same types of causes (though in a different order) - education (19%), youth/families (18%) and medical research (12%) - are also the causes that people believe should be a priority for charities to focus their resources;
- Many people are using social networking sites such as Facebook, Twitter, LinkedIn and others to follow companies and nonprofit organizations. Among those who have taken action as a result of following a cause online (39%), over half (54%) say they have talked to a friend or a family member after reading something on a nonprofit or charitable organization's social networking site, a third (33%) have contacted an elected representative, 31% have made a financial contribution to the organization, 23% have made a financial contribution to a cause the organization supports and 23% have attended an event sponsored by the organization.<sup>29</sup>

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<sup>29</sup> Krane, David. "Substantial Numbers Still Willing to Donate Time and Money Contributions Smaller and to Fewer Organizations." *Harris Interactive Polls*. N.p., 4 Nov. 2012. Web. 15 Nov. 2012. <<http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/611/ctl/ReadCustom%20Default/Default.aspx>>.



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### *Personal Responsibility:*

- Many Americans are willing to make a small contribution of either time or money to show their support to organizations or causes (48%). This is unchanged from 2007 when 49% felt this way;
- Only a third indicate that they are willing to get "extremely involved" (9%) or "give generously" (24%) to causes they believe in, while 13% say they don't volunteer either their time or money;
- A quarter of U.S. adults (24%) feel that people have a personal responsibility to make the world a better place by being actively involved various issues. This is a decline from 2007 when three in ten (31%) also felt this way. Another one in five (21%) feel that people should generally take part in things such as voluntary service, donating to charities or getting involved in community activities because it is the right thing to do;
- Just under half (46%) feel that people can get involved in different causes but shouldn't necessarily feel obligated to do so, which is up from the 40% who said this three years ago.<sup>30</sup>

Harris also asked pollsters about the types of charities they were most inclined to donate their time and money towards; medical research came in second overall (Youth/Families came in first).<sup>31</sup> Paired with the data and statistics above, it is clear that an emotional **impetus to donate and feelings of 'personal responsibility' are strong and widespread** among Americans.

### *Affective Motivations to Help Others: A Two-Stage Model of Donation Decisions*

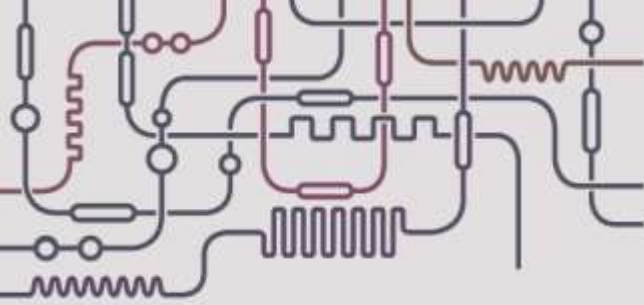
A study funded by the National Science Foundation looked at the relationship between sick children and donations, in which researchers tried a variety of methods for soliciting donations for children. The goal of the study was to answer two questions: first, how much empathy for others affects the decision for one to donate, and second, how those factors affect the amount of money an individual gives. The results were as follows:

- 1. Donor Emotion Rules: The single best predictor of participants' decisions to donate anything at all was how the participants were feeling about themselves - for example, a desire to make themselves feel better or avoid regret about not donating. When they saw the pain or need of another person, they wanted to**

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<sup>30</sup><http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/611/ctl/ReadCustom%20Default/Default.aspx>.

<sup>31</sup><http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/611/ctl/ReadCustom%20Default/Default.aspx>.



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leave those negative feelings behind and make a donation. That mood was relatively unaffected by priming.

2. Empathy Increases When You Stick to Emotions, Not Facts: Donation amounts were affected by the degree of empathy donors felt toward the sick children. Donations were higher when participants were primed to think of their feelings. The more they were primed to think in an analytical, deliberative way, the less they gave.<sup>32</sup>

Paired with the data from Harris, this study confirms that individuals are indeed governed by emotion when it comes to donating and charitable giving. The healthcare sector has organic ties to human suffering, and therefore, is very likely to arouse emotion from donors.

### *Implications for Donation and Rewards Based Crowdfunding*

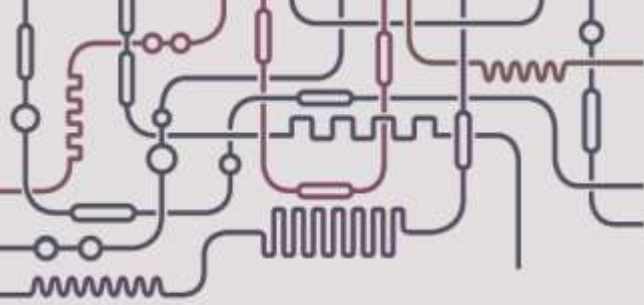
In terms of online presence and charitable giving, individuals are already utilizing social media to monitor charities and non-profits they are interested in. By 'Liking' a cause on Facebook, individuals are regularly updated with information about the cause, news items, and how they can become more involved.

Second, social networks allow Americans to create virtual communities around a particular cause. While these groups may begin as a network comprised of friends and family members, they can quickly expand to attract anyone who is interested in that particular cause. Ultimately, social networks allow us to access global networks of like-minded individuals who are mobilized around a particular charity or cause.

These circumstances provide a natural segue into Crowdfunding. While 'Liking' something on Facebook or joining a LinkedIn group may be the first step in engaging with a particular cause, Crowdfunding is a step towards active engagement because it provides a platform where members of the virtual community can donate funds, but they can also discuss ideas, volunteer time, and engage directly with the individuals in charge of the initiative.

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<sup>32</sup> Andresen, Katya. "Katya's Non-Profit Marketing Blog." Weblog post. *Katya's Non-Profit Marketing Blog*. N.p., 23 Feb. 2011. Web. 04 Dec. 2012.  
[http://www.nonprofitmarketingblog.com/site/science\\_of\\_giving\\_10\\_do\\_we\\_decide\\_whom\\_to\\_help\\_based\\_on\\_our\\_own\\_mood](http://www.nonprofitmarketingblog.com/site/science_of_giving_10_do_we_decide_whom_to_help_based_on_our_own_mood).

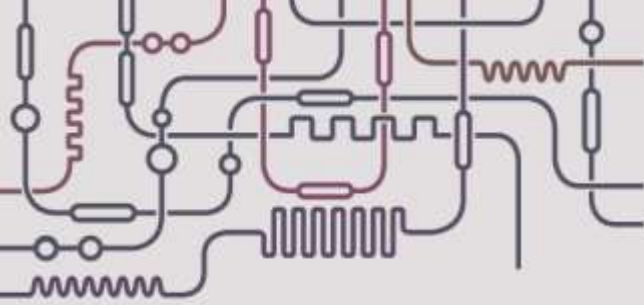


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In an environment where people feel increasingly de-motivated to write a check to nonprofit monoliths who provides no feedback about where the money goes, Crowdfunding **platforms can satisfy the feeling of “personal responsibility” by telling** donors exactly how their money is making a difference. Paired with the emotional ties to donating, by telling stories and focusing a campaign on the more humane elements and the potential to find a cure, donors will experience an emotional connection with both the virtual community and the cause itself.





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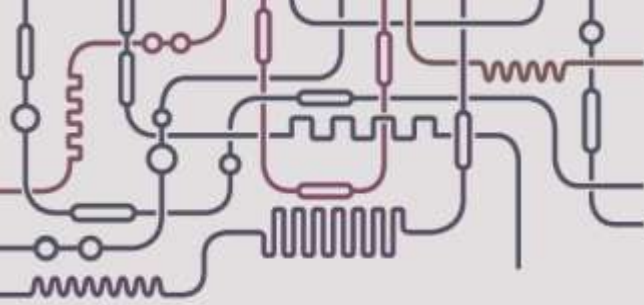
## Closing Points

The tenuous economic climate in the United States has been particularly difficult for entrepreneurs and early growth companies. While history reminds us that periods of boom and bust are cyclical, the lack of funding in the biotechnology sector is especially troubling because it is inhibiting potentially life-saving technologies and therapies from reaching the market and the patients who need them to survive.

To secure the future of biomedical research, it is crucial to look at emerging funding mechanisms that provide early-growth biotechnology companies with sources of non-dilutive funding. In the United States, the recent movement of Crowdfunding has democratized charitable giving, allowing individuals to directly invest in causes and organizations they have an intrinsic or emotional connection towards. Considering that \$60 billion per year is invested by friends and family members into early growth companies, Crowdfunding possesses the power of compassionate giving with the deep pockets of venture capital and angel investing. For emerging growth companies, donation and rewards based Crowdfunding is a supplemental, if not primary, source of non-dilutive funding. Moreover, Crowdfunding creates virtual communities of patients, friends and family, medical researchers and professionals, individuals who have a stake in seeing a company succeed and can often times assist the company with clinical trial enrollment, access to research, and other non-monetary benefits and resources.

In addition to Crowdfunding, new relationships between foundations and early growth **biotechnologies and L3C's are a testament** to the larger paradigm shift from traditional funding sources towards hybrid financial mechanisms. Bearing in mind a new technology or drug therapy can cost billions of dollars, new hybrid relationships will allow several funding mechanisms to share risk at the earliest stages, rather than placing the entirety of the risk and financial burden on one such mechanism.

Failure is the breeding ground for innovation. While traditional funding mechanisms have not failed, the difficult economic climate calls for a reassessment of the ways we support entrepreneurship and innovation. Traditional mechanisms are of central importance and are not to be replaced, but they need revitalizing. Crowdfunding and Venture Philanthropy will propel the industry forward and usher in a new era of shared investment, growth, and medical innovation.



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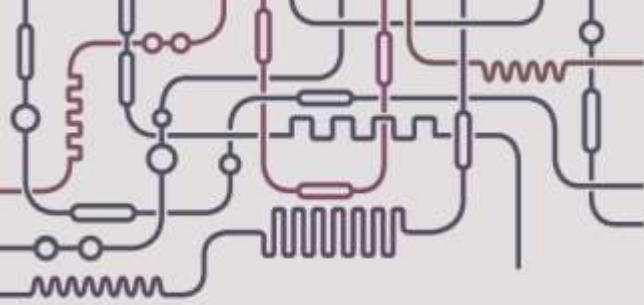
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Dan Marom ([www.danmarom.com](http://www.danmarom.com)) is an acclaimed author and leading thought leader in the Crowdfunding field. In 2010, he co-authored a pioneering book on Crowdfunding titled *The Crowdfunding Revolution* (with Kevin Lawton). A second edition was published by McGraw-Hill in 2012. As a Ph.D. candidate in Finance at the Hebrew University of **Jerusalem, Israel, Dan's research focuses** on Crowdfunding and entrepreneurial finance. Dan has been highly engaged in various R&D and management assignments for several years as a technologist and Founder & CEO of a startup company. He currently serves as a strategic consultant to some of the leading Israeli companies and public organizations. Living in Tel Aviv, Israel, Dan holds a Masters in Business Administration (Cum Laude), and a Bachelor of Science in Electrical Engineering.



To read more about the book - [Click Here!](#)

Brooke Thorpe is a researcher and analyst in Crowdfunding and entrepreneurial finance. Prior to working at Dan Marom & Co., Brooke was the Director of Energy and Utilities at GDS International, where she established a strong and reputable career building innovative multimedia platforms in the energy and utility sector. With experience ranging from early-stage technology-based startups to prominent Global 2000 companies, she's honed an expertise for global business development and sales management. When not deep in research, she's out training for marathons. Brooke holds a Bachelor of Arts in History from Bates College and lives in New York City.

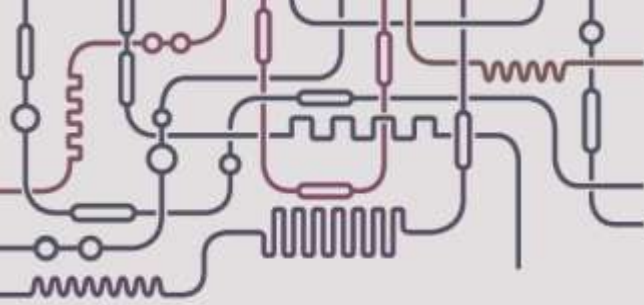


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### Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

## Works Cited

"Alzheimers Drug Discovery Foundation." *Alzheimers Drug Discovery Foundation RSS*. N.p., n.d. Web. 28 Nov. 2012. <<http://www.alzdiscovery.org/>>.

Andresen, Katya. "Katya's Non-Profit Marketing Blog." Weblog post. *Katya's Non-Profit Marketing Blog*. N.p., 23 Feb. 2011. Web. 04 Dec. 2012. [http://www.nonprofitmarketingblog.com/site/science\\_of\\_giving\\_10\\_do\\_we\\_decide\\_who\\_m\\_to\\_help\\_based\\_on\\_our\\_own\\_mood](http://www.nonprofitmarketingblog.com/site/science_of_giving_10_do_we_decide_who_m_to_help_based_on_our_own_mood).

Baram, Marcus. "Veterans Charity Fraud: Despite Widespread Outrage, Groups Continue To Abuse Public Trust." *The Huffington Post*. TheHuffingtonPost.com, 29 June 2011. Web. 17 Nov. 2012. <[http://www.huffingtonpost.com/2011/06/29/veterans-charity-fraud\\_n\\_886259.html](http://www.huffingtonpost.com/2011/06/29/veterans-charity-fraud_n_886259.html)>.

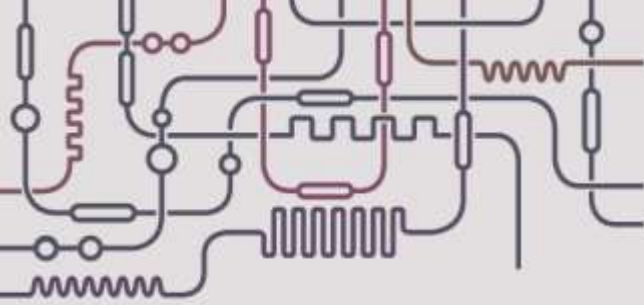
Brown, Mark. "Tim Schafer Persuades Fans to Finance next Adventure Game." *Wired UK*. N.p., 9 Feb. 2012. Web. 11 Nov. 2012. <<http://www.wired.co.uk/news/archive/2012-02/09/double-fine-kickstarter>>.

"Double Fine Adventure." *Wikipedia*. Wikimedia Foundation, 23 Nov. 2012. Web. 15 Nov. 2012. <[http://en.wikipedia.org/wiki/Double\\_Fine\\_Adventure](http://en.wikipedia.org/wiki/Double_Fine_Adventure)>.

Feldman, Maryann P., and Alexandra Graddy-Reed. "Accelerating Commercialization: A New Model of Strategic Foundation Funding." University of Chapel Hill.

Field, Anne. "IRS Rule Could Help the Fledgling L3C Corporate Form." *Forbes*. Forbes Magazine, 04 May 2012. Web. 13 Nov. 2012. <<http://www.forbes.com/sites/annefield/2012/05/04/irs-rules-could-help-the-fledgling-l3c/>>.

Gilbert, Ron. "Grumpy Gamer Adventure Games (via)." Weblog post. *Grumpy Gamer Adventure Games (via)*. N.p., 25 July 2005. Web. 15 Nov. 2012. <<http://grumpygamer.com/3258434>>.



## Breathing Life Back Into Biotech

### Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

Herper, Matthew. "The Truly Staggering Cost Of Inventing New Drugs." *Forbes*. Forbes Magazine, 10 Feb. 2012. Web. 26 Nov. 2012. <<http://www.forbes.com/sites/matthewherper/2012/02/10/the-truly-staggering-cost-of-inventing-new-drugs/>>.

"iCancer | Campaign." *iCancer RSS*. N.p., n.d. Web. 15 Nov. 2012. <<http://icancer.org.uk/>>.

"iCancer Campaign." *iCancer*. Indiegogo, n.d. Web. 24 Nov. 2012. <<http://www.indiegogo.com/icancervirus>>.

"Internal Revenue Bulletin - May 21, 2012 - REG-144267-11." *Internal Revenue Bulletin - May 21, 2012 - REG-144267-11*. N.p., n.d. Web. 28 Nov. 2012. <[http://www.irs.gov/irb/2012-21\\_IRB/ar11.html](http://www.irs.gov/irb/2012-21_IRB/ar11.html)>.

"Investing In The Biotech Sector." *Investing In The Biotech Sector*. N.p., 18 Apr. 2012. Web. 28 Nov. 2012. <<http://www.investopedia.com/financial-edge/0412/investing-in-the-biotech-sector.aspx>>.

"Kickstarter." *Wikipedia*. Wikimedia Foundation, 28 Nov. 2012. Web. 15 Nov. 2012. <<http://en.wikipedia.org/wiki/Kickstarter>>.

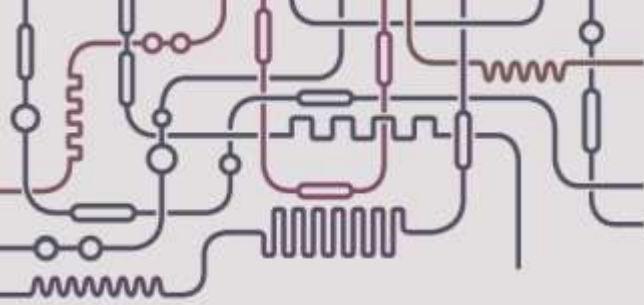
Krane, David. "Substantial Numbers Still Willing to Donate Time and Money Contributions Smaller and to Fewer Organizations." *Harris Interactive Polls*. N.p., 4 Nov. 2012. Web. 15 Nov. 2012. <<http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/611/ctl/ReadCustom%20Default/Default.aspx>>.

Leuty, Ron. "Biotech Startup Lands Michael J. Fox Foundation Grant." *San Francisco Business Times*. N.p., 20 Jan. 2010. Web. 28 Nov. 2012. <<http://www.bizjournals.com/sanfrancisco/stories/2010/01/18/daily48.html>>.

Netburn, Deborah. "Pebble Smartwatch Raises \$4.7 Million on Kickstarter Funding Site." *Los Angeles Times*. Los Angeles Times, 18 Apr. 2012. Web. 15 Nov. 2012. <<http://articles.latimes.com/2012/apr/18/business/la-fi-tn-pebble-smart-watch-kickstarter-20120418>>.

"The New Thundering Herd." *The Economist*. The Economist Newspaper, 16 June 2012. Web. 20 Nov. 2012. <<http://www.economist.com/node/21556973>>.

"Pebble (watch)." *Wikipedia*. Wikimedia Foundation, 23 Nov. 2012. Web. 15 Nov. 2012. <[http://en.wikipedia.org/wiki/Pebble\\_\(watch\)](http://en.wikipedia.org/wiki/Pebble_(watch))>.



## **Breathing Life Back Into Biotech** Crowdfunding and the Hybridization of funding Mechanisms for Early Growth Companies

Rockoff, Jonathan D., and Pui-Wing Tam. "Biotech Funding Gets Harder to Find." *Wall Street Journal*. N.p., 16 Mar. 2012. Web. 28 Nov. 2012. <<http://online.wsj.com/article/SB10001424052970203961204577267814201399918.html>>

Schroter, Wil. "Crowdfunding Streamlines the Friends and Family Round." *PandoDaily*. N.p., 6 July 2012. Web. 28 Nov. 2012. <<http://pandodaily.com/2012/07/06/Crowdfunding-streamlines-the-friends-and-family-round/>>.

United States. Small Business Innovation Research. *SBIR.gov*. N.p., n.d. Web. 28 Nov. 2012. <<http://www.sbir.gov/about/about-sbir>>.