Predictable Funding for Unpredictable R&D

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Effectiveness in industrial R&D is as much driven from the way in which it is funded as from the way in which it is executed. Here we review the funding needs.

R&D productivity is falling precipitously across several major industrial sectors. There are many contributing factors, but the most important seems to be the lack of continuous renewal in today’s industrial R&D organizations. A predominate ‘factory model’ inevitably runs its course and only firms deliberately positioned with new models are able to escape the descent into commoditization. It’s not from lack of trying. Instead most firms in most industries fail to appreciate that funding development of new models requires new models for funding.¹

Entrepreneurs are those individuals who take on a challenge simply because no one else has done it before them. They get easily bored on paths already taken. They view rules as being put in place to keep out others. They make their own rules. They are not beholden to the prejudices of today’s industries. They would rather not use our money, but acknowledge a finite lifespan and the need to use other people’s money to speed up their work.

Our funding model must not only respect entrepreneurial traits, it must nurture them as found latent in young researchers. We must not crush creativity, passion and personal drive with budgets, arbitrary timelines and artificial restrictions. We leverage the innate sense of ownership that is the entrepreneurial spirit. We welcome new researchers with new ideas and provide them with access to

¹ In pharmaceutical R&D, the research model based on receptor theory and advances in organic chemistry has run its course. Attempts to ‘acquire’ new models have failed, not surprisingly. New wine into old wineskins. Receptor concept: pharmacology's big idea. H P Rang. J Pharmacol. 2006 January; 147(S1): S9–S16.). “Pharmaceutical M&A activity during the last decade lost close to one trillion dollars in value” - Burrill & Company's 25th Annual Report
leading technical, legal and business talent. We seek researchers possessing a scientific competitive edge and a willingness to exploit that edge in ways never-before-seen. These individuals pioneer the next generation industrial models.

Entrepreneurs would like nothing more than for investors to give them the money and then leave them alone. So would everyone else. If we could unambiguously pick out the entrepreneur then we might lean more toward that ideal. In the meantime we, the investors with money, try to make the yoke easy and the burden light.

**Entrepreneurial Funding for R&D**

Researchers view the world very differently than say individuals working in manufacturing or marketing. We provide researchers with access to the best talent in these other fields, but the funding model, below, is tailored to the R&D-centric mindset. We fund ventures that take science platforms and develop them into blockbuster products for manufacture and sale by someone else.

**There can be no arbitrary limits on funding**, for ventures in good standing. We will provide and they can use as much funding as they need, at a rate dictated by their progress. Venture owners give up ownership as they use our funding. We’ll loan them the money to build the house, but they know that by taking out a second or third mortgage they delay their time to independence.

**There can be no arbitrary mandates on spending** (when or in what commercial direction). Instead, we jointly agree that planning and actions in the venture must demonstrate our shared understanding into the nature of effectiveness in industrial R&D. Publication in prestigious research journals is important to maintain the science platform, but is not integral to our measure of effectiveness.

**No meddling allowed.** We jointly agree to entrust major decisions affecting the future of the venture (e.g., progress reports) to competent, independent, third parties. Decisions take into account both quantitative and qualitative factors, to the extent possible.
We don’t mortgage the future. Owners of ventures are expected to invest into the long-term viability of their science platform. But money spent on science for its own sake delays ownership of the science (above) and must be employed judiciously.

Owners of ventures are expected to know when to call it quits; when they’ll spend too much of their own lives on a pursuit that can not be realized within their lifetime. Mother Nature, the science platform, sometimes just doesn’t cooperate. We’ve picked our ventures carefully so it will be exceedingly hard for outsiders to correctly make this call. It must be an internal decision, facilitated by our independent, third parties.

We know what to measure and how it is measured. We develop, continually test and refine mechanisms that measure 1) success, 2) interim progress, 3) valuation of ventures, and 4) structural soundness. These mechanisms must be bulletproof, trusted, and independently adjudicated. Figure 1 shows an illustrative measure.

Success must pass the test of time. Cash coming from success does not get distributed (to anyone) until lightning strikes twice. We must first show we haven’t mortgaged the future in order to reap today’s rewards. This secures the commitment of all players through to building that next industrial model.

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Figure 1. Accelerating Growth Rate. Fund Managers will not be allowed to mortgage the future to reap today’s rewards. We seek increasing R&D productivity on top of a growing investment base. You can’t cut your way to long-term success. Similar measures are put in place to safeguard against on- and off-balance sheet financial risks.

Structural Soundness refers to the long-term viability and sustainability of the funding enterprise, for example, retention of funding sources and management of financial risks.
We provide predictable funding for an inherently unpredictable pursuit. We do so in an entrepreneurial way.\(^3\)

**Entrepreneurial Funding Operationalized**

We operationalize the above features using a perpetual fund and reinvestment of winnings from past successes.

The *Perpetual Fund* is a mutual fund of R&D ventures, so-to-speak, with no end date. Ventures come and go based on their fortunes, but the fund is continuous. The perpetual fund is designed to provide a predictable, long-term source of funding for a pool of ventures dedicated to early stage research. Investors who stay the course with the perpetual fund enjoy increased frequency of success from the many ventures within the fund. See Figure 2.

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*Reinvestment of* interim winnings from ventures is contractual. Venture and fund management only reap their rewards once past successes are shown to be repeatable and sustainable. In the meantime all interim cash receipts are reinvested. Reinvestment provides enormous quantities of cash and is integral to

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\(^3\) You cannot reduce the inherent unpredictability in R&D having a shots-on-goal mentality, as is often the tack taken today. The number of intents means nothing toward eventual success. Once you get beyond a very limited count (3-5 investments per stage) the number of investments per se has little impact on the actuarial outcome of a portfolio. We propose to jointly manage several R&D ventures out of a common fund, but only to the point where the advantages accruing from scale (e.g., overlap and sharing of sources-and-uses of funds) clearly outweigh the many disadvantages of scale (e.g., temptations to impose one-size-fits-all solutions).
the funding of late stage ventures, and to investing into other activities integral to our approach.

Winnings arrive unpredictably, but often in sync with the large cash outlays needed for late stage funding. Also, we make funds from future winnings available on a more reliable schedule, for use in other activities, by use of specialized financial instruments (not shown).

We deliberately invest into activities designed to increase productivity in R&D ventures. These are found in improved evidence gathering, improved decision making, and improved venture management.

We increase the rate of venture success by investing to improve activities known to significantly affect success in R&D: evidence gathering, decision making and venture leadership. For example we may build and maintain a program of certification in *Evidentiary Compulsories*. This allows us to implicitly trust all evidence, even circumstantial, from certified researchers. There are many such activities for improving R&D success (Figure 3). We mandate payment from all ventures of a significant management fee (up to 20%) to fund all such activities. Entrepreneurs may chafe, but this fee is more than paid back in the form of increased success rates across all ventures.

We invest in safeguards that ensure funding remains structurally sound for decades. We invest to make funding sources as predictable as possible. We carefully manage both on- and off-balance sheet financial, legal and regulatory risks. For example, we invest to make-a-market in the perpetual fund, ensuring steady share pricing for investors, leading to increased investor retention and to steadier long-term funding. We require venture and fund managers to reinvest...
their interim winnings back into venture funding, ensuring a long-term financial and reputational stake-in-the-game for these important players.

Challenges

There is a deep history of mistrust between venture owners and funding agents, as illustrated in the side anecdote. Funding agents have been known to parachute-in ‘technical experts’ with instructions to come up with satisfying answers, although not necessarily correct ones. Or, funding agents shoot from the hip based on self-proclaimed expertise in ‘reading people’. Or, researchers go through hundreds of millions of dollars, and only show elaborate buildings and peer-reviewed publications for their efforts.

Future investors and researchers will be quick to attribute the shortfalls of past funding approaches to our entrepreneurial funding approach. We need dramatic, disruptive evidence that shows we indeed intend a truly different approach to funding R&D ventures: one suited for the entrepreneurial spirit.

The time is now.

Innovative R&D is the primary driver of new, high-quality jobs in a world desperate for growth and prosperity. We have cracked the code for effectiveness in R&D and it has revealed that the approach to funding R&D is just as important as the approach to executing R&D.

Here we have laid out the game plan. We now recruit the players.

Keith Ortiz is the President and CEO of the World Class R&D Institute, an organization dedicated to improving management of industrial R&D. More information on the Institute can be found at www.WorldClassRD.org.