

Technology Incubation

A New Model for Corporate R&D

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Technology Incubation – A New Model for Corporate R&D

Corporate R&D is equipped with well-developed processes, structure, and culture which have evolved over time to effectively support the core business. But, this infrastructure and the accompanying measurement systems become an albatross for R&D when attempting to develop concepts that lie outside of the company's business model and/or beyond its core technical expertise. A modified approach – technology incubation – blending both service model and investment model techniques, will better enable corporate R&D to compete in a rapidly changing, fast-paced marketplace for commercializing (or monetizing) breakthrough opportunities.

Keeping Pace

Corporate R&D is under mounting pressure to keep pace with technological advancement that is moving at record speed and a shifting competitive landscape where innovation increasingly occurs in startups outside of the corporate R&D center. Further complicating matters, in the digital era, breakthrough innovations are as much about business model innovation as they are technical innovation.

In this environment, it is a challenge for R&D simultaneously to support the enterprise's global businesses, while also pushing to find and deliver the "next big thing", which in many cases would likely represent a disruption to the core business. Accordingly, today companies are looking both internally and externally for ways to remain competitive in a technology market that is no longer the exclusive domain of corporate giants.

Externally, many companies are attempting to buy innovation on the open market by taking equity positions in start-up ventures. Startup ventures – spurred by the availability of venture capital and a mobile, global workforce – are breeding grounds for new technologies that can make existing business models obsolete virtually overnight. Through corporate VC's, companies use an investment model to place bets on the future and to keep their fingers on the pulse of a shifting marketplace. In-house Corporate Venture Capital groups were first seen in large tech companies, yet now are commonly deployed in a variety of industries.

Yet, investing in start-ups is only a component of a corporation's innovation strategy. The proliferation of Corporate VCs does not relieve R&D of the expectations to deliver high impact innovation and does not help to advance internal ideas that fall outside core business models.

Accordingly, companies also are looking internally for ways to be more competitive with the pace of technology advancement and the fleeting nature of competition by encouraging R&D to "act like a startup". This directive – accompanied by a wave of approaches, frameworks, (and slogans) like LEAN Startup, Fail Fast, Agile, and others – represents a desire for the current R&D service model to move at a quicker pace, operate with greater agility, and yield more powerful outcomes. Yet, these approaches are often impractical attempts to make R&D something that it is not.

Successful start-ups are typically led by a small core team driven by a relentless passion to succeed. They are motivated by a bold vision that challenges the status quo through high-risk endeavors. They operate with an agility that allows for changing directions quickly and reflect shoestring budgets that rely on instinct, efficiency, and grit. Importantly, entrepreneurs embrace risk/reward incentive systems that offer little employment security, but provide the potential for significant wealth creation. And for

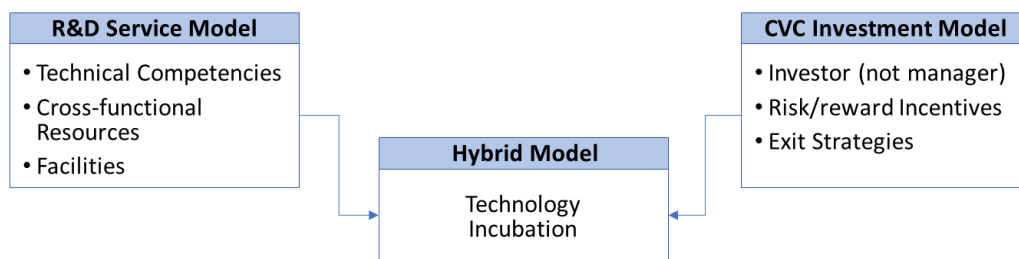
many start-ups, failure is viewed as an operational milestone on the pathway to success. Whereas, in corporate R&D, the consequences of failure can be personally damaging to an individual's career and can drive teams toward less risky endeavors.

Corporate R&D is not a startup and cannot credibly act like one. Most corporate R&D organizations are structured to support operations at scale – delivering ongoing product improvements, operational efficiencies, and product line extensions. In fact, the enterprise relies on R&D to provide a steady flow of ideas, concepts, and technologies needed to meet the growth and profit targets of the core business. And by necessity, the structure, processes, metrics, and reward systems that comprise the R&D service model are aligned with corporate measurement systems and the company's appetite for risk. Corporate incentive systems are typically tied to fiscal year (and even quarterly) results, which may not align with development roadmaps. Alternatively, incentives for the start-up are rarely aligned with the calendar and instead are focused on the end game of monetizing the new idea.

Even if R&D were to identify the next big thing, the structure and processes within which it operates can stifle efforts to commercialize concepts that lie outside of existing business models. As a result, corporate R&D can abandon projects too early because they are viewed as off strategy or fail to pursue new opportunities because they represent high risk endeavors that are at odds with the incumbent business or internal incentive systems. These missed opportunities put corporate R&D at a disadvantage in a fast-moving market, where startups operate under a different set of rules and have their sights on business models aimed at disrupting the businesses that R&D is expected to protect.

A Hybrid Model

Accordingly, a new model is needed for R&D to develop and commercialize disruptive innovations. The Technology Incubation model is a hybrid approach that selectively deploys resources from the R&D service model along with operating practices and governance principles from the Corporate VC investment model.



The hybrid model maintains the stewardship and leadership of corporate R&D, while shielding disruptive development programs from entrenched core R&D processes and structure. Key elements imported from the R&D service model include:

- **Technical Competencies** – Management can draw from its R&D resource pool to staff the core team of a technology incubation initiative. Most R&D organizations also have a rich network of external resources through relationships with universities, research institutes, and service providers. These resources are important assets that corporate R&D can secure more efficiently than could an independent start-up and that should be leveraged under the hybrid model.

- **Cross-functional Resources** – In addition to selected in-house technical competencies, R&D can bring access to the core commercial functions of the business as well – individuals and departments who have frontline insights into market needs and competitor moves. It also can tap into market research on global trends or application specific functional needs that drive consumer behavior, shape supply chains, and impact raw material feedstocks.
- **Facilities** – Finally, R&D can open the door to in-house, world-class facilities and equipment that can help to accelerate physical validation and development efforts.

In addition, the hybrid model incorporates three key principles from the investment model which are needed to effectively incubate disruptive ideas, specifically:

- **R&D as Investor** – *broaden the lens through which strategic and operational decisions are made.* Innovation cannot be limited to existing business models. Instead, new directions must be viewed through the lens of ROI, regardless of business model. The hybrid model must have the independence and authority to pursue technologies and businesses that could be disruptive to the parent corporation.
- **Risk/Reward Incentives** – *leverage risk sharing strategies to extend financing options beyond traditional R&D budget funding and to install reward incentives that drive wealth creation.* Risk sharing is difficult under the current service model. For example, incorporating sweat equity and third-party investors as financing vehicles can help spread risk. Yet R&D budgets are the primary vehicle today for funding projects and simply cannot tap into sweat equity under the traditional service model and accompanying employment contracts. Alternative risk sharing tools are essential for advancing high potential opportunities that are resource constrained at early stages of development.
- **Exit Strategy** – *at every stage of development, consider potential exit strategies to monetize tangible and intangible assets.* In-house transfer for scale up and commercialization is the primary end game in the current service model, yet can be a dead-end for disruptive ideas that do not fit the model of the parent’s business. But, this is only one potential “exit” – not the only one. All options for exit should be considered (such as licensing, strategic sale, independent development and IPO, etc.) to ensure a maximum return on investment capital.

Successfully executing the hybrid model will require:

- **New Staffing Model.** Whether selected from R&D, external partners, or some combination, logical candidates would be individuals who have the requisite functional skills, creativity, independence, risk tolerance, and entrepreneurial spirit to succeed in a startup. For R&D employees, joining an incubation team cannot be viewed as a rotational assignment. Risk sharing and reward incentives must be a central element of the employment contract. Sweat equity programs would most likely represent a significant departure for current employees who choose to join an incubation team and staffing may likely need to extend beyond the existing R&D pool.
- **Flexibility.** Free from corporate measurement systems and management processes, the core team must have the flexibility to fail fast, change directions, and react real time. And, flexibility

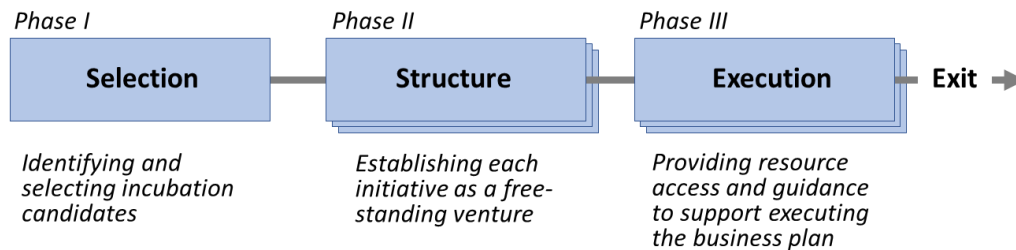
also applies to the staffing philosophy. The core team must be able to tap into specialized skill sets as needed without relying exclusively on full-time employees.

- **Broad Scope.** All aspects of the new business must be under consideration of the core team. To understand and pursue new business models, the team must have control over how revenues will be generated, what assets (tangible and intangible) will be central to the new business model, and which customers to target and the channels for accessing them. The core team will be a business team that extends beyond the core technical team.
- **Independence.** Under the hybrid model, the innovation team should be structured as a separate and independent initiative. A new legal entity may be formed to enable multiple equity partners. Or, the venture could be wholly owned by the corporation, as a legal entity or an independent operating unit.
- **Accountability.** Ventures operating under the hybrid model should be accountable to a board of directors (or some other advisory board) who will provide direction on issues of strategy, investment, and critical milestone decisions.

Moving Forward

The hybrid model is not a replacement to the R&D service model. R&D must continue to manage the innovation pipeline that supports the core business. R&D can selectively apply the hybrid model to high potential opportunities that are capable of disrupting markets and incumbent business models, yet may be incompatible with existing R&D processes, structure, and risk tolerance.

Deploying the hybrid model will require thoughtful planning, a new operational mindset, and a willingness to challenge the status quo. Primary phases of the incubation process include:



1. **Selection** – *Method and process for identifying and selecting incubation candidates.* The process begins with a clear articulation of corporate strategy, program objectives, and aligned expectations to ensure that boundaries are well defined and understood. Candidates for incubation can originate from one of two sources:
 - Existing concepts. These are ideas that reside within R&D, but have not been developed and commercialized. Perhaps these concepts were considered too long term, too risky, or in conflict with the core business. These ideas could reside within filed patents, shelved initiatives, or even physical prototypes that never moved to commercialization.
 - New concepts. Incubation could be a means for creating new concepts in response to known threats to the core business, where solutions will likely extend beyond current capabilities or modes of operation. In this case, the incubation process would require an initial phase of examination and ideation to arrive on concepts to be incubated.

Using a similar process to evaluating and prioritizing projects for the innovation pipeline, incubation candidates would be assessed for their worthiness of investment. Incubation specific criteria might include:

- Market Demand – What are the supply-demand imbalances that are creating an opportunity for this concept? Why does this concept represent a viable and unique solution? How does it relate to the core business today?
 - ROI – Does the concept have potential for significant disruption? Is the opportunity broad enough that it might attract third party investors?
 - Exit – What are feasible exit strategies that might be considered by investors? How can assets be monetized?
 - Business Model – Does the opportunity represent a new business model relative to the core business? e.g., sources of revenue, asset ownership, channels to market, etc.
 - What aspects of the concept dictate that it be taken to incubation, rather than being developed through core R&D?
 - What are the risks of inaction?
2. **Structure** – *Establishing each initiative as a free-standing venture.* Each selected incubation candidate must be supported by a business plan that addresses market, strategic, technical, and operational considerations.
- Expertise (Staffing) – Selecting the core team with the right commercial and technical competencies. Determining the right mix of full time versus flex staffing.
 - Funding – Establishing a funding model targeted at specific development milestones and deploying multiple funding sources and mechanisms.
 - Governance – Determining the preferred legal/operational structure and accountability model.
3. **Execution** – *Providing resource access and guidance as required to support executing the business plan.* Once the incubation team is placed and funded, R&D serves in an advisory and oversight role as part of the Board. Further, R&D can be a conduit to the parent company to ensure alignment of activities (where appropriate) and to provide access to internal and external resources.

Technology Incubation

Today, corporate leaders understand that digital and other advanced technologies are dramatically reshaping markets and business models. Technical leadership, once the domain of corporate R&D, is not enough to secure competitiveness and growth.

“Ten years ago, innovation was based on features and functions. Now it’s about your business model and transforming your industry,” - William Ruh, Chief Digital Officer, GE¹.

Today, R&D must wear two hats – one to protect and advance the core business, the other to pursue disruptive ideas essential to longer-term growth and even survival. Technology Incubation is a mechanism for managing risk outside of standard R&D processes and metrics. And, it is equally about technology development, as it is business incubation.

¹ “Wall Street to CEOs: Disrupt Your Industry, or Else”, Wall Street Journal, May 26, 2017.