

Walking the Line

It's not innovating that's the most difficult — it's creating value whilst innovating. Brian D. Smith explains.

For a knowledge-based sector such as pharmaceuticals, innovation is the engine of wealth creation. Almost all business plans involve the application of new ideas to increase sales, reduce costs or change the key ratios in some way or other. And yet innovation is surrounded by more platitudes and truisms than almost any other subject in business. As one of my academic colleagues once said, many books on innovation are no more than 'management pornography,' full of false promise that says more about the readers' naivety than anything else. This fog of fiction makes real innovation management more difficult, so it is worth taking a step back to understand what innovation is, why it is so difficult and how, in practice, good firms make it happen.

Understanding innovation

The first important piece of clarity is to separate innovation from its parents: invention and insight. Invention is the creation of new knowledge and mostly applies in scientific or technical fields. Insight is the uncovering of knowledge and applies mostly in human fields, like management and markets. Both have their origins in what the philosopher Arthur Koestler called 'bisociation,' in which two different planes of thinking intersect. The key point is that neither invention nor insight creates wealth until it is applied, and it is this practical application that we call innovation.

A second key point is that innovation can take numerous forms. Most often, we think of innovative products or services, either in the core technology or in the way they are presented. Just as valuable, and more common, is innovation in management processes. Quality systems, alternative strategies and new organisational structures are all innovations.

Finally, innovation is not always of the radical, disruptive kind from which industry legends are made. More often, it is more common, if less glamorous, for innovation to be incremental, with each little improvement building on the next.

Innovation, then, is the application, rather than the creation, of new knowledge; it can be done anywhere in the value chain, from research to consumption; and it can happen in leaps or in baby-steps. But why is innovation so difficult, and what does management research tell us about why it fails?



Barriers to success in innovation

In any commercial organisation, success means a positive return on investment (ROI) after allowing for the risk involved. Since innovation of any kind is inherently more risky than doing more of the same, investment in innovation has to create a higher return than an equivalent tried-and-tested investment. In short, innovation failure is common because the barrier is higher, as shown in Figure 1.

The risk-adjusted ROI barrier doesn't explain all innovation failure, however. Research into why projects fail in development has supplied many explanations, which tend to fall into two general categories:

- **Cultural.** Management researchers cite many intangible hindrances to innovation, such as internal politics, lack of management commitment, and the "not invented here" syndrome. All of them have their roots in company culture, which is unsurprising. Innovation involves change, whilst culture, to quote management theorist Peter Drucker, is persistent and pervasive. It's almost inevitable that the two will conflict.
- **Resources.** Of the tangible reasons uncovered for innovation failure, lack of time, knowledge and/or financial resources is mentioned in almost every case. They are of course facets of the same phenomenon, in which conflicting corporate desires for high-returns and fast-returns collide. As with culture, the innovation process merely crystallises an inherent dilemma of business.

Innovation, as we can see, is difficult not only from a technical and intellectual viewpoint, but also for human and business reasons.

When we try to innovate, we focus all the contradictions of business — change and inertia, short-termism and growth — into one spot. It is hardly surprising, then, that it can be very challenging.

Approaches to managing innovation

Understanding that innovation failure is the result of dilemmas inherent in any business brings us part-way to understanding the problem. Persistent culture and the fact that, in business, time really is money are the irresolvable barriers to innovation that, in a commercial setting, will always be present. To improve our innovation processes, we have to examine how other firms, both in pharmaceuticals and other sectors, approach the problem. There are many different models of innovation; they can be seen as variations or hybrids of six basic approaches:

- Incremental approaches, such as the transfer of prescription-only medicines to over-the-counter sales
- 'Skunk works,' in which the project teams are locked away — as in Xerox's famous Palo Alto Research Centre or Pfizer's 'Blue Sky' project — to look at the future of their markets
- 'Big Hairy Audacious Goal' projects, in which the future of the firm is bet on a single project. The Boeing 747 is the most famous example of this, but biotech start-ups often bet on a single molecule

- Stage-gate processes, which are typical in pharma R&D and other capital-intensive new technologies such as telecoms
- Piloting, in which ideas are tried on a limited scale. This is common in consumer goods or financial services
- Open models, in which intellectual property is shared. This is common in software sectors.

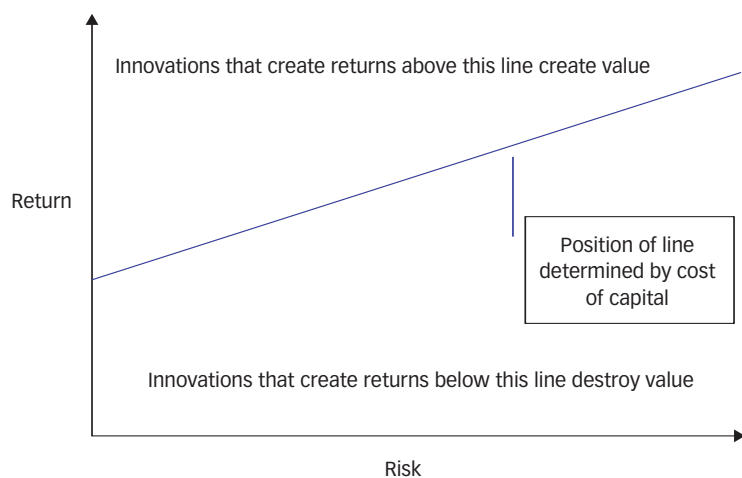
Crucially, none of these approaches can be said to be superior to the others. They tend to dominate in subsectors, because each has their pros and cons, working with slightly different mechanism and therefore fitting better the conditions of a particular context. A comparison of the six approaches is shown in Table 1.

As the table also shows, at the centre of innovation management is risk management. By managing the risks inherent in any innovation, firms reconcile their commercial needs for a high rate of return even when innovation risk increases the risk-adjusted cost of the necessary investment. The approaches differ in the way they manage risk: delaying it, spreading it or isolating it. They depend for their effectiveness on different risk profiles of different innovations. For example, some projects, such as a new approach to structuring a sales team that can be tried in a region, country or therapy area, lend themselves to piloting. Others, such as major product launch, are indivisible and the necessary risk can only be ameliorated by spreading it (for example, in a joint venture) or stage-gating the risk. What we learn from considering the approaches above is not which one is best, but *which one is best in which context*.

Lesson in innovation management

As might be expected with a subject as large and mission-critical as innovation, there is no panacea answer. However, a helicopter view of the topic does reveal some fundamentals that provide a way of thinking about the problem. These can be summarised as follows:

Figure 1: Innovation and Value Creation



- *Separate innovation from its parents.* Understand that innovation is not the same as creativity and is about the application, not the creation, of knowledge. Many firms try to manage innovation when they need to manage creativity and vice versa.
- *Know what kind of value you are looking for.* Understand where in the value chain you are trying to innovate and whether you seek radical or incremental innovation. Many firms miss opportunities to create value by equating innovation with radical technical change when incremental business process change would create better outcomes.
- *Characterise the innovation you are trying to manage.* Understand what risks are inherent in your innovation and how they might be managed by spreading, delaying or 'chopping up.' Many firms see innovation management as a technical challenge when it is in fact a risk management problem.
- *Use the right model.* Understand that there is no single best way to manage innovation, only a best way in a particular case. Many firms live in hope of a panacea model when they should be seeking a contingency approach to managing each innovation.

These fundamentals of innovation cannot, of course, make it a risk-free undertaking. They can, however, reduce the risk inherent in

innovation such that they are justified by the returns and the innovation creates value. It is that line that separates successful and unsuccessful innovation.



About the Author

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Table 1 Six approaches to innovation.

Innovation model	Mechanism	Advantage	Disadvantage
Incrementalism	Works by 'chopping up' risk into manageable pieces.	Requires innovations that can deliver benefits in stages.	Doesn't cope with market complexity or turbulence, which disable comparisons and learning across cases.
'Skunk works'	Works by detaching innovation from host organisation culture.	Removes cultural barriers.	Creates diseconomies of scale and reduces synergies within the organisation.
'Big hairy audacious goal'	Works by accepting large risks.	Galvanises organisation and enables strong leadership.	Usually requires additional business streams to provide funds and spread overall risk.
Stage-gate	Works by delaying risk.	Manages complexity well by sub-dividing risk.	Can be expensive, bureaucratic and slow until more is known.
Piloting	Works by limiting investment and enabling learning to reduce risk.	Requires scaleable innovation that can be introduced step-wise.	Not viable if the innovation needs large, indivisible, start up investment.
Open models	Works by spreading risk amongst several investors.	Requires innovation that can be dispersed easily across multiple organisations.	Works only when value can be captured in non-IPR way (e.g. branding or distribution strength).