

Innovation and technological change follow noticeably different pathways depending on the sector in which they take place. The expert contributors in this book promote this understanding by exploring a wide range of sectoral systems, from traditional to high technology sectors, and across a number of developing countries. They examine key actors and main characteristics of sectoral systems and their effects on innovation and developments. They also look at how these systems change and evolve, highlighting policy lessons to be drawn from the analysis. Many of the complexities and challenges involved in sectoral systems of innovation and production in developing countries are elucidated as well. This book is suitable for postgraduate students and academic researchers in the fields of innovation policy, management of technology, industrial economics and strategy. Readers will learn a lot from this book about the nature, structure, organization and dynamics of innovation and production in various sectors.

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**The other side of innovation, Vijay Govindarajan and Chris Trimble, Harvard Business Review Press (2011), 288 pages, ISBN: 978-1422169963**

Can modern business organizations make strategy as innovation actually work? Some of the most well-known researchers have taken a dim view of the possibility. Clayton Christensen has consistently warned that while established organizations will succeed with sustaining innovations, they will struggle mightily with disruptive ones. Chris Zook has recommended

that companies take only small steps outside their existing business. However this book insists that while acknowledging that there are still more questions than answers, there is no managerial reason why established organizations should be incapable of executing any innovation initiative. So this book offers practical new advice for senior executives, chief innovation officers, leaders of innovation initiatives, members of innovation teams, aspiring innovators, and all those who support innovation.

Coming up with the brilliant idea can seem like the fulfillment of innovation, but it is not enough. After that comes the other side of innovation-the challenges beyond the idea. Execution. Generally, because the brilliant idea itself has such strong appeal, the other side is usually an afterthought. However ideas are only beginnings. So this book focuses on the real innovation challenges beyond the idea. To execute innovation, this book argues that many innovation initiatives require a special kind of team and plan. Organizations evolve into what this book calls Performance Engines. Performance Engines' nonstop quest for repeatability and predictability takes many initiatives out of reach. The Performance Engine is powerful and capable. It delivers productivity and efficiency, it is capable of growth, and it has some ability to innovate. It can tackle continuous process improvements and product development that are similar to past efforts. Beyond these limits, the fundamental incompatibilities between innovation and ongoing operations make it impossible for the Performance Engine to innovate on its own. Because of the incompatibilities, innovation leaders often imagine themselves as rebels fighting the establishment. But one person against the bureaucratic octopus is an extra-ordinarily bad bet. The fundamental prescription of this book is that each innovation initiative needs a special kind of team with a custom organizational model and a special kind of plan that is revised only through a rigorous learning process. Despite the inevitable tensions, innovation leaders must strive for a relationship of mutual respect with the Performance Engine.

This book is composed of two parts. The part I focuses on the team and part II focuses on the plan. Both parts I and II include a brief but important

introduction followed by three chapters. The part I (chapters 1, 2 and 3) has a title of “Build the Team” and suggests that a project team is composed of a Dedicated Team and a Shared Staff. The term project team refers to the partnership. The Dedicated Team is, as the name suggests, dedicated to the innovation initiative full time while the Shared Staff is part of the Performance Engine and executes or supports a portion of the innovation initiative part time sustaining excellence in ongoing operations. The partnership is tricky because the Dedicated Team and the Shared Staff are, of necessity, quite different from one another. The Dedicated Team is custom-built for the project, and it has a new and unfamiliar organizational model. The Shared Staff’s organizational model, by contrast, already exists and does not change. The part II (chapters 4, 5 and 6), under the title of “Run a Disciplined Experiment”, describes how to plan an innovation initiative and how to evaluate its progress. Innovation initiatives require a far different approach from that of ongoing operations, and most companies inadequately distinguish between the two. In managing their ongoing operations, companies strive for performance discipline. However, for innovation initiatives, they ought to strive for discipline of a different form: disciplined experimentation. Indeed, all innovation initiatives, regardless of size, duration, or purpose, are projects with uncertain outcomes. They are experiments. As innovation leader, one of their critical managerial responsibilities is to learn as the initiative proceeds. If there is a substantial sum of money at stake, the sooner the learning, the better. Initial plans for innovation initiatives are typically riddle with guesswork. As a result, the competitor that wins is rarely the one with the best initial plan; it is the one that learns the fastest.

We will look into the details of each chapter. As first chapter of part I, Chapter 1, under the title of “Divide the Labor”, examines how responsibility for executing the initiative will be split between the Dedicated Team and Shared Staff. To execute an innovation initiative, build a partnership between a Dedicated Team that is custom-built for the initiative and a Shared Staff that remains a part of the Performance Engine and maintains its existing

Performance Engine responsibilities. And the Shared Staff should take on as much of an innovation initiative as it can. However, they must be careful because it is easy to overestimate the capabilities of the Performance Engine. Performance Engines are designed for efficiency. However, the more efficient an organization becomes, the more specialized it becomes. The Performance Engine cannot simultaneously sustain excellence in ongoing operations and execute an innovation task that is outside the narrow confines of its specialization. If it tries, it will fail at one or both. The limits of the Performance Engine’s capabilities are defined both by the skills of its people as individual and by the work relationships between them. There are three critical dimensions of work relationships—depth, power balance, and operating rhythm. If an innovation task is inconsistent with the Performance Engine’s work relationships on any of these three dimensions, it must be moved to the Dedicated Team. The Dedicated Team is not the “innovation team” and should not be perceived as such. The innovation initiative is executed by a partnership between the Dedicated Team and the Performance Engine, and the entire project is managed through a single project plan.

Chapter 2, under the title of “Assemble the Dedicated Team”, deals with determining who will serve on the Dedicated Team and how to define their roles and responsibilities. To build an effective Dedicated Team, define the skill the organization needs, hire the best people the organization can get from either inside or outside the company, and create a custom, zero-based organizational model. All companies, when building new subunits, are affected by organizational memory. Avoid building a Dedicated Team that acts like a Little Performance Engine. Outside hires play a critical role on the Dedicated Team. They bring in needed new skill, and they help defeat organizational memory by challenging the instincts of insiders and by catalyzing the process of breaking down and rebuilding work relationships. The organization creates new and unfamiliar titles and writes new job descriptions for everyone on the Dedicated Team. The dominant function in the Performance Engine tends also to dominate the Dedicated Team. This tendency can be countered by

formal hierarchy and decision rights and by leadership choices. The Dedicated Team should define its own metrics, processes, and culture. Support functions, especially HR, IT, and finance, must be willing to make exceptions to standard policies for the Dedicated Team.

Chapter 3 has a title of “Manage the Partnership” and discusses establishing clear expectations for each partner and mediating the inevitable conflicts that will arise between the Dedicated Team and Shared Staff. The organizational model for an innovation initiative is always a partnership between a Dedicated Team and a Shared Staff. The most critical characteristic of successful innovation leaders is that they take a positive, persuasive, and collaborative approach in their interactions with the Performance Engine. To maintain a healthy partnership, even the best innovation leaders need help from above. Conflicts with the Performance Engine are frequent and can be intense. And, the innovation leader usually has little positional power compared with the Performance Engine leaders with whom there is conflict. Both the innovation leader and supervising executive must attend to the health of the partnership at all times, anticipating, moderating, and mediating tensions and conflicts. Conflicts over formally allocated resources are most easily resolved when all resources are allocated to the innovation initiative through a single document and a single process. Interpersonal persuasion is often insufficient to get the Shared Staff to give enough time and energy to the innovation initiative. Stronger incentives and additional resources are frequently necessary. Maintaining a healthy partnership is difficult because the two units are quite different and unlikely to naturally work well together.

As the first chapter of the part II, chapter 4, under the title “Formalize the Experiment”, indicates that the basic principles for learning from experiments are familiar but hard to follow. Innovation leaders should consider learning quickly a top objective. Quick learning leads directly to better results. Learning cannot be left to intuition. The alternative is a rigorous learning process based on the scientific method. Learning is a process of turning speculative predictions into reliable predictions. Each innovation initiative

requires its own dedicated, separate, stand-alone plan. Invest heavily in planning and evaluating innovation initiatives, out of proportion to the resources they consume. The organization has to write a custom plan for each initiative, with custom metrics and cost categories, discuss assumptions, and not to get as absorbed in discussing data as members would in the Performance Engine. Innovation is a world in which there are far more unknowns than knowns. Document a single, clear, hypothesis of record for each innovation initiative in order to ensure that the team can recall the same assumptions many weeks later, when it is time to interpret results. Companies try to spend a little, learn a lot, discuss results from innovation initiatives in dedicated forums, outside meetings held to analyze and discuss results from ongoing operations. Also, Companies review innovation initiative frequently. The rate at which members learn is directly tied to the frequency at which members review and reassess the plan. Companies assess whether innovation initiatives are on a trajectory to success by monitoring trends in performance. Predictions must be revised as lessons are learned—that is, when data suggests that an assumption was probably wrong. Plans should never be revised casually. Innovation leaders must be evaluated subjectively. Doing so requires close observation. The results do not speak for themselves.

Chapter 5, under the title of “Break Down the Hypothesis”, explores that all but the simplest innovation initiatives are really compound experiments. There are two or more uncertain conjectures. Quick learning is most likely when there is a clear hypothesis of record that everyone involved in evaluating the initiative shares and uses as a frame of reference in any discussion of the initiative’s progress. Spreadsheet models have value. However, as a medium for communicating and documenting a hypothesis of record, spreadsheets are inferior to simple sketches of cause and effect. A hypothesis of record is composed of a set of conjectures about cause-and-effect relationships between actions, outcomes, and subsequent outcomes. The hypothesis of record can be further described by creating simple, qualitatively descriptive (not precisely quantified) graphs that address questions of how much and how

long for each cause-and-effect relationship. In the early stages of an innovation initiative, when validating cause-and-effect relationships, mental simulation of the hypothesis of record is an adequate approach to predicting outcomes. If predicted and actual trends are similar, the cause-and-effect relationship is validated. Once cause-and-effect relationship has been established, quantitative analysis becomes more valuable in refining estimates of the revenue and cost parameters that will shape profitability. Companies should not assume that metrics and standards used to evaluate the existing business have relevance for the innovation initiative. After creating a cause-and-effect map, companies have to consider each linkage. How uncertain is each assumption? What are the consequences of being wrong? Companies must identify the most critical unknowns, and find ways to resolve them quickly and inexpensively.

Lastly, chapter 6, under the title of “Seek the Truth”, argues that myriad pressures in organizations push people toward interpretations of results that are comfortable and convenient rather than analytical and dispassionate. These pressures must be understood and overcome. Objectively assessing the result from an innovation initiative is difficult. It is critical to be aware of the emotions and biases that can distort interpretations of progress. The most common bias, and the most critical one to fight, is overcommitment to the original innovation plan. This bias is particularly prevalent in companies with strong performance cultures, in which falling short of the plan is equivalent to failure. Innovation leaders should face mixed accountabilities-for results, actions, and learning-customized to the innovation plan and the nature of the uncertainties it faces. Holding someone accountable for learning requires close observation of the planning process and evaluation of whether the experiment is being run in the most disciplined possible manner. To attract the best leaders to innovation initiatives, companies must create the right mix of incentives. They must offer at least modestly positive rewards when initiatives fail despite good leadership. The planning process for an innovation initiative is quite distinct from the planning process of the Performance Engine. It must be a rigorous learning process. It must

emphasize hypotheses and assumptions, not data and precedents; it must question fundamental assumptions monthly or quarterly, not annually; it must present outcomes as trends, not aggregate totals for long time periods; and it must highlight custom metrics, not standard ones drawn from chapters 4 through 6.

This book proposes a model for executing one innovation initiative. At this model’s foundation is a recognition that there are fundamental incompatibilities between ongoing operations and innovation. While Performance Engine seeks efficiency by making every task, activity, and process repeatable, innovation is by nature nonroutine and uncertain.

According to this book, some CEOs fear high aspirations. They are fated to mediocrity. Those that have the courage to aim high must renew their commitment to innovation. In the new era, the word innovation will convey breakthrough solutions for a peak world population of nearly 10 billion people, all striving for a better life, all facing the realities of a crowded and constrained planet. Corporations face many pressures to act in a socially responsible manner. In conclusion, the real innovation is to implement the new ideas under various pressures and challenges.

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**The Theory and Practice of Innovation Policy: An International Research Handbook, Edited by Ruud E. Smits, Stefan Kuhlmann and Philip Shapira, PRIME Series on Research and Innovation Policy in Europe, Edward Elgar (2010), 481 pages, ISBN: 9781845428488**

There are two prevailing perspectives on innovation throughout this book, a ‘system’ and a ‘learning’ perspective. In fact, these are not new. Since the 1990s, maybe even the late 1980s, many books about