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

innovation have adopted these perspectives. The peculiarity of this book, distinguishing it from most other books, is that these two perspectives are applied to three 'dancing partners', innovation practice (I), innovation policy (P) and innovation theory (T).

Innovation is not only an effect of new combinations. According to a system perspective it is a complex social phenomenon that, in an interdisciplinary context, can be conceptualized as a multi-actor and multi-level game. The phenomenon can be better understood by analysing the interaction between the three dancers, their interaction and their interactive learning. The book builds on "a basic assumption that the ideas, rationales and instruments of innovation emerge as a result of interactive learning among IPT" (p7) in the innovation system with social, economic and technological dynamics.

Learning is important in the dancing of the three partners. In the triangle of IPT one can observe various ways of learning: learning by searching, learning by interacting, learning by using, formal learning. Through these ways of learning, IPT continuously create and change their configuration on the 'dance floor', the space where the interactive learning occurs, as the dancers observe and react to other partners' movements.

This book emphasizes that such changes of IPT's configurations shouldn't be understood as a 'co-evolutionary' process in a biological meaning of the word. Configuration changes among IPT are mediated or bridged by learning processes, while 'co-evolution' would suggest "that change in one sphere directly triggers change in another partner" (p452). The authors conclude that the core aspect of innovation policies is to favourably stimulate some system conditions in order to make a wide range of learning processes occur (p452).

Learning, in a system perspective, differs from seeing it in linear perspective. In a linear model of innovation learning means the capability of producing new knowledge, while in a system model it means "a capacity to select, acquire and handle knowledge and turn it into useful applications rather than to produce new knowledge" (p461).

In order to understand and influence the configuration changes through interactive learning among IPT a government can draw on 'strategic intelligence' such as technology assessment, technology foresight and policy evaluation. Strategic intelligence is needed "to stimulate innovation processes in an early stage and take care that all relevant actors have access to and are provided with the information they need to play their role" (p461). Accordingly, a government should build, develop, and reinforce relevant strategic intelligence infrastructures to raise up the capability of the innovation system.

Another peculiarity of this book is its emphasis on 'practice' in the IPT configuration. There are many books addressing innovation theory or innovation policy but few address innovation practice explicitly. Other books regard practice as a by-product of policy implementation: practice is treated as a kind of effect of financial and human investments, uncoupled from theory, which is only connected with policy.

Among the core concepts to understand innovation are 'technological regimes' and 'governance'. These concepts not only place emphasis on implicit and uncodified forms in innovation such as routines, norms, rules of the game, cognition, socio-cultural factors but also suggest that 'soft' forms of governance may play as a critical role in exercising innovation as 'hard' or 'explicit' forms do, like law, material resources, personnel. Innovation practice involves the soft sides as stated above, so one has to pay attention to practice if one wants to understand the nature of innovation. In addition, tacit knowledge or informal knowledge that constitute core elements in interactive learning processes transferred by 'practice'.

Innovation practice, more specifically norms, emerges through two types of learning, 'first-order or second-order learning'. In first-order learning "the norms themselves remain unchanged" (p7), IPT are learning while they are dancing accepted music. On the other hand, in second-order learning, new music is introduced to the dance floor "by restructuring and changing the norms themselves so as to escape tunnel vision and cross borders" (p7).

Interactive learning and practice are functional elements of a system model of innovation, necessary to understand the dynamics of innovation processes. Other

than the linear model, a system model allows for more 'new combinations', more options and opportunities for innovation policy, and lay a foundation for a 'holistic view of policy-making': Many European countries, especially Sweden and Netherlands, have adopted a system model perspective and applied it to the legitimation, design and implementation of their innovation policy. Still, in spite of the conceptually accepted importance of the system model, in reality policy makers still rather derive innovation policies from a linear model perspective. Why?

According to this book, the reason is that "the popularity of the linear model not only is caused by the lack of practical alternatives, it also reflects the tendency of bureaucratic organisations to segmentate interlinked fields of action in order to minimize the span of control and responsibility" (p460). Moreover, the popularity of the linear model may be compounded by weaknesses of system model itself like these: "the still too static nature of the innovation systems approach, the underdeveloped insight in the role of actors at the micro level, how they are framed by the system and – in turn – impact on the system and the consequences for policy in terms of concepts, strategies and instruments" (p458).

This book sees innovation from the view point of interaction among three dancers and even defines it as the "'innovation policy dances' between innovation practice, theory and policymaking" (p7). Is the IPT metaphor useful? Why is the IPT metaphor used while the border lines between IPT remain blurred and the domains of IPT are overlapping?

The answer to this question relates to the three major goals of the book: "First, to improve and update our understanding of the interactive relationship between innovation policy, theory and practice. Second, to search for options that can improve the added value, effectiveness and efficiency of policy and innovative practice. Third, to offer critical perspectives to inform ongoing discussions about the dynamics of innovation systems and related policies, as well as to generate questions that can guide future research" (p450). The extent to which these goals are accomplished depends on the judgment of readers.

The book consists of four parts. The first part refers to "basic driving forces of innovation practice, theory and policy" (p14), and more specifically, discusses the changing modes of knowledge production, the changing role of the firm, and the globalization. The second part examines "the conceptual evolution of the systems perspective as a result of various innovation policy dance configurations" (p15), and more in detail, explores the rationales for public innovation policy intervention in the system approach, the functionality of innovation systems as a rationale and guide to innovation policy, and the interactive learning of innovation theory, policy and practice taking the Swedish agency for innovation systems as an example. The third part investigates "an inevitably heterogeneous variety of ongoing and new issues" (p15) of innovation policy, and in particular, deals with the relationship between innovation and small and midsize enterprises in terms of innovation dynamics and policy strategies, the regulatory policies and framework for supporting innovation, the interdependence between civilian and military innovation systems, the demand-oriented innovation policies, the service sector innovation, the evolution of innovation paradigms and innovation related policy instruments. The fourth part focuses on "the new dynamics in the innovation policy dance partly as a consequence of mutual learning, partly due to changes in the external environment" (p17), and more specifically, addresses the relation of innovation and inequality, the contribution of SI (Strategic Intelligence) to IPT taking TA (Technology Assessment) as an example, the system-evolutionary approach for innovation policy, the differentiation between strategic policies and systemic instruments. The book ends with an overall summary and outlook. The authors claim to have presented "a coherent, theory-based vision of the interrelated dynamics of IPT rather than to provide an all-encompassing review of the state of art of IPT" (p14).

Notwithstanding its several virtues, the weak point of this book is that it concentrates on European cases (and some North American experience). Other cases, like East Asian countries, are not covered. This bias may be understandable given that this book was published as a part of the PRIME series on research and innovation policy in Europe (PRIME was a EU-funded

'Network of Excellence' on research and innovation policy). However, the absence of other countries' cases still remains the weak point considering the subtitle of this book, 'an international research handbook'.

Notwithstanding this shortcoming, this book can be recommended to policy makers, scholars, and practitioners. For policy makers, it provides conceptual knowledge and a lot of examples of innovation policy occurring in other countries. These examples will help them to design relevant innovation policy approaches for their countries without wasting much cost and time. For scholars, the book suggests plenty research topics to be handled in the future in order to extend our knowledge of innovation systems. For practitioners, it shows how policy and theory are developed and applied to the private and public spaces of innovation, like firms and government institutes, and how relevant results of innovation evolving.

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