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INNOVATION *as* LANGUAGE ACTION

By learning seven foundational practices, anyone can become a skillful innovator.

Something big is missing in our understanding of innovation.

Popular magazines annually venerate top innovators with special articles and profiles of the "Top 50" or "Top 100." The Amazon.com Web site lists 8,400 books with "innovation" in their titles. Books on innovation are frequent bestsellers—for example, Christenson's *The Innovator's Dilemma*, Foster's *Creative Destruction*, and Slywotsky's *Value Migration*. Our technology and business graduates have been steeped in stories of technologies that changed the world—and many dream of one day doing likewise.

Despite all the experience and advice recorded by ten thousand authors, 96% of innovation initiatives fail (*Business Week*, Aug. 1, 2005, "Get Creative"). That's an abysmal 1-in-25 success rate. Many people are openly dissatisfied with their ability to get the wisdom of the literature to work for them. Our own students and clients complain often about their technological innovations not being accepted and used. They are baffled, as were we, by the reality that the best ideas often did not make it and many were pushed aside by worse ideas. What is missing? What does it take to help a good technology "win"?

We believed that innovation takes place in an "ecosystem" comprising an environment interacting with individuals. If the environment is too restrictive or individuals lack certain skills, attempts at innovation will fail. Our search of the literature yielded many conclusions about the environment, but very little about individual skills beyond "innovators must be risk-tolerant and lucky." There seemed to be a consensus that innovation is driven by processes beyond human control and that innovation failures greatly outnumber successes—in other words, that skill makes little difference.

The evidence contradicts that conclusion. Masterful, repeat innovators are too numerous to ignore. The innovator's skill is much more important than is generally believed. If we could identify the elements of the skill, our students and clients could learn them through practice. They then would see more of their ideas adopted. Their organizations would see improvements in their success rates.

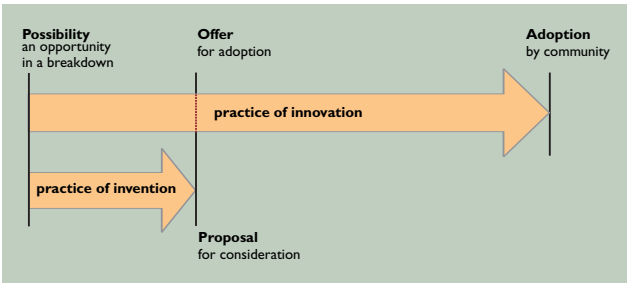

Figure 1. Invention and innovation.

We set out to discover what the innovator's skill is and how to teach it to our clients and students. We found that the key is to understand innovation as adoption of new practice. It is distinct from invention. Language-action, which shows how action is initiated and shaped by conversations, eventually led us to the interaction patterns at the core of the innovator's skill and the practices needed to master them. We have been teaching these personal skills successfully to our clients and students for over 15 years. The "culture of innovation" so ardently sought by organizational leaders arises from the collective behavior of individuals who are competent in these practices.

You can learn these skills. With practice you can become a competent innovator. Your leverage is high: improving your success rate to 5% puts you 25% ahead of your competition. Even if you are not willing to engage with the practices, an awareness of what they are will already help you and your organization improve your prospects of innovating.

Invention is Not Enough

The first challenge is to settle on a clear definition of innovation. Dictionary definitions are not much help: they vary from clever inventions to mass adoption of products. The lack of clarity is partly responsible for the inability to teach and learn innovation as a skill. The wrong definition leads to the wrong skill.

The language-action framework encouraged us to make an operational definition—one that is observable and executable. How do we know for sure when an innovation has happened? It is simple: we observe that *a group or community has adopted a new practice*. Peter Drucker linked innovation to adoption of new practices in the 1950s and Everett Rogers in the 1960s [3, 8]. Harold Evans stresses it in all his stories about innovators [4]. With this definition, adoption becomes executable when we find the actions that produce it.

The word "practice" is very important. It refers to habits, routines, and other forms of embodied recurrent actions taken without consciousthought. Spreading ideas is not enough to get people to change their habits. Innovators induce changes of habit by offering and supporting new tools or processes perceived as high value by adopters.

Invention is different from innovation. Invention means to create something new, but does not require that anyone accept or adopt it. The stories of innovators demonstrate that the inventor and the innovator are often not the same person. Gary Kildall built the first personal computer operating system, CP/M, in the late 1970s. Bill Gates took an imitation, DOS, into the standard operating system for the IBM PC and later for 90% of all PCs. Kildall was the inventor, Gates the innovator. Harold Evans tells the stories of numerous unheralded innovators who turned famous inventions into standard infrastructures; for example, Samuel Insull took Edison's inventions into modern electric power generation and distribution [4].

The Patent Office offers compelling evidence of a fundamental difference between invention and innovation. Peter Drucker says that no more than one in 100 patents earns enough to pay back its development costs and patent fees, and no more than one in 500 recovers all its expenses.

Many people suffer great expense and frustration because they think clever ideas are innovations. They live in the vain hope that their invention will be recognized and adopted. The literature reinforces this mistaken belief by singling out as examplars rare successes, such as the zipper, the ballpoint pen, the paper clip, or the aerosol spray can, and ignoring the many failures. Many research labs churn out large numbers of bright ideas in order to find the few that will pay

off big enough to make up for all the failures. The cleverness of an invention or the existence of a patent is a poor gauge of innovation.

Although invention and innovation are not the same, they have common aspects (see Figure 1). Both inventors and innovations start with a possibility. The inventor turns the possibility into an idea, artifact, patent, or process and proposes that others consider it. The innovator turns the possibility into an offer for adoption and then follows it through to adoption. In fact, as we will see shortly, the practice of invention is the first three of the seven practices of innovation. Many innovators bypass the work of invention by taking up what inventors have already proposed.

These distinctions have been lost in common thinking. To many, innovation means "a novel invention." An unfortunate consequence of this muddle is that many people believe that the skill of innovation can be cultivated by teaching the mental skills of invention such as puzzle solving, conceptual blockbusting, or creative thinking. They are invariably disappointed when they find these skills do not produce adoption of their inventions.

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The Many Forms of Innovation

The inspiring stories of great innovators can mislead us into thinking that innovation is always unusual, good, big, fast, or radical. However, this is not so:

Usualness. Innovation is a normal human process—almost everyone is looking for better ways to do everyday things. There is nothing unusual about it. The bulk of innovation in the developed world comes from small businesses with limited clientele. Celebrity innovators are responsible only for a tiny fraction.

Goodness. Innovation can have negative consequences. A bad innovation can be abandoned because a post-adoption evaluation concluded it was unsustainable.

Size. The size of an innovation is the number of people who adopt. Innovations come in all sizes. A workgroup of 4 can adopt a new email practice, a city of 40,000 a new traffic pattern, a nation of 4,000,000 a new Internet culture. Smaller innovations are much more common than larger—typically, doubling the size yields one-fourth as many innovations. A beginner at innovation typically produces small ones, an expert much larger ones.

Speed. Innovation takes time. Some people adopt faster than others. Rogers divided adopting populations into five groups: inventors, early adopters, early majority, late majority, and laggards. The overall speed of adoption depends on the relative advantage perceived by adopters and the severity of barriers. People adopt for all sorts of reasons besides economic advantage—for example, self-esteem, lifestyle, survival, longevity, or professional reputation.

Radicalness. Most innovations are incremental. The radical innovations—they change our interpretation of the world—are atypical and unusual. The ATM changed banking practice but did not change how people saw themselves as human beings. The computer is said to be radical because, through its instant worldwide communications, it is changing us from locally aware beings to globally aware beings.

Toward a Generative Framework

One of the ways we understand a practice or skill is through a framework that offers a high-level view of how it works. The vast literature on innovation offers three main frameworks: theoretical, empirical, and generative [10]. Theoretical frameworks, such as Drucker's principles of innovation [3] or Klein and Rosenberg's chain-linked process model [5], and empirical frameworks such as Rogers's diffusion model [7], are good for revealing the overall structure of innovation process and the areas most deserving of the innovator's attention. But they are not good for telling the innovator what skills to build, how to practice them, or how to deal with breakdowns that will be encountered in the process.

In contrast, a generative framework tells the innovator exactly what actions are needed to cause innovation and specifies them in a way they can be learned and executed. These actions are the focus of practice for improving one's skill at innovation. Generative frameworks have been used in other areas. For exam-

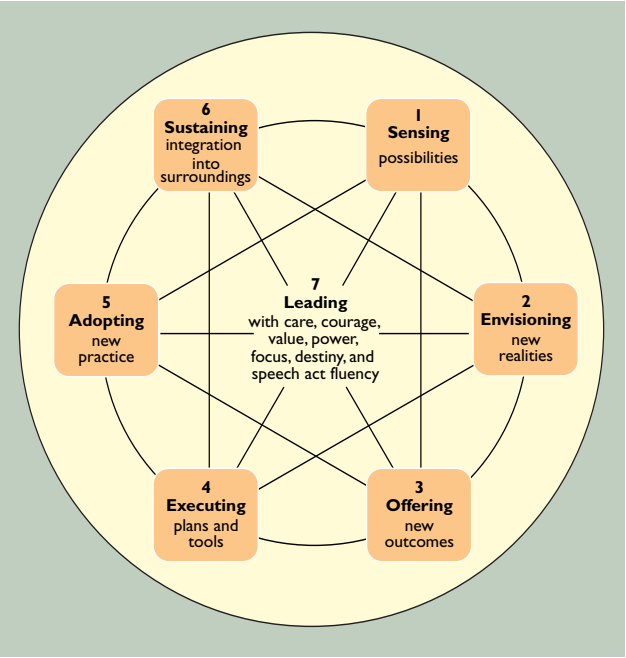

Figure 2. Anatomy of innovation.

ple, Stephen Covey's *The Seven Habits of Highly Effective People*, Robert Kelley's *How to be a Star at Work*, and Daniel Goleman's *Working with Emotional Intelligence* are generative frameworks for workplace success. In *Recapturing the Spirit of Enterprise*, George Gilder offers a generative framework for innovation, but it is incomplete.

Generating Innovation Through Language Action

Our framework, Personal Foundational Practices, is generative [2]. It tells us what actions produce the intended outcomes (adoptions), what interaction patterns produce those actions, how the interaction patterns can be learned and practiced, and how to cope with breakdowns that block actions from completing.

The theoretical basis for the framework is language-action philosophy, a branch of linguistic philosophy begun by John Austin in the 1940s. The central claim of the language-action framework is that purposeful actions and interpersonal coordination are the results of commitments people make in conversations. In *Understanding Computers and Cognition*, Terry Winograd and Fernando Flores wrote, "in this view language ... is no longer merely reflective but rather a constitutive medium. We create and give meaning to the world we live in and share with others." This has profound implications. We can analyze a set of outcomes to reconstruct the conversation patterns that produced them. We can design and practice patterns that lead to the desired outcomes. If we don't like the outcomes, we can modify the conversations we are in or we can enter into new conversations.

In the language-action framework, "conversation" refers to any sort of interchange within a group of two or more people. Conversation is not just talk; it also produces and shapes action. Conversation includes verbal and non-verbal aspects.

The non-verbal aspects are perhaps more important than the verbal. Humans communicate not only with words, but with gestures, facial expressions, body movements, tones and inflections of voice, subtle shifts of energy, and more. We use the term "somatic" for all the non-verbal forms of interaction. In fact, over 90% of the cues to which people respond, even in active dialogues, are somatic [6]. Flores insisted

Generative practices of innovation.

Practices	Key Aspects	Characteristic Breakdowns
Sensing Possibilities	Sensing and articulating opportunities and their value in a community. Seeing possibilities in breakdowns. Being sensitive to disharmonies.	Blindness. Inability to move from sensing to articulation, to hold the thought, or to see opportunities in disharmonies.
Envisioning New Realities	Speculating about new worlds in which an opportunity is taken care of; and means to get there.	Inability to tell vivid, concrete, compelling stories or to design plans of action.
Offering New Outcomes	Proposing new rules and strategies of play that produce the new outcomes. Listening to concerns then modifying proposals for better fit. Establishing credibility in one's expertise to fulfill the offer.	Missing awareness of and respect for customers. Inability to listen, to enroll people, to articulate value, or to see people as fundamental in the process. Unwillingness to modify proposals in response to feedback.
Executing Plans and Actions	Building teams and organizations. Carrying out action plans for reliable delivery.	Failure to manage commitments, satisfy customers, deliver on time, or build trust.
Adopting New Practice	Demonstrating value of proposed adoption so that others can commit to it. Becoming aware of power structures and community interests to determine fit. Aligning action plans for coherence with existing practices, concerns, interests, and adoption rates of community members. Developing marketing strategies for different groups. Recruiting allies. Overcoming resistance.	Forcing adoption through compulsion. Failure to anticipate opposition, to anticipate differing adoption rates of segments of community, or to articulate the value from adopting. Lack of enabling tools and processes for adoption.
Sustaining Integration	Developing supporting infrastructure. Aligning new practices with surrounding environment, standards, and incentives. Assessing related innovations for negative consequences. Abandoning bad innovations. Discontinuing after end of useful life.	Failure to plan for support and training, to change enabling tools and systems, or to align incentives with the new practices.
Leading	Declaring new possibilities in ways that people commit to them. Moving with care, courage, value, power, focus, sense of larger purpose (destiny), fluency of speech acts.	Inability to listen for concerns, offer value, work with power structures, maintain focus, operate from a larger purpose, or perform speech acts skillfully.
Attending to Somatics	Working with the somatic aspects of communication and commitment. Ascending the ladder of competence. Connecting with people. Producing trust. Developing an open and inviting "presence." Blending with concerns, energies, and styles of others.	Inability to read and respond to body language, gesture, etc. Inability to connect and blend. Failure to recognize and overcome one's own conditioned tendencies, to appreciate differing levels of skill and their criteria, or to engage in regular practice in the other practice areas.

that his clients and students understand "conversations" as interactions combining verbal and somatic patterns. Richard Strozzi Heckler emphasizes the same point [11].

All this applies to innovations. We can work our way back from observed outcomes (adoptions) and find the interaction patterns that produce them. This analysis is the gateway to understanding innovation as a set of learnable practices.

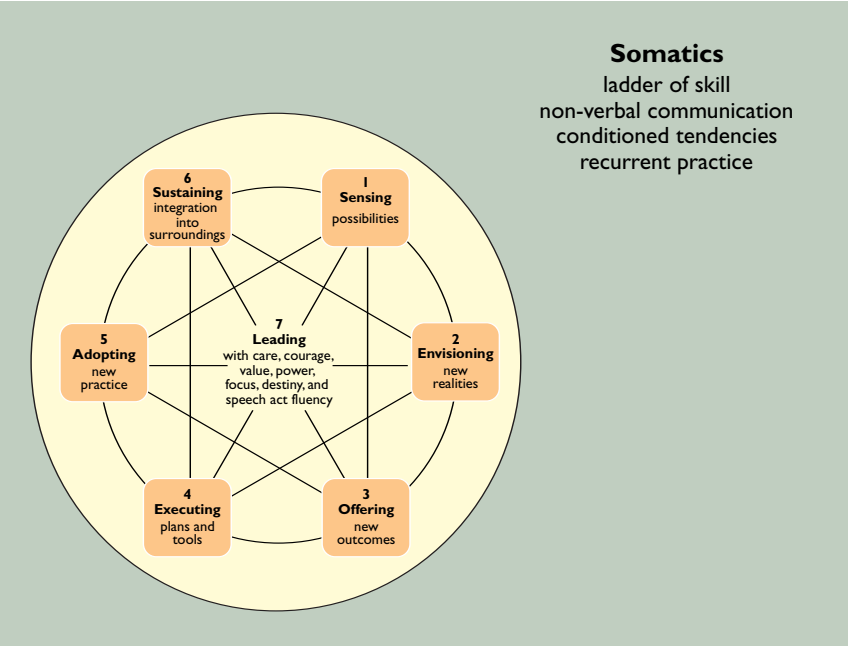

Figure 3. Somatic practices surround others.

The Seven Foundational Practices

Our main sources for discovering the generative practices of innovation have been narrative stories of innovators; these stories reveal the conversations in which innovators participated and the kinds of interactions they excelled with. Good sources are Billington [1], Evans [4], Rogers [7], and Tedlow [12]. Stories focusing mainly on the mechanics of inventions and technologies were not useful.

From these sources we discerned a distinctive, recurrent pattern of generative practices driving every innovation (see Figure 2). While innovators brought sharp differences of personality, style, humor, character, charisma, extroversion, introversion, optimism, and pessimism, they were all skilled in the same seven practices.

The wheel of Figure 2 shows six basic innovator practices around the rim and leadership at the hub. Each has a particular structure of conversations and actions. The first two (sensing and envisioning) are the heart of invention. The fourth through sixth (executing, adopting, and sustaining) are the main work of adoption. The third—offering—is the crucial turning point between pure invention and innovation: the innovator proposes to bring the new idea into the world and generates trust in his or her expertise to do so.

The six practices on the rim of Figure 2 are a progression but are not sequential steps. Innovators move forward and backward among them as they blend and adapt to what they are learning. They are more like parallel processes. You can improve your skill of innovation by practicing them in any order.

An example will help clarify what we mean in Figure 2 by a practice. The sensing practice has a verbal aspect that consists of looking systematically at Drucker's seven sources of opportunity [3] and at marginal or anomalous practices [10]. The somatic aspect, called "presencing" by Peter Senge et al., is about becoming aware of, and then articulating, vague feelings of unease when disharmonies appear [9]. The practices consist of exercises of using the checklists and of recognizing, holding, and responding to the feeling of unease. Each practice of Figure 2 can be elaborated in this way, as verbal and somatic components.

Although every practice has its somatic aspects, advanced innovators will study somatics as an eighth, deeper practice that surrounds the other seven (see Figure 3). Strozzi Heckler gives an overview [11] and Samson predicts that a whole profession will develop around this skill [8].

The table here provides more details about each area of practice. It also summarizes the typical breakdowns that innovators must cope with. In our work with students and clients, we break out the table elements into the components of conversations, actions, speech acts, and somatic skills.

Examples

We will illustrate the innovation practices with two examples. The first is about Tim Berners-Lee, who invented the first Web browser, protocols, and services and then worked to bring about their widespread adoption. From the detailed accounts in his book, *Weaving the Web*, we can see him exercising each of the practices. In the 1980s he *sensed* a disharmony between the actual direction of the Internet (email and file transfer) and its promise (sharing of all human knowledge). He *envisioned* a system

wherein anyone could hyperlink any document to any other; a mouse-click would cause the system to retrieve a linked document from any location. In 1990 he *offered* to build such a system at CERN, and in 1991 to help the hypertext research community set up Web servers. He *executed* by putting together programming teams to develop good Web software and make it available for anyone to use. He *stimulated adoption* by visiting many sites and attending many conferences to tell people about his system, always soliciting new software, servers, and browsers. In 1993, Marc Andreesen, a student at University of Illinois inspired by Berners-Lee, developed Mosaic, the first universal, easily installed graphical browser. Thereafter, users' adoption of the Web spread like wildfire. In 1994, Berners-Lee founded the World Wide Web Consortium, hosted by MIT and CERN, to support *sustainable integration* of the Web in systems worldwide and to preserve the Web in the public domain by creating open software and standards for the Web. Throughout, he *exercised leadership* and recruited ever-larger numbers of followers and Web supporters. He articulated a small set of guiding principles for Web development and stuck with them. He refused to let the Web "go private" or to become wealthy from his own invention. He said the cause was too important and too big for his personal considerations to get in the way.

The second example is blogging, the practice of providing one's diary or regular commentary via a "Web-log" Web site. The idea first appeared in 1997. Open source software developers contributed tools that helped bloggers create Web sites and readers manage their subscriptions. The idea propagated via Internet discussion forums and was given a big boost in 2001 when the mainstream news media reported that bloggers were influencing political debate. In 2005, the number of blogs was estimated at 50 million. This example is interesting because there was no single inventor or innovator, only a community coordinating through Internet discussion groups. The seven practices were there, distributed among many people, but no one took responsibility for the whole. It is difficult to say how common "distributed innovation" of this sort will be in the years ahead.

Conclusion

Our main claims are:

- Innovation occurs when a group or community adopts a new practice.
- Invention and innovation are different skill sets.
- The language-action framework helped identify seven practices that constitute the innovation skill set.
- Anyone can learn the innovation skill by mastering the seven personal practices.

In the popular view, innovation is the product of the fertile, creative mind, the work of the "lonely genius": a cognitive process. Our framework shifts the emphasis to interaction. Innovation means not only that a group or community adopts new practices of interaction, but the way to arrive there is through seven kinds of interaction with those groups and communities.

Internet technologies can help the innovation process by communicating ideas, coordinating those who are working toward adoption, and distributing software and data. These are, however, only facilitating technologies. The outcome (people adopting new practice) is still brought about by people who embody the verbal and somatic skills shown in Figure 2. Technology cannot replace them.

We believe that the seven foundational practices are the missing link in our understanding of innovation. We have been teaching them to students and clients for over 15 years. We have seen dramatic improvements in their results. The same can happen for you. C

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