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## ON INNOVATION

Drucker (2002), a well-known pundit in the field of business, wrote his book on innovation and entrepreneurship more than 20 years ago. In 2002, when his Harvard Business Review article was published, his ideas on the subject were just as relevant as there were when he first put pen to paper two decades ago.

*Innovation is the key to competitive advantage.*

Drucker identifies seven sources of innovation – four internal to the company and three external:

1. Unexpected occurrences (internal). Drucker considers unexpected successes and failures to be excellent sources of innovation because most businesses usually ignore them. IBM's first accounting machines, ignored by banks but later sold to libraries is an example.
2. Incongruities (internal). The disconnect between expectations and results often provides opportunities for innovation. The growing market for the steel industry, coupled with falling profits margins, enabled the invention of the minimill.
3. Process needs (internal). Modern advertising permitted the newspaper industry to distribute newspapers at a very low cost, increasing readership (process need) dramatically.
4. Industry and market changes (internal). Deregulation of the telecommunications industry created havoc in the industry but provided ample opportunity for innovation.

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*The introduction of a robot that can take the place of a human is an example of disruptive innovation.*

5. Demographic changes (external). Japanese businesses surveyed changing demographics and made the determination that the number of people available for blue-collar work is decreasing. They have taken a leadership position in the area of robotics – a disruptive technology - as a result. However, they are not stopping at robotics for manufacturing. Sony's QRIO robot is an example of the future of robotics.

6. Changes in perception (external). Although Americans are healthier than ever before, according to Drucker they worry more about their health. This change in perception has been exploited for innovative opportunity. An example is the proliferation of web-based health sites, such as webmd.com.

7. New knowledge (external). This is the traditional source of innovation. The first car. The first computer. The printing press. This source of information usually leads to more radical innovation than the other six sources mentioned by Drucker. There are two types of innovation based on new knowledge – incremental and disruptive (Managing Creativity and Innovation, 2003). An example of incremental innovation is the Pentium IV chip. There was a Pentium III that preceded it. Therefore, the Pentium IV represents just a slight increment of innovation over the III. On the other hand, a radical innovation is something totally new to the world, such as transistor technology. However, technological innovation does have one draw-back – it takes much longer to effect. For example, while

computing machines were available in the early 1900's, it wasn't until the late 1960's that they were commonly used in business (<http://www.computer.org/computer/timeline/timeline.pdf>).

Drucker's framework for innovation is quite comprehensive. Most would agree with his assessment, although would use different categories for the sources. Palmberg (2004) asserts that innovation depends on the characteristics of the market and broader environment in which the firm operates. Palmberg disagrees with Drucker's distinction between internal and external sources, saying that the distinction is artificial since collaboration and in-house activities are not mutually exclusive. Palmberg proposes six categories: generic, science-based, competitive, customer-oriented, regulatory, and technology oriented.

#### **GENERATING INNOVATION**

Whether innovation is demand-led or supply-pushed is a topic of considerable debate, according to the definition of innovation found on Wikipedia (<http://en.wikipedia.org/wiki/Innovation>). Wikipedia is a good example of innovation that is both. There was a demand in the marketplace for a free, web-based encyclopedia. The technology of the Internet and the concept of the wiki, a web-application that lets users add and change content (<http://en.wikipedia.org/wiki/Wiki>), is an excellent example of supply-pushed. The wiki was conceived and developed by Ward Cunningham in the middle 1990's.

Steve Lipscomb's World Poker Tour (Olmstead, 2005) is another example. Poker has taken America by storm, largely because of Lipscomb's innovative approach to the once seedy concept of the poker tournament.

Both Lipscomb and Cunningham have what Drucker would refer to as entrepreneurial personalities, but would be more commonly categorized as innovative or creative. Drucker's framework for sources of innovation is worthless without someone seeing these opportunities for what they are.

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*A variety of techniques can be used to stimulate creativity and innovation.*

Drucker's article, therefore, falls short of actually describing how to generate the entrepreneurial or innovative personality.

Couger, McIntyre, Higgins and Sow (1991), suggest a process for generating innovation via a series of bottom-up creativity techniques. A brief list of the best of these techniques follow:

1. Brainstorming - This technique is perhaps the most familiar of all the techniques discussed here. It is used to generate a large quantity of ideas in a short period of time. My company often brings in consulting experts, partners and others to brainstorm along with us.
2. Blue slip - Ideas are individually generated and recorded on a 3"x5" sheet of blue paper. Done anonymously to make people feel more at ease, people readily share ideas. Since each idea is

on a separate piece of blue paper, the sorting and grouping of like ideas is facilitated.

3. Extrapolation - A technique or approach, already used by the organization, is stretched to apply to a new problem.

4. Progressive abstraction technique - By moving through progressively higher levels of abstraction, it is possible to generate alternative problem definitions from an original problem. When a problem is enlarged in a systematic way, it is possible to generate many new definitions that can then be evaluated for their usefulness and feasibility. Once an appropriate level of abstraction is reached, possible solutions are more easily identified.

5. 5Ws and H technique - This is the traditional, and journalistic, approach of who-what-where-when-why-how. Use of this technique serves to expand a person's view of the problem and to assist in making sure that all related aspects of the problem have been addressed and considered.

6. Force field analysis technique - The name of this technique comes from its ability to identify forces contributing to or hindering a solution to a problem. This technique stimulates creative thinking in three ways: 1) it defines direction 2) identifies strengths that can be maximized and 3) identifies weaknesses that can be minimized

7. Problem reversal - Reversing a problem statement often provides a different framework for analysis. For example, in

attempting to come up with ways to improve productivity, try considering the opposite, how to decrease productivity.

8. Associations/Image technique - Most of us have played the game, at one time or another, where a person names a person, place or thing and asks for the first thing that pops into the second person's mind. The linking of combining process is another way of expanding the solution space.

9. Wishful thinking - This technique enables people to loosen analytical parameters to consider a larger set of alternatives than they might ordinarily consider. By permitting a degree of fantasy into the process, the result just might be a new and unique approach.

#### **CONCLUSION**

Drucker's (2002) conceptual framework provides a good list of sources of innovation that the business manager might use to jump-start the process of inducing creative thinking in the organization. However, sources alone are not sufficient. Employees must be trained to be able to seize any opportunities that present themselves.

### *About Jessica Keyes*

Jessica Keyes is president of New Art Technologies, Inc., a high-technology and management consultancy and development firm started in New York in 1989. She is also the founder of New Art Press, a publisher of technology and business books.

Keyes is a frequent keynote speaker on the topics of competitive strategy and productivity and quality. She is former advisor for DataPro, McGraw-Hill's computer research arm, as well as a member of the Sprint Business Council. Keyes is also a founding Board of Director member of the New York Software Industry Association. She has recently completed a two-year term on the Mayor of New York City's Small Business Advisory Council. She is currently a professor of computer science. She is the former editor-in-chief of CRC Press' *Information Management and Systems Development Management*.

Prior to founding New Art, Keyes was Managing Director of R&D for the New York Stock Exchange and has been an officer with Swiss Bank Co. and Banker's Trust, both in New York City. She holds a Masters of Business Administration from New York University where she did her research in the area of artificial intelligence. She is currently pursuing her doctorate.

A noted columnist and correspondent with over 200 articles published, Keyes is the author of 20 books on wide-ranging topics from competitive use of information technology to balanced scorecard.

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